

STATE OF NEW HAMPSHIRE

Inter-Department Communication

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FROM: Leszek Stachow, Analyst



SUBJECT: DT 11-061 New England Telephone Operations LLC d/b/a FairPoint
Communications-NNE
Petition for approval of Simplified Metrics Plan and Wholesale
Performance Plan.

TO: Commission
Debra Howland, Executive Director

Attached is the Liberty Consulting Group Audit Report of FairPoint Communication's wholesale performance assurance plan and metrics, dated December 19, 2012. As directed by letter of the Executive Director dated December 21, 2012, FairPoint identified 2 pages in the 165 page report which contain confidential information and have been redacted from this filing.

Copies of the Audit Report containing the confidential information are being filed electronically for distribution within the Commission.

**Audit of FairPoint Communications'
New Hampshire Wholesale Performance Assurance Plan and Metrics
Final Report**

Prepared for:

The New Hampshire Public Utilities Commission Staff

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I. Executive Summary

The New Hampshire Performance Assurance Plan (PAP) is a self-executing remedy plan to ensure that FairPoint provides quality wholesale services to competitive local exchange carriers (CLECs). The PAP provides for CLEC bill credits based on FairPoint's performance as measured by a set of performance measurements (metrics). FairPoint inherited this plan from Verizon but without the underlying processes and computer code necessary to implement and operate it. The PAP was designed with many complex mechanisms and based on metrics with complicated definitions and business rules that are not easy to implement. Furthermore, FairPoint attempted to create the processes and systems necessary to implement the PAP along with a major implementation of new operations support systems, which subsequently were subject to notable failures.

The New Hampshire Public Utilities Commission (Commission) chose The Liberty Consulting Group (Liberty) to audit FairPoint's implementation of the PAP and the reported metric values and bill credits during 2011. The Commission also requested Liberty to recommend revisions to the PAP. The audit was restricted to an assessment of 105 of the sub-metrics used in the PAP (the "in-scope" metrics). FairPoint calculates most of these metrics (the "automated" metrics) using its metric analysis system (the Carrier Analysis Measurement Platform); FairPoint calculates the rest using manual processes (the "manual" metrics).

The audit began with initial meetings and interviews involving Liberty, the Commission Staff (Staff), and FairPoint during October and November 2011. Liberty also started gathering data about the PAP and metrics at this time. Liberty submitted a work plan for Staff's review in December 2011. The Staff approved a revised version of this work plan in February 2012. Liberty's audit included:

- Tracing samples of data for CLEC (wholesale) and FairPoint (retail) pre-ordering, ordering, provisioning, and maintenance and repair transactions from FairPoint's source systems into its metric analysis system
- Tracing FairPoint's transformation of these source data samples and creation of transaction-level derived data fields in the metric analysis system that store such things as calculated time intervals and flags to identify transactions to be included in the metric calculations
- Attempting replication of FairPoint's metric calculations using the transaction-level data in the metric analysis system
- Reviewing FairPoint's manual calculations and attempting replication of manual metric calculations
- Reviewing FairPoint's bill credit calculations and attempting replication of FairPoint's bill credits using transaction-level data from the metric analysis system
- Examining the actual application of bill credits using data from volunteer CLECs.

Liberty conducted the audit through numerous interviews of FairPoint personnel, both in person and via teleconference, and data requests. Liberty used these data requests to obtain metric and PAP process documentation, access the primary data transaction-level data and spreadsheets used in the audit analysis, check calculations, and clarify matters uncovered during the progress of the audit.

FairPoint did not begin retaining the specific transaction-level data used to calculate the metrics and bill credits until the August 2011 metric report month. This limited Liberty's ability to conduct the detailed review of the automated metrics prior to August. Liberty's audit, as stated in the approved work plan, therefore confined the detailed automated metrics review to two report months, August and December 2011. We audited many of the manual metrics, however, for several, and in some cases all, report months throughout 2011. Appendix A shows the audit months Liberty analyzed for each in-scope metric.

The following comprise the principal audit conclusions:

- FairPoint has developed metric systems and processes that are capable of correctly calculating the New Hampshire PAP and metrics, despite the obstacles noted above.
- FairPoint has implemented a change control process for the automated metric calculations.
- FairPoint's calculations of most in-scope metrics contain multiple defects that affect the accuracy of the metric calculations. Liberty found 115 defects across all the in-scope metrics, most of which FairPoint has acknowledged and has already fixed or plans to fix. These defects are listed in Appendix B together with Liberty's current understanding of any actions FairPoint has taken to resolve them.
- FairPoint began retaining most of the monthly transaction-level data used for automated metric calculations beginning in August 2011. This policy change significantly improves the ability to audit and otherwise review and recalculate reported metric values and bill credits beginning in August 2011. It is considerably more difficult, however, to reliably audit these quantities from report months prior to August 2011.
- Many of the individual defects in FairPoint's metric calculations can significantly affect the reported metric values and bill credits; however, FairPoint would need to recalculate the metrics and bill credits after correcting these defects to determine whether their combined impact has been material.
- FairPoint's process for reviewing and revising metric reports focuses only on wholesale metrics that fail to meet the standard.
- FairPoint's metric and PAP calculation systems and processes lack sufficient quality controls.
- FairPoint uses manual processes for many metrics that are error-prone and produce inaccurate metric calculations.

- FairPoint correctly implements most of the New Hampshire PAP bill-credit calculation requirements, but some implementation errors need correction.
- FairPoint issues bill credits that are the same as those reported in the PAP reports; these bill credits are issued in a timely manner.
- FairPoint incorrectly assigns some transactions to product classes needed for metric and bill credit calculations.
- FairPoint fails to transfer some source data needed for metric calculations to its metric analysis system.
- Some of FairPoint's metric calculations do not appear to be consistent with the official metric specifications in the Carrier-to-Carrier Guidelines, or these specifications are unclear.
- FairPoint's documentation of the New Hampshire PAP calculations is incomplete, inconsistent, and sometimes inaccurate.

Based on these conclusions, Liberty recommends that FairPoint:

- Correct the system problems and metric calculation logic errors that Liberty has identified; FairPoint has already begun making these corrections
- Enhance data retention policy by retaining some additional data that can help in researching past months' reported metrics
- Determine the net impact of the calculation errors on metric reports and bill credits during 2011, which may be difficult or impossible to achieve for most sub-metrics prior to August 2011 because of the status of data retention prior to that month
- Use a more complete and balanced process for reviewing and adjusting metric values
- Implement a quality control process for all aspects of PAP reporting
- Minimize the use of manual calculation processes
- Correct the flaws in the PAP statistical and bill credit calculations Liberty has identified
- Review and modify the process for identifying products and assigning internal product codes
- Implement controls that ensure that all source system records needed for metric calculation are included in the daily and monthly updates to the metric analysis system
- Review the metric guidelines and metric calculation business rules to ensure that the reported values provide the intended measurement of the wholesale and retail analog processes
- Review the current business rules, system, and process documentation to correct all errors and make the documentation complete and consistent with the calculation processes.

FairPoint indicated that it has acted upon or begun acting upon most of these recommendations.

Liberty also responds in this audit report to the Commission's request for PAP improvement recommendations. In doing so, we recognize that the Tri-State FairPoint PAP Collaborative has performed much work on this matter. We therefore largely confined our recommendations to general considerations that we hope will help the Commission in review of the work of this collaborative and possibly the conclusions of the Tri-State Collaborative itself.

As objectives for PAP improvements, Liberty recommends that in addition to the guidelines for performance assurance plans that the FCC established in its 1999 Bell Atlantic New York order, the PAP should:

- Be simple and straightforward
- Be transparent and easy to understand by all parties
- Minimize the burden on FairPoint in calculating and reporting the metric results and bill credits
- Minimize the burden on the CLECs and Commission in tracking and validating the results and bill credits reported by FairPoint
- Avoid complex calculations and data analysis and transformations that may generate erroneous results that are difficult to detect
- Allow the accuracy of reported results and payments to be easily auditable.

With these objectives in mind, Liberty recommends that the revised PAP:

1. Eliminate the complex and non-transparent mechanisms in the current PAP
2. Target penalties as much as possible to individual measurements and to individual carriers experiencing poor performance.
3. Adjust the dollars at risk from the current PAP values based on the change in the incumbent-owned lines, including both the incumbent's retail and leased lines.
4. Base penalty amounts on:
 - a. The importance of the process measured by each metric
 - b. The "magnitude" of the failures
 - c. How long the failures have continued for a metric.
5. Avoid having penalties based mainly on low-volume statistical testing by:
 - a. Eliminating metrics, sub-metrics, or product disaggregations that measure quantities that are not a significant or meaningful component of the New Hampshire competitive local exchange market
 - b. Collapsing product disaggregations
 - c. Aggregating results across CLECs
 - d. Aggregating results across time
 - e. Combining sub-metrics.

6. Avoid metric definitions requiring complex calculations and complicated data analysis
7. Minimize the use of diagnostic metrics.
8. Add new metrics when important processes are currently insufficiently monitored, but include them in the PAP as much as possible rather than making them diagnostic.

II. Introduction and Approach

A. Background and Purpose of the Review

The New Hampshire Public Utilities Commission (Commission) issued, on August 8, 2011, Request for Proposals (RFP) 2011-004, *New Hampshire Public Utilities Commission Proposal for a Consultant to Provide Technical Consulting Services*. This RFP sought proposals to conduct an audit of the wholesale services Performance Assurance Plan (PAP) that is produced and reported by Northern New England Telephone Operations LLC d/b/a FairPoint Communications – NNE (FairPoint). The Commission chose The Liberty Consulting Group (Liberty) to conduct this audit.

During October and November 2011, Liberty met with the Commission Staff (Staff) and FairPoint to clarify the scope of the audit, issued initial data requests of FairPoint for general information about the PAP and the metrics underlying it, and held initial interviews of FairPoint's staff members responsible for processing metrics data and calculating performance metrics and PAP payments. Based on the information obtained from these meetings, data requests, and interviews, Liberty formulated an audit work plan provided to Staff on December 16, 2011. Liberty revised the work plan, based on input from Staff, on February 17, 2012. This report documents Liberty's audit conducted in accordance with that work plan, describing the audit activities, analysis, findings, conclusions, and recommendations.

B. Overview of FairPoint's Performance Assurance Plan and Metrics

The New Hampshire PAP was originally developed and implemented by the former incumbent Regional Bell Operating Company (RBOC), Verizon. The Commission approved the current version of the PAP on August 19, 2005 in Order No. 24,504. FairPoint subsequently adopted the New Hampshire PAP as part of its acquisition of Verizon's assets, on March 31, 2008.

Like other RBOCs, Verizon developed its PAP as part of the process of satisfying the Section 271 provisions of the Telecommunications Act of 1996. The PAP was designed to be a self-executing remedy plan to ensure the company would provide quality wholesale services to competitive local exchange carriers (CLECs) after gaining entry into the long distance market. Verizon PAPs were approved in each of the jurisdictions in its original local exchange footprint from Maine to Virginia, including New Hampshire, as Verizon gained entry to the long distance market. These PAPs are largely identical in structure across Verizon's footprint, with the main variation being the magnitude of the penalties invoked for failing to meet the performance standards. However, since the adoption of the current version of the New Hampshire PAP,¹ the Verizon states outside of northern New England have approved some significant PAP

¹ The New Hampshire Public Utilities Commission adopted the current PAP on August 19, 2005 in Order No. 24,504 in Docket DT 05-096.

amendments based on changes adopted in New York in 2006, so that the New Hampshire PAP now contains some significant differences from the current Verizon PAPs.

The PAP provides for CLEC bill credits based on incumbent (now FairPoint) performance in providing service to the CLECs as measured by a set of performance measurements or “metrics” (C2C Metrics) documented in the *Carrier-to-Carrier Guidelines Performance Standards and Reports* (C2C Guidelines). The New Hampshire PAP contains four major parts that address different aspects of FairPoint’s performance:

- The Mode of Entry segment
- The Critical Measures segment
- The Special Provisions segment
- The Change Control Assurance Plan.

The PAP documentation specifies for each of the PAP components certain statistical procedures and other calculation rules for determining whether bill credits should be rendered and the amount of such credits.

The Mode of Entry (MOE) segment assesses the incumbent’s performance in aggregate across all CLECs for each method or mode by which carriers can enter the local exchange market:

- Resale
- UNE-Platform (UNE-P)
- UNE-Loop
- Interconnection Trunks
- Digital Subscriber Line (DSL).

The MOE provides for bill credits based on a weighted average of performance for all CLECs on a set of metrics chosen from the C2C Guidelines to represent performance in each of these five modes of entry.

The Critical Measures segment assesses the incumbent’s performance on certain metrics from the C2C Guidelines that address performance on functions deemed to be particularly important for the provision of quality wholesale services. For this segment, bill credits are triggered based on performance for individual measures, rather than a weighted average across a set of metrics, as in the MOE segment. In addition, the Critical Measures segment allows for the possibility of bill credits based both on aggregate performance and performance for individual CLECs.

The Special Provisions segment assesses the incumbent’s performance in a few key functional areas that were considered particularly key at the time the Commission adopted the PAP. These include flow-through, order processing confirmations and rejections, and hot cuts.

The Change Control Assurance Plan (CCAP) is a special PAP component that assesses the incumbent’s performance in implementing revisions to the Operating Support System interfaces and business rules that CLECs use for wholesale transactions.

Verizon originally developed and updated the C2C Metrics used in each of the PAP components through an industry collaborative process. These metrics and their associated performance standards are documented in the C2C Guidelines document. Version 13 of the C2C Guidelines, adopted in March 2007, is currently applicable to New Hampshire.² Because of some of the changes noted above in the Verizon PAPs since the adoption of the New Hampshire PAP, there are a few discrepancies between the current version of the New Hampshire C2C Guidelines and PAP.³ The C2C Guidelines classify the metrics into categories, commonly known as “domains,” which group the metrics by similar functions subject to the performance measurement. The C2C Guidelines domains are:

- Pre-ordering (PO)
- Ordering (OR)
- Provisioning (PR)
- Maintenance and Repair (MR)
- Network Performance (NP)
- Billing (BI)
- Operator and Directory Assistance (OD)
- General (GE).

The metrics in each of the domains are labeled with the domain code and a number. For example, PR-4 is the Provisioning metric with the title “Missed Appointments,” which measures FairPoint’s performance in meeting its committed dates for provisioning service. Most metrics have several numbered sub-metrics that measure different aspects of performance related to the basic area addressed by the metric. For example, PR-4-04 is “% Missed Appointments – FairPoint – Dispatch,” which measures the percent of dispatched orders completed after the commitment date due to FairPoint reasons.⁴ The sub-metric reports are generally further disaggregated by product or product category, which is designated with a four-digit “metric product sub-code.” For example, PR-04-3113 reports the PR-04 sub-metric for new Unbundled Network Element (UNE) Plain Old Telephone Service (POTS) loops.

For each metric, the C2C Guidelines provide the metric definition, state the allowed exclusions of transactions from the measure, list the standards to which the metrics are compared, and list the report dimensions (carrier, *e.g.*, CLEC aggregate and/or CLEC-specific; and geography, *e.g.*, state specific or regional). For each sub-metric, the C2C Guidelines show the formula FairPoint should use to calculate the sub-metric and the disaggregated products and product categories that should be reported. The C2C Guidelines also list the general exclusions applicable to all the

² Response to Data Request #1. Version 13 was originally adopted in New York in October 2006.

³ Response to Data Request #4.

⁴ Because the current C2C Guidelines were adopted when Verizon was the incumbent local carrier in New Hampshire, their text refers to Verizon instead of FairPoint. Thus, for example, PR-4-04 is called “% Missed Appointments – Verizon – Dispatch” in the Guidelines. For the purposes of this work plan, Liberty will substitute “FairPoint” or “the company” for “Verizon” in all such cases, in order to avoid confusion.

metrics, the retail products used as analogs when a retail standard is specified, and various other business rules and details associated with the metric calculations and reports.

C. Scope of the Audit

The RFP calls for an audit of the PAP and 107 of the sub-metric/product reporting combinations described in the C2C Guidelines for the period July 1, 2010 to June 30, 2011. The RFP specifies that the audit should include but not be limited to:

- Review of the C2C Guidelines
- Examination of the PAP data gathering and processing and replication of the 107 sub-metric/product combinations
- Examination of the performance standards and allocation of metrics to the modes of entry to determine consistency with the PAP and C2C Guidelines
- Review of the assignment of metrics to each of the four major PAP components: Mode of Entry, Critical Measures, Special Provisioning, and Change Control Assurance Plan; determine whether the process for calculating bill credits produced the correct credits for each reporting month from January through July 2011
- Development of recommendations for revisions to the current PAP, using benchmarks from other jurisdictions and specifically with reference to raw data collection, data processing, statistical testing, and dollars at risk.

The RFP also specifies that the auditor should:

- Document audit findings and evaluate their impact on the accuracy of FairPoint's PAP reports
- Prepare a draft report of the findings with the opportunity for the company to respond
- Complete a public final report after reviewing company comments on the draft report
- Participate in a workshop to summarize the findings in the final report and answer questions from interested parties.

At the beginning of the audit, FairPoint recommended three modifications to the list of 107 in-scope sub-metric/product combinations:

- Eliminate OR-5-03-3140
- Eliminate PR-5-01-3112
- Replace OR-1-06-3200 with OR-1-06-1200.

Liberty and Staff concluded that these proposed scope changes did not significantly undermine the integrity of the audit and accepted them. The following table shows the final list of 105 sub-

metric/product combinations and indicates with strike-out the eliminated sub-metric/product combinations and in italics the added combinations from the original 107 specified in the RFP.

**Table II-1
In-Scope Metrics**

Sub-Metric	Sub-Metric Name	Product Disaggregation
PO-1-01	Average Response Time – Customer Service Record (CSR)	<ul style="list-style-type: none"> • PO-1-01-6020 – Electronic Data Interchange (EDI) transactions • PO-1-01-6050 – Pre-Order/Order Web GUI (Graphical User Interface) transactions
PO-1-06	Average Response Time – Mechanized Loop Qualification – xDSL (Digital Subscriber Loop)	<ul style="list-style-type: none"> • PO-1-06-6050 – Pre-Order/Order Web GUI transactions
PO-2-02	OSS Interface Availability – Prime Time	<ul style="list-style-type: none"> • PO-2-02-6020 – EDI transactions • PO-2-02-6080 – Pre-Order/Order and M&R Web GUI transactions combined
PO-4-01	% Change Management Notices sent on Time	<ul style="list-style-type: none"> • PO-4-01-6660 – change notification types 3, 4, and 5
PO-4-03	Change Management Notice – Delay 8 plus days	<ul style="list-style-type: none"> • PO-4-03-6600 – all change notification & confirmation types (1-5)
PO-6-01	Software Validation	<ul style="list-style-type: none"> • PO-6-01-6000 – all transactions
PO-8-01	% On Time Manual Loop Qualification	<ul style="list-style-type: none"> • PO-8-01-6000 – all transactions
OR-1-02	% On Time LSRC (Local Service Request Confirmation) – Flow-through	<ul style="list-style-type: none"> • OR-1-02-2320 – Resale POTS and Complex/Pre-qualified • OR-1-02-3331 – UNE Loop/Pre-qualified Complex/LNP
OR-1-04	% On Time LSRC/ASCR (Access Service Request Confirmation) – No Facility Check (Electronic – No Flow-through)	<ul style="list-style-type: none"> • OR-1-04-2320 – Resale POTS and Complex/Pre-qualified • OR-1-04-3331 – UNE Loop/Pre-qualified Complex/LNP • OR-1-04-3342 – UNE 2-Wire xDSL Loops
OR-1-06	% On Time LSRC/ASCR – Facility Check (Electronic – No Flow-through)	<ul style="list-style-type: none"> • <i>OR-1-06-1200 – Resale & UNE Combined Specials</i> • OR-1-06-2320 – Resale POTS and Complex/Pre-qualified • OR-1-06-3200 – UNE Specials • OR-1-06-3331 – UNE Loop/Pre-qualified Complex/LNP • OR-1-06-3342 – UNE 2-Wire xDSL Loops
OR-1-12	% On Time Firm Order Confirmation (FOC)	<ul style="list-style-type: none"> • OR-1-12-5020 – CLEC Trunks (<= 192 Forecasted Trunks)
OR-1-13	% On Time Design Layout Record (DLR)	<ul style="list-style-type: none"> • OR-1-13-5000 – All CLEC Trunks
OR-2-02	% On Time LSR Reject (Flow-through)	<ul style="list-style-type: none"> • OR-2-02-2320 – Resale POTS and Complex/Pre-qualified • OR-2-02-3331 – UNE Loop/Pre-qualified Complex/LNP

Sub-Metric	Sub-Metric Name	Product Disaggregation
OR-2-04	% On Time LSR Reject – No Facility Check (Electronic – No Flow-through)	<ul style="list-style-type: none"> • OR-2-04-2320 – Resale POTS and Complex/Pre-qualified • OR-2-04-3331 – UNE Loop/Pre-qualified Complex/LNP • OR-2-04-3342 – UNE 2-Wire xDSL Loops
OR-2-06	% On Time LSR Reject – Facility Check (Electronic – No Flow-through)	<ul style="list-style-type: none"> • OR-2-06-1200 – Resale & UNE Specials Combined • OR-2-06-2320 – Resale POTS and Complex/Pre-qualified • OR-2-06-3331 – UNE Loop/Pre-qualified Complex/LNP • OR-2-06-3342 – UNE 2-Wire xDSL Loops
OR-2-12	% On Time Trunk ASR Reject	<ul style="list-style-type: none"> • OR-2-12-5020 – CLEC Trunks (<= 192 Forecasted Trunks)
OR-4-16	% On Time Provisioning Completion Notifiers – 1 Business Day	<ul style="list-style-type: none"> • OR-4-16-1000 – Resale & UNE Combined
OR-4-17	% On Time Billing Completion Notifiers – 2 Business Days	<ul style="list-style-type: none"> • OR-4-17-1000 – Resale & UNE Combined
OR-5-03	% Flow-through Achieved	<ul style="list-style-type: none"> • OR-5-03-2000 – All Resale • OR-5-03-3112 – UNE POTS Loops • OR-5-03-3121 – UNE POTS Other • OR-5-03-3140 – UNE POTS Platform
OR-6-03	% Accuracy – LSRC	<ul style="list-style-type: none"> • OR-6-03-3331 – UNE Loop/Pre-qualified Complex/LNP
OR-6-04	% Accuracy – Directory Listing	<ul style="list-style-type: none"> • OR-6-04-1040 – All Directory Listings
PR-4-01	% Missed Appointment – FairPoint – Total	<ul style="list-style-type: none"> • PR-4-01-3211 – UNE Specials DS1 • PR-4-01-3213 – UNE Specials DS3
PR-4-02	Average Delay Days – Total	<ul style="list-style-type: none"> • PR-4-02-3342 – UNE 2-Wire xDSL Loops
PR-4-04	% Missed Appointment – FairPoint – Dispatch	<ul style="list-style-type: none"> • PR-4-04-2100 – Resale POTS • PR-4-04-3113 – UNE POTS – Loop New
PR-4-05	% Missed Appointment – FairPoint – No Dispatch	<ul style="list-style-type: none"> • PR-4-05-2100 – Resale POTS • PR-4-05-3113 – UNE POTS – Loop New
PR-4-07	% On Time Performance – LNP Only	<ul style="list-style-type: none"> • PR-4-07-3540 – UNE LNP
PR-4-14	% Completed On Time – 2-Wire xDSL	<ul style="list-style-type: none"> • PR-4-14-3342 – UNE 2-Wire xDSL Loops
PR-4-15	% On Time Provisioning – Trunks	<ul style="list-style-type: none"> • PR-4-15-5000 – All CLEC Trunks
PR-5-01	% Missed Appointment – FairPoint – Facilities	<ul style="list-style-type: none"> • PR-5-01-3112 – UNE POTS – Loop
PR-5-02	% Orders Held for Facilities > 15 Days	<ul style="list-style-type: none"> • PR-5-02-3112 – UNE POTS – Loop • PR-5-02-5000 – All CLEC Trunks

Sub-Metric	Sub-Metric Name	Product Disaggregation
PR-6-01	% Installation Troubles Reported within 30 Days	<ul style="list-style-type: none"> • PR-6-01-2100 – Resale POTS • PR-6-01-3113 – UNE POTS – Loop New • PR-6-01-3200 – UNE Specials • PR-6-01-3342 – UNE 2-Wire xDSL Loops • PR-6-01-5000 – All CLEC Trunks
PR-6-02	% Installation Troubles reported within seven (7) Days	<ul style="list-style-type: none"> • PR-6-02-3520 – Loop Basic Hot Cut (all line sizes)
PR-8-01	Percent Open Orders in a Hold Status > 30 Days	<ul style="list-style-type: none"> • PR-8-01-3200 – UNE Specials • PR-8-01-3342 – UNE 2-Wire xDSL Loops • PR-8-01-5000 – All CLEC Trunks
PR-9-01	% On Time Performance – Hot Cut	<ul style="list-style-type: none"> • PR-9-01-3520 – Loop Basic Hot Cut (all line size)
PR-9-08	Average Duration of Hot Cut Installation Troubles	<ul style="list-style-type: none"> • PR-9-08-3533 – Loop Hot Cut Total (Basic, Large, and Batch)
MR-2-03	Network Trouble Report Rate – Central Office	<ul style="list-style-type: none"> • MR-2-03-3342 – UNE 2-Wire xDSL Loops
MR-3-01	% Missed Repair Appointment – Loop	<ul style="list-style-type: none"> • MR-3-01-1341 – Resale & UNE Combined 2-Wire Digital Services • MR-3-01-2110 – Resale POTS Business • MR-3-01-2120 – Resale POTS Residence • MR-3-01-3112 – UNE POTS – Loop • MR-3-01-3342 – UNE 2-Wire xDSL Loops
MR-3-02	% Missed Repair Appointment – Central Office	<ul style="list-style-type: none"> • MR-3-02-2110 – Resale POTS Business • MR-3-02-2120 – Resale POTS Residence • MR-3-02-3112 – UNE POTS – Loop • MR-3-02-3342 – UNE 2-Wire xDSL Loops
MR-4-01	Mean Time To Repair – Total	<ul style="list-style-type: none"> • MR-4-01-3217 – UNE Specials (DS1 & DS3)
MR-4-02	Mean Time To Repair – Loop Trouble	<ul style="list-style-type: none"> • MR-4-02-2110 – Resale POTS Business • MR-4-02-2120 – Resale POTS Residence • MR-4-02-3112 – UNE POTS – Loop • MR-4-02-3342 – UNE 2-Wire xDSL Loops
MR-4-03	Mean Time To Repair – Central Office Trouble	<ul style="list-style-type: none"> • MR-4-03-2110 – Resale POTS Business • MR-4-03-2120 – Resale POTS Residence • MR-4-03-3112 – UNE POTS – Loop • MR-4-03-3342 – UNE 2-Wire xDSL Loops
MR-4-06	% Out of Service > 4 Hours	<ul style="list-style-type: none"> • MR-4-06-3217 – UNE Specials (DS1 & DS3) • MR-4-06-5000 – All CLEC Trunks

Sub-Metric	Sub-Metric Name	Product Disaggregation
MR-4-07	% Out of Service > 12 Hours	<ul style="list-style-type: none"> • MR-4-07-3112 – UNE POTS – Loop • MR-4-07-3342 – UNE 2-Wire xDSL Loops
MR-4-08	% Out of Service > 24 Hours	<ul style="list-style-type: none"> • MR-4-08-2110 – Resale POTS Business • MR-4-08-2120 – Resale POTS Residence • MR-4-08-3112 – UNE POTS – Loop • MR-4-08-3217 – UNE Specials (DS1 & DS3) • MR-4-08-3342 – UNE 2-Wire xDSL Loops • MR-4-08-5000 – All CLEC Trunks
MR-5-01	% Repeat Reports within 30 Days	<ul style="list-style-type: none"> • MR-5-01-2100 – Resale POTS • MR-5-01-3112 – UNE POTS – Loop • MR-5-01-3200 – UNE Specials • MR-5-01-3342 – UNE 2-Wire xDSL Loops • MR-5-01-5000 – All CLEC Trunks
NP-1-03	Number Final Trunk Groups Exceeding Blocking Standard – Two Months	<ul style="list-style-type: none"> • NP-1-03-5000 – All CLEC Trunks
NP-1-04	Number Final Trunk Groups Exceeding Blocking Standard – Three Months	<ul style="list-style-type: none"> • NP-1-04-5000 – All CLEC Trunks
NP-2-01/2	% On Time Response to Request for Collocation – Total	
NP-2-01	% On Time Response to Request for Physical Collocation	<ul style="list-style-type: none"> • NP-2-01-6701 – Collocation – New Applications • NP-2-01-6702 – Collocation – Augment Applications – 45 days and 76 days combined
NP-2-05/6	% On Time – Collocation – Total	
NP-2-05	% On Time – Physical Collocation	<ul style="list-style-type: none"> • NP-2-05-6701 – Collocation – New Applications • NP-2-05-6702 – Collocation – Augment Applications – 45 days and 76 days combined
BI-1-02	% DUF in four Business Days	<ul style="list-style-type: none"> • BI-1-02-1000 – Resale & UNE Combined
BI-3-04	% CLEC Billing Claims Acknowledged within two Business Days	<ul style="list-style-type: none"> • BI-3-04-1000 – Resale & UNE Combined
BI-3-05	% CLEC Billing Claims Resolved within 28 Calendar Days After Acknowledgement	<ul style="list-style-type: none"> • BI-3-05-1000 – Resale & UNE Combined

As detailed further below, Liberty learned from the initial data requests and interviews with FairPoint⁵ that the data extracts used to calculate the metrics are largely unavailable prior to August 2011. This necessitated a revision in the audit period from that specified in the RFP. Liberty proposed and the Commission approved changing the audit period to calendar year 2011

⁵ Response to Data Request #13 and Interview #1, November 8, 2011.

(the January through December 2011 metric reporting periods), with most analysis restricted to the August through December reporting periods.⁶

It is important to note that Liberty's approach to this audit took as a given the data as it resides in FairPoint's source operations support systems (OSS) and examined the accuracy and integrity of FairPoint's process for extracting, processing, and calculating the metrics and PAP payments based on this data. In particular, this was *not* an audit of the accuracy of the data that resides in the source OSS. Liberty recognizes that concerns have been raised about the accuracy of the data in FairPoint's OSS, in part because of issues associated with the cutover from Verizon's to FairPoint's systems.⁷ However, Liberty understood the PAP audit to be an audit only of the metric systems and processes and not an audit of FairPoint's OSS or of the accuracy of the data residing in those systems. A rigorous audit of the OSS data would be an undertaking of significant size and scope that goes well beyond the natural boundaries of a metrics audit.

During the course of the audit, FairPoint restricted, with limited exceptions, Liberty's access to data and information pertaining only to the in-scope metrics⁸ and to New Hampshire.⁹ This prevented Liberty from fully assessing the accuracy and completeness of the data used in the metric calculations and the proper reporting of the data by metric and jurisdiction. The impact of these restrictions on Liberty's ability to draw conclusions about the completeness and accuracy of the New Hampshire metrics is noted in various portions of this report.

D. CLEC Input

Staff provided Liberty a list of CLECs active in New Hampshire. Liberty then requested these CLECs to participate in the audit by providing the receipt dates and amounts of bill credits received during the audit period. Two CLECs responded to this request and provided data to Liberty.

E. Liberty's Review Methods

In conducting this audit, Liberty drew from its experiences working on similar audits, including audits of Verizon's PAP in other states and audits of other RBOC performance metrics and assurance plans. Liberty also used information obtained during its recent audit of the New Hampshire retail Quality of Service Measurements, which use data from many of the same systems and processes that FairPoint uses for the C2C Metrics and PAP.¹⁰ Furthermore, Liberty

⁶ New Hampshire Public Utilities Commission Order No. 25, 323 in Docket DT 11-061, January 30, 2012.

⁷ See, for example, Liberty's FairPoint Post-Cutover Status Reports dated April 1, 2009; September 8, 2009; October 28, 2009; December 23, 2009; and September 30, 2010. See also Liberty's July 13, 2009 Assessment of FairPoint's Stabilization Plan Status Report.

⁸ Responses to Data Requests #140 through #144.

⁹ Responses to Data Requests #107 through #110 and #124 through #126.

¹⁰ Audit of FairPoint Communications' New Hampshire Retail Quality of Service Reports, Final Report, August 9, 2011.

relied on knowledge of FairPoint's systems and process obtained during the FairPoint cutover monitoring process.¹¹

Liberty obtained information from FairPoint through data requests and a series of meetings and interviews with FairPoint personnel. We also analyzed performance metric and PAP bill credit data provided by FairPoint. During the audit Liberty:

- Issued and received responses to 558 data requests of FairPoint
- Issued and received responses to 112 requests for clarification of FairPoint data request responses
- Conducted 22 interviews of FairPoint personnel, in person or via teleconference.

After analyzing the data and information obtained during the audit and formulating conclusions and recommendations, Liberty prepared a Draft Audit Report, which we shared with Staff. We responded to Staff's comments and suggestions in a final version of the Draft Audit Report completed on November, 12, 2012, which we shared with FairPoint. FairPoint provided comments on the factual content of the Draft Audit Report on December 7, 2012 and responded to questions seeking clarification of their comments on December 13 and 17, 2012. Liberty used FairPoint's comments and clarifications to complete this Final Audit Report.

The remainder of this report is organized as follows:

- Chapter III provides an overview of the systems and processes FairPoint uses to calculate and report the C2C metrics and PAP bill credits.
- Chapter IV outlines Liberty's approach to this audit, which divides the elements of the audit's scope into five audit areas, each with somewhat different objectives and review methods:
 1. PAP Conformance with Requirements
 2. Data Validation
 3. Metric Replication
 4. PAP Implementation and Bill Credit Validation
 5. PAP Structure Evaluation.
- Chapter V provides Liberty's audit findings from the first four of the five audit areas. We have organized these findings into sections on each in-scope metric and a section on the PAP bill credit calculations. The metric sections provide the findings specific to each metric from audit areas 1, 2, and 3. The PAP section provides the findings specific to the PAP calculations from audit areas 1 and 4
- Chapter VI provides a list of Liberty's conclusions based on the findings in Chapter V.

¹¹ See, for example, Liberty's FairPoint Post-Cutover Status Reports dated April 1, 2009; September 8, 2009; October 28, 2009; December 23, 2009; and September 30, 2010. See also Liberty's July 13, 2009 Assessment of FairPoint's Stabilization Plan Status Report.

- Chapter VII provides a list of Liberty's recommendations based on the conclusions in Chapter VI. Each recommendation is referenced to one or more conclusion and vice versa.
- Chapter VIII provides Liberty's recommendations for revising the PAP, based on the analysis from audit area 5.

III. FairPoint's Metric and PAP Systems and Processes

A. Metric Calculation and Reporting

1. Systems and Manual Processes

FairPoint's primary service quality measurement system is the Carrier Analysis Measurement Platform (CAMP). The company uses CAMP for calculating the PAP bill credits and reporting all C2C Metrics and PAP bill credits. FairPoint uses CAMP for calculating most of the C2C Metrics, but relies on calculations outside of CAMP for a few of the metrics. The metrics calculated entirely within CAMP are called "automated metrics" and those calculated using processes outside of CAMP are called "manual metrics." FairPoint also uses CAMP for other service quality measurement purposes, including the C2C Metrics and PAPs in Maine and Vermont, the retail service quality measurements in all three northern New England states, and internal reporting.

FairPoint's Operations Performance Metrics organization is responsible for compiling the source data and calculating and reporting the C2C Metrics and PAP bill credits, as well as for the other service quality reporting in northern New England listed above.¹² This organization, which is staffed with a director and four analysts, is also responsible for maintaining and updating the Quality of Service (QoS) measurement documentation.¹³ Many of the manual metric calculations also rely on input and calculations from FairPoint's Wholesale Customer Relations organization.

As shown in the diagram below, three modules – Staging, Operational Data Source (ODS), and Data Warehouse (DW) – comprise the CAMP system.¹⁴ The server used for the CAMP system is located in Manchester, NH.¹⁵ FairPoint stores data uploaded from the OSS in the Staging module, including all source data with the exception of the data associated with general exclusions that are made at the time of the data transfer from source to CAMP. When the data moves from Staging to ODS, where data transformations occur, most derived fields are populated,¹⁶ and the records for inclusion in the measurements are identified. Metrics are also calculated in the ODS module. The Data Warehouse module of CAMP stores the final calculation of each of the C2C metrics (*i.e.*, the numerator and denominator for each metric). FairPoint does not store transaction-level data in the Warehouse, only the final calculated values. FairPoint uses Business Objects software to pull the final metric calculations from the Data Warehouse and create monthly reports of the calculated values.

¹² Response to Data Request #10 and Interview #1, November 8, 2011.

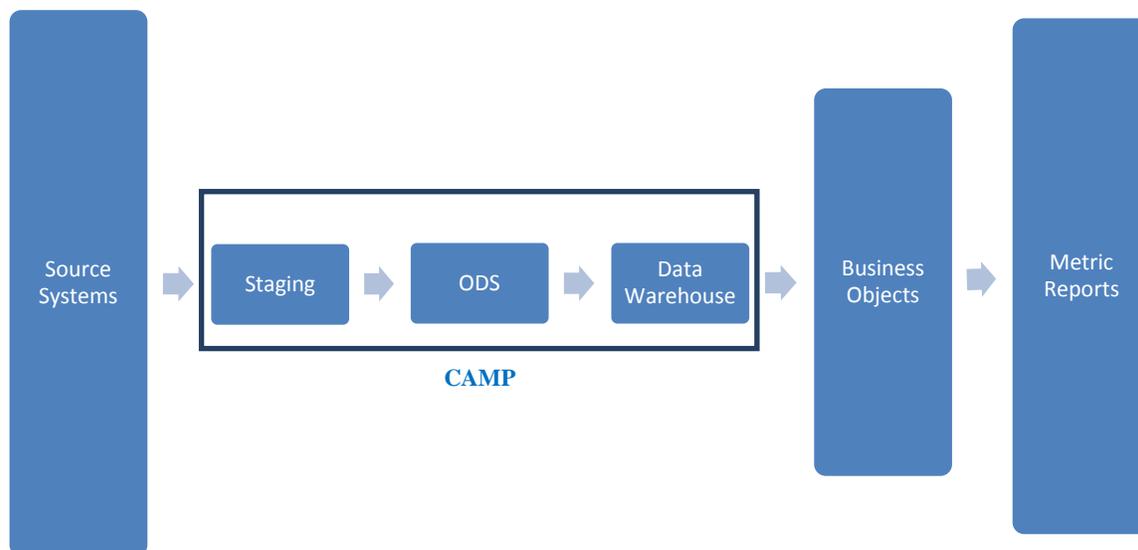
¹³ Response to Data Request #2 and #30, and Interview #1, November 8, 2011.

¹⁴ Response to Data Request #7 and Interview #1, November 8, 2011.

¹⁵ Audit of FairPoint Communications' New Hampshire Retail Quality of Service Reports, Final Report, August 9, 2011, p. 15.

¹⁶ Creating the derived fields sometimes requires calculations, such as time intervals.

Figure 1
Automated Metrics Calculation and Reporting Using
FairPoint's CAMP Service Quality Measurement System



FairPoint draws the data into the CAMP Staging module for use in calculating the automated C2C Metrics from six source systems:¹⁷

- Wisor, which FairPoint uses as the interface to CLECs for wholesale service requests and status messages
- Metasolv, commonly known as M6, which FairPoint uses for processing and provisioning service orders
- Siebel, which FairPoint uses for keeping an inventory of the status of its lines (*i.e.*, in-service, suspended, or spare)
- Remedy, which FairPoint uses for processing maintenance and repair transactions
- EAI, which is middleware used by FairPoint to allow communication among all its OSS systems.¹⁸
- MARCH, which is used to identify the date and time that the retail disconnect was performed for number port orders in calculating the PR-4-07 (% On Time Performance – LNP Only) sub-metric.¹⁹

FairPoint initially indicated that CAMP does not use data from EAI for calculating any of the in-scope metrics.²⁰ Liberty later learned that FairPoint uses tables in the EAI middleware to

¹⁷ Response to Data Request #7.

¹⁸ Interview #1, November 8, 2011.

¹⁹ Interview #14, March 29, 2012.

populate the derived data field in CAMP that records the number of lines associated with a service order. FairPoint indicated that it will implement a change in CAMP to source this data field from Wisor data rather than from the EAI tables. FairPoint does not retain historical source data from the EAI tables.²¹ Data from Wisor, M6, and Remedy is uploaded to CAMP on a daily basis; Siebel data is uploaded monthly.²² The load process from the source systems to CAMP is a software-driven, selective load process; not all data from the source systems are loaded into CAMP.²³

In order to report the manual metrics, FairPoint enters the values of the manual calculations directly into the ODS, after which the process flow to reporting is the same as for the automated metrics. FairPoint also introduces the data directly into ODS for automated metric transactions involving special project orders.

Table A.1 in Appendix A lists the data sources FairPoint uses to calculate each in-scope sub-metric.

FairPoint has a metrics change management process designed to ensure that it only makes authorized changes to CAMP.²⁴ The company implemented a new version of this process in June 2011, which, among other things, increases the level of detail in the change control documentation FairPoint maintains. FairPoint indicated that it has never restated any of its C2C reports.²⁵ The Operations Performance Metrics Team maintains contact with the FairPoint Information Technology (IT) group in order to monitor changes in the source OSS for possible impact on metrics. The IT team also can notify the Metrics team if they believe a change is metrics-affecting.²⁶

2. Data Retention and Availability

The data FairPoint used to calculate the reported C2C Metrics and the PAP bill credits in past months is available at different levels and for different time periods, depending on the metric and the type of data.²⁷ Historical data on past transactions, such as pre-order inquiries, service requests, service orders, and trouble reports, which form the basis of the metric calculations, is available in FairPoint's source systems. However, service order activity and other transactions can also alter the source data structure over time through changes in service types, service providers, line characteristics, and the like. Such changes complicate any attempt to reconstruct for past months the account structure and thus the assignment of transactions to sub-metrics.

²⁰ Responses to Data Requests #72 and #73, and Interview #1, November 8, 2011.

²¹ Responses to Data Request #223 clarification, #332, and #405.

²² Interview #1 and Interview #4, November 8, 2011.

²³ For example, FairPoint does not pull record orders from the source systems into CAMP. See *Audit of FairPoint Communications' New Hampshire Retail Quality of Service Reports, Final Report*, August 9, 2011, p. 16.

²⁴ Response to Data Request #11 and Interview #3, November 8, 2011.

²⁵ Interview #3, November 8, 2011.

²⁶ Response to Data Request #9 and Interview #3, November 8, 2011.

²⁷ Responses to Data Requests #13 and #72, and Interview #1, November 8, 2011.

Therefore, although recreation of the data used for past metric reports from current source system data is possible in principle, it is a complex and error-prone process in practice. An alternative could be to store frozen copies of the source data as it existed at the time past metric reports were calculated. The massive amount of data in all source systems makes such storage impractical, however, and is not a standard industry practice. Thus, consistent with standard practice, FairPoint has not frozen the M6 and Remedy data and the data therefore may have changed from the time it was used to calculate the reported metrics and bill credits. FairPoint indicated, however, that unmodified historical source data is available in Wisor and Siebel since at least November 2010.²⁸

A standard industry practice that provides a means to recalculate metric calculations from past months, short of maintaining historical copies of all source data, is to preserve copies of the subset of the source data downloaded into the metric calculation systems and intermediate data created as part of the monthly metric calculations. FairPoint did not preserve an historical record of the CAMP data used for metric calculations prior to August 2011, but began preserving frozen “snapshots” of the CAMP data beginning with the August 2011 data.²⁹ These frozen data snapshots are available for the data in the Staging and ODS modules of CAMP, with a limited exception involving some data used for PR-4-07 calculations noted below. FairPoint indicates it plans to retain these data snapshots for five years. FairPoint is also storing snapshots of the code that was used for each month’s calculations so that any later changes to the code will not prevent FairPoint from recreating the transaction set based on the code that was used at that time. However, transaction-level data for the final calculation of each of the metric numerators and denominators in the Data Warehouse, which would show the specific transactions selected for each metric, is not readily available. This data must be recreated by applying the metric calculation code to the frozen ODS data files. FairPoint indicated that it plans to perform the system changes necessary to freeze this final transaction set. Liberty does not know at the time of the writing of this report whether FairPoint has yet completed these changes.

Source data from MARCH is required for the calculation of PR-4-07. FairPoint does not retain a copy of the MARCH source data in an unaltered state. FairPoint did not take a snapshot of the MARCH data in CAMP for any month in 2011 at the time that the monthly performance measurements were calculated. FairPoint indicated that it began capturing this information effective with the March 2012 data month.³⁰

In summary, with the exception of the data derived from MARCH for PR4-07 noted above, FairPoint has retained frozen copies, as of August 2011, of the following CAMP data used for the automated metric calculations from the time at which the monthly metric and bill credit calculations were performed:

- CAMP Staging data
- CAMP ODS data

²⁸ Response to Data Requests #24, #72 and #377.

²⁹ The calculated metric numerators and denominators comprise the only data preserved within CAMP prior to August 2011 that is likely to be unaltered.

³⁰ Response to Data Request #216 Errata and December 7, 2012 response to Liberty’s Draft Audit Report.

- CAMP processing code
- CAMP Data Warehouse numerators and denominators only, but not the underlying transactions that make up these numerators and denominators.

FairPoint has also indicated that unchanged historical data is available in the Siebel and Wisor (but not M6 and Remedy) source systems.

The availability of historical data used for the metric and PAP bill credit calculations is greater for most manual metrics. FairPoint indicated that it has maintained the files that were used to perform the monthly calculations for most manual metrics since at least the middle of 2010.³¹ The exception is the OR-6-04 sub-metric, for which source data is available only for the September through November 2011 data months.³²

Table A.1 in Appendix A summarizes the availability of data for auditing each of the in-scope metrics (automated and manual) during the audit period (January through December 2011).

B. Performance Assurance Plan Calculations and Reporting

FairPoint uses different processes to calculate PAP bill credits for metrics requiring statistical testing to determine compliance with the standards and for metrics not requiring such tests. For metrics requiring statistical testing, which are generally those with retail analog standards, FairPoint uses SAS[®] programs to calculate the PAP bill credits.³³ These programs update CAMP “Fact Tables,” which contain values and statistical results such as mean, standard deviation, p-value, performance score, and Z-score.³⁴ For metrics not requiring such tests, which are generally those with benchmark standards, FairPoint calculates the bill credits using SQL code, drawing data from ODS and DW tables and uses the results to update the Fact Tables.

FairPoint uses a Business Intelligence tool called Business Objects and a macro process contained within Microsoft Excel to create the monthly PAP reports by extracting the calculated values and statistical results from the updated Fact Tables and formatting the reports.

Each month, FairPoint creates the PAP PUC Preliminary Proprietary and PAP PUC Final Proprietary reports, as well as the PAP Aggregate Preliminary Public and PAP Aggregate Final

³¹ Interviews #1, 4, 5, 6, 7, 8, 9, and 10, November 8, 9, and 16, 2011.

³² Response to Data Request #285 clarification and #285 Errata.

³³ Section V.G provides more details about these calculations.

³⁴ P-values and Z-scores are used in statistical hypothesis testing. The Z-score is a quantity that measures the number of standard deviations of an observation from the mean, assuming the distribution of possible observations is a normal distribution. In the context of the PAP, Z-scores are used to measure, for example, the deviation between the observed FairPoint and CLEC mean performance in units of standard deviations. The p-value is the probability that a test statistic, such as a mean value, is at least as extreme as the observed value if the “null hypothesis” is true. In the PAP context, p-values can be used to measure the maximum probability that a deviation is as large as or larger than that between a metric’s standard and its measured value would be observed if the null hypothesis that FairPoint’s performance meets or is better than the standard is true.

Public reports. If requested by a CLEC, FairPoint creates and uses a CLEC combination identifier (CLEC combo ID) to aggregate results across multiple identifiers used by the same carrier before creating the C2C and PAP reports. [REDACTED]

Although Liberty is not familiar with the terms and conditions of FairPoint's Wholesale Package, such agreements to purchase wholesale services outside of the Resale and UNE services mandated by the FCC often contain special provisions on service performance.

FairPoint does not create a CLEC-Specific PAP report if there is no payment due to the CLEC that month. The CLEC-Specific PAP reports contain aggregate CLEC results in the first several tabs. These reports contain CLEC-Specific results in the last tab ("CLEC Spec. Adj."). These reports only include results (*e.g.*, numerators, denominators, *etc.*) when there is a payment due.

The FairPoint Operations Performance Metrics organization sends a CLEC-specific bill credit file around the 28th of the month to the company's accounting organization, which applies the credits to specific CLEC bills. This credit file explicitly states whether the team should or should not apply a credit for a CLEC; [REDACTED]

[REDACTED] Because the PAP bill credits must be calculated in the month after the transactions triggering them and PAP payments are made through bill credits rather than as a direct payment to the CLEC, the relationship between the bill cycle date and the completion of the bill credit file determines when the CLEC receives a credit. As is typical in such a PAP payment mechanism, there can be up to a three-month delay between a transaction that contributed to a bill credit and the receipt of the credit. For example, an August report will not trigger a credit file until around September 28th, and the CLEC would receive bill credits in the first bill cycle after the creation of this credit file, which may not occur until late October.

IV. Audit Approach

A. General Considerations

In order to address the audit scope specified in the RFP, Liberty grouped the audit work according to the following five elements:

- PAP Conformance with Requirements
- Data Validation
- Metric Replication
- PAP Implementation and Bill Credit Validation
- PAP Structure Evaluation.

The following sections provide the general study guidelines, the evaluation criteria, and the work activities that Liberty used in the audit. Liberty has based these sections in part on work it has performed on past metrics and performance assurance plan audits, but has tailored the details to its current understanding of FairPoint's performance measurement systems and processes as described in Chapter II.

Based on the information provided in Chapter II, Liberty concluded that:

- High-level information about the metrics and PAP should be available for all of 2011.
- For the manual metrics, reliable detailed data for assessing FairPoint's processing of the metric data, replicating metric reports, and, in most cases, assessing FairPoint's extraction of data from the original data sources should be available for this same period.
- For the automated metrics, reliable detailed data for assessing FairPoint's processing of the metric data and replicating metric reports is available only beginning in the August 2011 reporting month.³⁶
- Reliable detailed data for assessing and replicating FairPoint's processing of the PAP bill credits is available only beginning in the August 2011 reporting month.
- No completely unaltered historical source data exists for assessing FairPoint's extraction of data from M6 and Remedy, which are key data sources for the OR, PR, and MR metrics.³⁷ This same restriction does not apply to the much smaller amount of in-scope metrics data derived from Wisor and Siebel, at least since November 2010.

³⁶ FairPoint indicated that such data retention has continued into 2012. Liberty has not verified this, however, since analysis of 2012 is outside the scope of this audit.

³⁷ As Section IV.C describes, Liberty was able to review the source data extraction process, despite this conclusion, by accounting for the source data changes.

In light of the data availability issues, Liberty recommended and the Commission concurred with using January 1 through December 31, 2011 for the audit period. Appendix A shows the specific months FairPoint used to analyze each in-scope sub-metric.

B. PAP Conformance with Requirements

The objective of this audit element is to assess FairPoint's compliance with Commission orders and other requirements for the PAP and wholesale metrics. It also addresses conformance of FairPoint's PAP and wholesale metric calculation implementation with the filed PAP documentation and C2C Guidelines.

The RFP Scope of Work sets forth a number of specific components relative to this element of the audit:

- Review the C2C Guidelines
- Examine the performance standards to evaluate each metric and test its suitability in determining a given performance metric
- Examine how FairPoint allocates the performance metrics into the various modes of entry and analyze whether FairPoint's application is consistent with the PAP and C2C Guidelines
- Review the division of the relevant performance metrics into the four components of the PAP: Mode of Entry, Critical Measures, Special Provisioning, and Change Control Assurance Plan.

1. Study Guidelines

Fundamental to proper functioning of a performance assurance plan is the conformance of its operation with Commission orders and other public commitments, including such publicly available documentation as the C2C Guidelines and filed PAP documentation. At the beginning of the audit Liberty requested these documents as a basis of comparison with FairPoint's implementation. Liberty also requested and reviewed FairPoint's documentation of its metric business rules and PAP implementation.

The work of this audit element is fundamental to the audit and formed the basis for much of the remaining audit elements. In particular, it formed an important foundation for the fifth audit element, PAP Structure Evaluation. Liberty originally proposed that the PAP Conformance with Requirements audit element represent a general, high-level review of the entire set of C2C metrics and PAP rather than restricting it to the 105 in-scope metrics. However, FairPoint largely refused to respond to questions or provide data about any metrics except the designated 105 in-scope metrics. As a result, Liberty was forced to restrict this audit element to those metrics, aside from an examination of the C2C and PAP reports for the other metrics in 2011 without further analysis.

Liberty analyzed the following documents and other information:

- The C2C Guidelines
- The PAP document
- Aggregate and CLEC-specific C2C Reports for all months during the audit period
- Aggregate and CLEC-specific PAP Reports for all months during the audit period
- Information drawn from interviews of FairPoint service quality measurement subject matter experts
- FairPoint's business rule documentation
- Documentation of changes made to the C2C metric and PAP calculations during the audit period.

2. Evaluation Criteria

1. FairPoint uses benchmarks or other standards consistent with available documentation and appropriate to the metrics.
2. FairPoint's standards based on retail analogs use analogs appropriate to their corresponding metrics.
3. FairPoint's documented application of exclusions and business rules is consistent with metric definitions.
4. FairPoint has assigned metrics to the Mode of Entry PAP component appropriately and consistent with available documentation.
5. FairPoint has assigned metrics to the Critical Measures PAP component appropriately and consistent with available documentation.
6. FairPoint has assigned metrics to the Special Provisioning PAP component appropriately and consistent with available documentation.
7. FairPoint has assigned metrics to the Change Control Assurance Plan appropriately and consistent with available documentation.
8. FairPoint's internal documentation adequately describes and justifies any conventions that are not explicit in or that deviate from the C2C Guidelines and PAP documentation.

3. Work Activities

1. Obtained and reviewed relevant Commission orders and other decisions.
2. Obtained and reviewed the current New Hampshire C2C Guidelines.
3. Obtained and reviewed the current filed New Hampshire PAP documentation.
4. Obtained and reviewed FairPoint's internal metric and PAP calculation documentation.
5. Obtained and reviewed FairPoint's C2C and PAP reports for the audit period.
6. Obtained and reviewed FairPoint's business rule documentation.

7. Assessed whether FairPoint's documented business rules are consistent with Commission orders and public documents, such as the C2C Guidelines and filed PAP documentation.
8. Assessed whether the performance standards FairPoint uses are consistent with the Commission orders and public documents, such as the C2C Guidelines and filed PAP documentation.
9. Assessed whether FairPoint's assignment of metrics to the Mode of Entry PAP component is appropriate and consistent with available documentation.
10. Assessed whether FairPoint's assignment of metrics to the Critical Measures PAP component is appropriate and consistent with available documentation.
11. Assessed whether FairPoint's assignment of metrics to the Special Provisioning PAP component is appropriate and consistent with available documentation.
12. Assessed whether FairPoint's assignment of metrics to the Change Control Assurance Plan is appropriate and consistent with available documentation.

C. Data Validation

The objective of this audit element was to assess the integrity and accuracy of FairPoint's process for extracting data from source OSS and for processing that data through the metric and PAP calculations to produce accurate reports and bill credits. This element relates to the following specific components of the RFP Scope of Work:

- Conduct a detailed examination of the PAP data gathering and review process
- Determine whether the metrics are being captured correctly, the measurement methods are accurate, and the process of selection and aggregation of metric data is sound.

1. Study Guidelines

Accurate calculation of performance metrics and PAP bill credits requires use of complete and accurate performance data. The C2C Guidelines and PAP contain a variety of different metrics that draw data from a wide range of source systems and processes. Some of the data is in electronic form and some is manual. Most ordering, provisioning, and maintenance and repair metrics draw data from FairPoint's OSS databases. This is also true of those pre-ordering metrics dealing with such automated processes as providing customer service record data and validating addresses. However, other metrics, such as those associated with manual processes like manual loop qualifications and collocations are supported by manual data.

Given the RFP's stated scope, Liberty restricted the analysis to those systems and processes necessary to support the calculation of the specified 105 metrics.³⁸ The key issue with extraction from source systems is assurance that FairPoint's methods identify and transfer to its metrics

³⁸ Responses to Data Requests #140 through #144.

calculation systems and processes a complete and comprehensive set of data. The extracted data must contain all transactions associated with the processes measured by the metrics during the reporting period. In particular, this data must include not only all the wholesale transactions but also, for those metrics that have a retail analog standard, all the retail transactions necessary to calculate the analog measurement.

For most metrics, the data extracted from the source systems must be processed in various ways before calculation. This includes:

- Reformatting various data elements
- Potential corrections to certain data elements for which there is evidence of errors in the source data (such as incorrect state identifiers)
- Calculation and storage of such derived quantities as time intervals
- Setting “flags” that aid in identifying relevant subsets for calculations
- Selecting the subset of transactions and products relevant to each metric reporting dimension
- Selecting the subset of transactions to be used for the reporting month.

Liberty’s objective for the data validation segment of the audit was to ensure the completeness and accuracy of the data FairPoint uses to generate the in-scope reported C2C metrics and bill credits. In its data validation analysis, Liberty had the following general goals:

- Assess whether data collection from the source systems is sufficiently complete and accurate, and whether FairPoint ultimately inputs data into performance measurement and remedy payment calculations that appropriately follow the C2C Guidelines and PAP
- Assess whether FairPoint performs data manipulations and calculations accurately and consistently with the C2C Guidelines and PAP
- Assess whether FairPoint correctly calculates logic variables and derived values from the source data, and correctly calculates values that use reference tables
- Assess whether FairPoint accurately applies exclusions consistent with the C2C Guidelines and PAP, and whether data excluded from calculations are readily identifiable.

In pursuing these goals, Liberty:

- Reviewed the documentation associated with each in-scope performance metric to determine the appropriate data to use in the calculations
- Obtained a high-level, general overview of the business processes and systems that generate the data used for the metric
- Reviewed the flows of data from source systems that directly feed CAMP
- Reviewed the programming logic FairPoint uses to calculate quantities, such as time intervals
- Examined a sample of transaction data appropriate to each in-scope metric.

For each of the relevant systems and processes associated with both automated and manual metrics, Liberty examined the data processing steps to determine whether the underlying data maintains its integrity throughout the calculation process and nothing is added or changed that corrupts the metric calculation. Liberty would have preferred to assess this process by sampling source system data and CAMP data from throughout the FairPoint northern New England operating region and tracing the data through the metric calculations to assure that the data were properly attributed to each state. FairPoint, however, limited Liberty's access to source system and CAMP data from New Hampshire only in most cases,³⁹ which prevented full assessment of the completeness and accuracy of the data extraction and calculation processes. Nevertheless, Liberty was able to obtain some limited evidence from this audit and the audit of the New Hampshire retail Quality of Service Measurements indicating that although FairPoint has not assigned transactions properly between the three northern New England states in a few cases, there does not appear to be a major issue with state assignment.

Liberty segmented this work into three steps:

1. Extraction of source system data.

To assess the completeness and accuracy of FairPoint's source system data extraction process, Liberty traced a sample of records from the source systems to the CAMP databases used for metric calculation. As noted, FairPoint indicated it would restrict Liberty's access to New Hampshire records only. Subject to these restrictions, Liberty requested a list of all records meeting the following criteria, together with specified key data fields to be used in selecting the sample:

- All pre-order requests in Wisor created in the periods from August 7 through August 13 and from December 4 through December 10, 2011.⁴⁰ Despite FairPoint's indication that it would restrict data to New Hampshire, Liberty found that FairPoint provided Wisor pre-order records from outside of New Hampshire in response to this request, without explaining the reason.
- All service order requests in Wisor created in the periods from August 7 through August 13 and December 4 through December 10, 2011.⁴¹
- All service orders in M6 created or completed in the periods from August 7 through August 13 and December 4 through December 10, 2011.⁴²
- All trouble tickets in Remedy closed in the periods from August 7 through August 13 and December 4 through December 10, 2011.⁴³
- All lines in service in Siebel on August 31, 2011 and December 31, 2011.⁴⁴

³⁹ Responses to Data Requests #107 through #110 and #124 through #126.

⁴⁰ Data Request #149

⁴¹ Data Request #107

⁴² Data Request #108

⁴³ Data Request #109

⁴⁴ Data Request #110

Before selecting the samples from the Wisor Order, M6, and Siebel data, Liberty excluded the following data not relevant to the metric calculations:

- Wisor Order: requests for special access
- M6: disconnect orders
- Siebel: internet lines.

Liberty then selected a simple random sample from the remaining records in each of the five data sets, and requested FairPoint to provide the complete set of data fields for each record in the sample. Because FairPoint provided non-New Hampshire pre-order transactions in the sample population dataset and declined to provide the detailed non-New-Hampshire pre-order transaction records, Liberty deliberately “oversampled” from the list of pre-order transactions and only received from FairPoint the approximately 45 percent of the sampled records that were from New Hampshire. Additionally, one of the sampled Remedy records and two of the sampled Siebel records were for transactions or lines outside of New Hampshire that FairPoint had incorrectly included in the original data sets.⁴⁵ One of the M6 records could not be further analyzed because FairPoint had incorrectly included a transaction with the wrong date in the original data set.⁴⁶ Liberty excluded these records from further analysis because it was not possible to trace them in the CAMP records FairPoint made available. Liberty does not believe the exclusion of these few records affected the conclusion we drew from our analysis.

The following table shows the final sample size for each of the five samples, after dropping the records that were unusable for the reasons mentioned above. The M6, Remedy, and Siebel samples are larger, because they contain both wholesale and retail records.

**Table IV-1
Source System Analysis Data Samples**

Source System	Sample Size
Wisor Pre-Order ⁴⁷	54
Wisor Order ⁴⁸	60
M6 ⁴⁹	99
Remedy ⁵⁰	99
Siebel ⁵¹	98

2. Processing of extracted source system data for automated metrics.

Using the detailed source record data for each of Liberty’s samples Liberty traced the data from the source system to the CAMP Staging tables and from the CAMP Staging tables to the CAMP

⁴⁵ Responses to Data Requests #190 and #233.

⁴⁶ Response to Data Request #228 clarification.

⁴⁷ Responses to Data Requests #272 and #323.

⁴⁸ Responses to Data Requests #127 and #127 clarification.

⁴⁹ Response to Data Request #128.

⁵⁰ Response to Data Request #129.

⁵¹ Response to Data Request #130.

ODS tables from which FairPoint executes the metric calculations. The data samples from the source systems used to calculate the PR and MR metrics, which have retail analog standards, included both wholesale data and retail data appropriate to calculating the retail analog. Liberty verified whether the appropriate data from these samples resides in the transaction-level ODS tables used for calculating each in-scope automated metric.

Because the ODS tables contain both original and derived data fields, Liberty traced the data and the logic used to create the critical derived data fields. Liberty validated whether FairPoint correctly derived the data and information contained in these added fields from the source data and FairPoint reference tables. Liberty also verified whether FairPoint maintains the integrity of the data through the data flow process (*i.e.*, data values are not changed or dropped).

3. Processing of extracted source system data for manual metrics.

Liberty used various techniques to review the manual metrics because FairPoint generally processes the source data for these metrics in unique ways. For most manual metrics, the volume of transactions is relatively small. In such cases, Liberty generally traced the entire universe of data for the months studied.

2. Evaluation Criteria

1. FairPoint's process for data extraction and processing is completely and accurately documented.
2. FairPoint has adequately documented and justified conventions used for its data processing that are not explicitly documented in the C2C Guidelines and PAP documentation.
3. The process for extracting data from the source systems for metric calculations ensures that the extracted data includes all wholesale transactions appropriate to the metrics for the report period.
4. The process for extracting data from the source systems for metric calculations ensures that the extracted data includes all retail transactions appropriate to the retail analogs for the report period.
5. The source system data FairPoint extracts from the source systems is not corrupted as part of the extraction process
6. The extracted source system data used in FairPoint's metric calculation systems and processes is complete and accurate, and any reformatting of the data has not changed the data values.
7. The extracted source system data used in FairPoint's metric calculation systems and processes is consistent with documented business rules.
8. The specific data values selected for use for metric calculations are consistent with the documented business rules.

9. Any corrections to source system data fields as part of the metric calculation process are appropriate and accurate.
10. The values in all calculated and other derived data fields, such as system flags, are correctly developed and appropriately used in the metric calculations.
11. Any data transformations to the source data are appropriate.
12. Manual processes are necessary, accurate, and make appropriate use of the source data.
13. Source data and downstream datasets used for monthly calculations are retained according to Commission data retention requirements.

3. Work Activities

1. Interviewed FairPoint metrics experts and reviewed documentation to identify the source systems containing the data necessary to calculate the wholesale metrics that are in scope for the audit.
2. Interviewed FairPoint metrics experts and reviewed documentation to identify the source systems containing the data necessary to calculate the retail analogs that are in scope for the audit.
3. Obtained documentation for the metric calculation systems used for each of the in-scope metrics.
4. Interviewed FairPoint metrics experts and reviewed documentation to identify the metric calculation systems and processes used for the in-scope metrics.
5. Interviewed FairPoint metrics experts and reviewed system and process logic to determine whether the FairPoint metrics systems and processes select the correct data subsets required to satisfy the definitions of the in-scope metrics.
6. Examined and validated the accuracy of the logic used to create derived data fields.
7. Examined and validated the accuracy of the logic used for data transformations.
8. Sampled source data and traced the data into to the calculation systems.
9. Determined whether the methods FairPoint uses to aggregate the source data for sub-metric calculations provide a complete and accurate data set for calculating the intended metric result.
10. Traced a representative sample of metrics data through the systems from source to sub-metric calculation to test the data collection and transformation process.
11. Attempted to identify missing elements or flaws in the C2C metric data processing that may cause the monthly reported values to be inaccurate.
12. Determined FairPoint's data retention policies and practices and verified whether they are in conformance with regulatory requirements for data retention.

D. Metric Replication

The objective of this audit element was to recalculate the 105 in-scope metrics. This element relates to the following specific components of the RFP Scope of Work:

- Using a valid and representative sample, replicate the metrics identified in Attachment 1 of the RFP.
- Determine whether the metrics are being captured correctly, the measurement methods are accurate, and the process of selection and aggregation of metric data is sound.

1. Study Guidelines

Replication using independently developed algorithms is a common technique used to validate metric calculations. Liberty developed its own algorithms based on the metric definitions and business rules as specified in the C2C Guidelines and any other relevant documentation FairPoint provided. Through this process Liberty sought to validate:

- Proper selection of transactions to include in the metric
- Correct application of the metric calculation formulas
- Proper application of exclusions and other metric business rules
- Correct values for numerators and denominators at the individual and aggregate CLEC level.

Liberty attempted to replicate the FairPoint-reported values for each of the 105 in-scope metrics. For the automated metrics, Liberty performed the replication calculations for two months, August and December 2011, chosen because the necessary data was only available starting in August 2011. For metrics with retail analogs, Liberty performed the replication calculations for both the wholesale metrics and their analogs. Liberty calculated both the CLEC-aggregate and a sample of CLEC-specific values. Liberty considered the replication successful if we could reproduce, with the available documentation and using reasonable interpretations of that documentation, the reported metric values for the CLEC aggregate and for selected CLECs.

FairPoint also provided to Liberty the outcomes of its metric data processing at the transaction level for the in-scope, automated metrics. Liberty used these transaction-level results when investigating discrepancies between the calculated metric values generated with its own code and the values reported by FairPoint. As previously noted, FairPoint does not retain a snapshot of the transaction-level records selected for the final calculation of the numerators and denominators. Because FairPoint did not store this transaction-level data for August and December 2011, FairPoint had to recreate them by running the metric's calculation code as it existed in August and December against the August and December CAMP datasets.

In cases where Liberty identified that FairPoint was incorrectly implementing the C2C Guidelines requirements, we nevertheless attempted to replicate FairPoint's reported values

using its assumptions, algorithms, and data choices in order to help uncover any other calculation problems. Thus, successful replication does not mean that the reported results are correct.

As with the Data Validation audit element, key to such replication is a reliable set of starting data that is the same as that used by FairPoint when calculating the values it reported for the audit period. For this purpose, Liberty used for the automated metrics the full set of relevant transactions in the ODS tables that are the end-point of the data validation analysis described in Section C.

Because of the uniqueness of the data processing of the manual metrics, Liberty's methods for completing Metric Replication, like Data Validation, varied across these methods. For most manual metrics, the Data Validation often merged with Metric Replication, and Liberty evaluated both aspects of the metric processing in the same steps. For many manual metrics, the data and reported values are relatively sparse. In such cases, Liberty attempted to replicate all reported metric values for all months during 2011. In other cases, Liberty chose a few months to replicate, which varied from metric to metric.

2. Evaluation Criteria

1. FairPoint's process for calculating sub-metric report dimensions is completely and accurately documented.
2. FairPoint has adequately documented and justified conventions used for its calculations that are not explicitly documented in the C2C Guidelines.
3. FairPoint has data available that allows replication of the in-scope metrics for the audit period.
4. FairPoint has correctly interpreted the C2C Guidelines and other documented business rules.
5. FairPoint's processes for selecting data for calculating the reporting dimensions and reported disaggregations of the sub-metrics are complete, accurate, and consistent with the documented business rules.
6. FairPoint's processes for selecting data for calculating the retail analogs are complete, accurate, and consistent with the documented business rules.
7. FairPoint has correctly applied documented exclusions.
8. FairPoint has correctly performed the documented calculations.
9. Any undocumented operations are consistent with the intention of the metrics.
10. Independently calculated CLEC-aggregate in-scope metrics agree with those reported by FairPoint.
11. Independently calculated CLEC-specific in-scope metrics agree with those reported by FairPoint.
12. Independently calculated retail analogs of in-scope metrics agree with those reported by FairPoint.

13. The processes used for selecting data for calculating the reporting dimensions of the sub-metrics are complete, accurate, and consistent with the documented business rules.
14. The processes used for selecting data for calculating the retail analogs are complete, accurate, and consistent with the documented business rules.

3. Work Activities

1. Reviewed C2C Guidelines and other documented business rules.
2. Obtained monthly C2C and PAP reports (in aggregate and by CLEC) for the audit period.
3. Examined the logic FairPoint uses to identify the wholesale product associated with a transaction (*e.g.*, service order, trouble report) to determine whether the transactions used for metric calculations are assigned to the appropriate sub-metric report dimension.
4. Examined and validated the logic used to identify exclusions to the metrics and determine whether these exclusions are in accordance with the C2C Guidelines.
5. Developed algorithms for calculating each of the in-scope sub-metric report dimensions.
6. Developed algorithms for calculating each of the in-scope retail analogs.
7. Selected sample reporting months from the audit period to use for in replication of each in-scope metric.
8. Obtained from FairPoint the base data used for reporting the in-scope metrics for the selected months during the audit period for CLEC-aggregate, selected specific individual CLECs, and retail analog calculations.
9. Obtained from FairPoint all reference tables used in the calculation of the in-scope metrics.
10. Applied the independently developed algorithms to the base data to replicate the in-scope metrics.
11. Compared the independent calculations with FairPoint's reports.
12. Requested information from FairPoint to determine the source of any discrepancies between the replicated and reported values.
13. Determined whether FairPoint is properly identifying and applying the exclusions associated with each sub-metric.
14. Determined whether FairPoint appropriately applies the business rules necessary to accurately calculate the metrics.
15. Determined whether FairPoint correctly selects transactions and products for the sub-metric report dimension calculations.
16. Determined the accuracy of the reference tables used by FairPoint for metric calculations.
17. Determined whether FairPoint correctly performs the documented metric calculations.

E. PAP Implementation and Bill Credit Evaluation

The objective of this audit element was to assess whether FairPoint has correctly assigned the metrics, applied the statistical calculations, and calculated bill credits consistent with the PAP documentation. This element relates to the following specific components of the RFP Scope of Work:

- Review the division of the relevant performance measures into Mode of Entry, Critical Measures, Special Measures, and the Change Control Assurance Plan.
- Determine whether the application of the related statistical analysis produces correct bill credits in cases where FairPoint performance does not meet the prescribed standard for each reporting month commencing in January 2011 and ending in July 2011.

1. Study Guidelines

The PAP documentation specifies the metrics and other data to be included in each of the four PAP components: MOE, Critical Measures, Special Provisioning, and CCAP. Each of these components use separate methods and statistical tests to determine whether the performance triggers a bill credit and the size of the bill credit. Liberty reviewed FairPoint's assignment of the metrics to each of these components and reviewed the methods used for determining bill credits in each component.

Liberty also examined the accuracy and compliance with PAP requirements of FairPoint's bill credit calculations. The work described in the above two audit elements, Data Validation and Metric Replication, is intended to evaluate FairPoint's processing of the data up to the calculation of the metrics. The PAP Implementation and Bill Credit Evaluation built on this work and took the PAP data processing and calculations to the next step of calculating the bill credits. Using independently developed statistical algorithms, Liberty selected a sample of bill credits from the August and December 2011 PAP reports, and attempted to replicate these bill credits. As the starting point for the bill credit replications, Liberty used transaction-level data that has already been processed through FairPoint's metric systems in preparation for metric reporting and PAP bill credit calculations. That is, Liberty implicitly relied on the assumptions, algorithms, and data choices FairPoint used for calculating the C2C Metrics that form the basis for the bill credit calculations. Because we did not attempt, except in a few isolated cases, to recalculate the bill credits to account for the errors in metric calculations we found from the Data Validation and Metric Replication audit elements, successful replication of bill credits only provides evidence of FairPoint's correct application of the PAP statistical testing and bill credit calculation requirements, not that the bill credits were correct. The large number of issues we uncovered in the metric calculations and the difficulty, and in some cases impossibility, of quantifying their net effect made any attempt to recalculate bill credits based on our overall audit findings infeasible. See Conclusion #5 in Chapter VI for a further explanation of this point.

In addition to evaluating FairPoint's calculation of the bill credits, Liberty examined whether the bill credits were actually applied to CLECs' bills. Liberty requested CLECs active in New Hampshire to volunteer to provide bill credit data. Two CLECs volunteered and provided this bill credit data. Liberty received CLEC-specific PAP Reports for the August and December 2011 data months. Liberty requested from FairPoint CLEC-specific bills related to the August and December 2011 data months for the volunteering CLECs. Liberty compared the CLEC-specific PAP Reports and the CLEC-specific bills provided by both FairPoint and the CLECs. Liberty also examined the date information provided on the bills.

2. Evaluation Criteria

1. FairPoint follows the NH PAP document in PAP calculations for MOE measures.
2. FairPoint follows the NH PAP document in PAP calculations for Critical measures.
3. FairPoint follows the NH PAP document in PAP calculations for Special Provisions measures.
4. FairPoint follows the NH CCAP document in CCAP calculations for relevant measures.
5. FairPoint has correctly applied the statistical tests.
6. PAP Reporting correctly reflects PAP scores and bill credits.
7. CCAP Reporting correctly reflects CCAP scores and bill credits.
8. FairPoint properly provides bill credits to affected CLECs for PAP performance based on PAP reports.
9. FairPoint properly provides bill credits to affected CLECs for CCAP performance based on CCAP reports.

3. Work Activities

1. Interviewed FairPoint metric experts with detailed knowledge of processes and tools used in PAP/CCAP calculations and bill credits.
2. Obtained from FairPoint and reviewed documentation of PAP calculation system documentation.
3. Obtained monthly C2C and PAP reports (in aggregate and by CLEC) for the audit period.
4. Obtained and reviewed intermediate data files, transaction level datasets for applicable measures, and final result spreadsheets.
5. Reviewed FairPoint's PAP documentation and compared its allocation of performance metrics to the various modes of entry with the C2C guidelines in order to verify consistency.
6. Reviewed FairPoint's PAP documentation and compared its allocation of performance metrics to the Critical Measurements, the Special Measurements and the CCAP.
7. Using FairPoint-calculated C2C metrics (aggregate and by CLEC) and transaction-level datasets for August and December 2011, created independent formulas and statistical

- algorithms to calculate MOE, Critical, Special Provisions and CCAP values for relevant measures by following the NH PAP and CCAP documents.
8. Allocated PAP and CCAP penalty calculations across CLECs.
 9. Selected a representative sample of FairPoint-generated PAP results that would result in bill credits in August and December 2011.
 10. Determined whether FairPoint correctly performed the accompanying statistical tests.
 11. Determined individual CLEC payments for MOE bill credits based on PAP rules.
 12. Determined individual CLEC payments for aggregate Critical Measure bill credits based on PAP rules.
 13. Compared replicated PAP and CCAP calculations with FairPoint reported values.
 14. Requested and reviewed bill credit documentation.
 15. Validated a sample of individual CLEC bill credits against evidence of actual credits.
 16. Requested bill credit receipt dates and amounts from volunteer CLECs doing business in New Hampshire.
 17. Compared bill credit receipt dates and amounts for bill credits in the sample between FairPoint and CLEC-provided data, and investigated any discrepancies.

F. PAP Structure Evaluation

The objective of this audit element was to assess the New Hampshire PAP structure and develop recommendations for possible changes and improvements. This element relates to the following specific components of the RFP Scope of Work:

- Using benchmarks from other jurisdictions, provide recommendations on how the current PAP may be revised, with respect to raw data captured, data processing and statistical testing
- Provide recommendations as to whether the current total dollars at risk should be subject to change.

1. Study Guidelines

Liberty has conducted numerous performance metrics and performance assurance plan audits. Liberty has also worked with regulators to review and make recommendations for improvements to performance assurance plans. We drew on this experience and our general experience in the telecommunications industry to develop an overall assessment of the New Hampshire PAP.

As part of the PAP Structure Evaluation, Liberty analyzed potential:

- Additions, deletions, and modifications to the C2C metrics that form the basis for the PAP
- Modifications to the metric standards and benchmarks

- Changes to the PAP structure, such as the segmentation of metrics for different treatment in the bill credit calculations
- Modifications to the statistical tests and methods for calculating bill credits
- Changes to the total dollars at risk in the PAP.

Liberty began by thoroughly reviewing the C2C Guidelines and PAP documentation in coordination with the PAP Conformance audit element. Liberty then reviewed the monthly C2C and PAP reports for 2011. The object of these reviews was to assess whether the current C2C metrics and PAP structure appear to address the current nature of the New Hampshire competitive local exchange market. Of particular interest was to identify:

- Metrics measuring processes that are rare or of limited current relevance
- Relevant processes that may be poorly measured by the current metrics
- Relevant processes that may not be measured by the current metrics
- Product disaggregations that are rare or of limited current relevance for some or all of the metrics
- Relevant product disaggregations that may not be measured by some or all of the current metrics
- Components of the PAP that may no longer be relevant
- Excessively complex mechanisms for calculating bill credits.

Based on this analysis, Liberty formulated recommendations for changes. In formulating these recommendations, Liberty compared the FairPoint C2C metrics and PAP with other wholesale metrics and PAPs used elsewhere in the U.S., including differences that have occurred between the FairPoint PAP and the current Verizon PAPs, with the object of drawing on these alternative approaches as ideas for potential changes to the FairPoint metrics and PAP. In making recommendations for changes, Liberty focused particularly on achieving, among other concerns:

- Greater precision and focus on the most important competitive local exchange products and processes
- Greater simplicity and transparency in the bill credit calculations.

Liberty pursued this investigation initially independently of the other audit work elements, and provided initial recommendations to Staff before the other audit analysis was complete. At the end of the audit, Liberty incorporated comments from Staff and reviewed the findings from the other audit elements to modify and adjust the initial recommendations.

2. Evaluation Criteria

1. Data processing for PAP calculations is designed to accurately and efficiently calculate correct and appropriate bill credits.

2. The statistical tests used to determine the triggering and size of bill credits appropriately balance FairPoint and CLEC interests (*i.e.*, balance Type 1 and Type 2 errors).
3. The dollars at risk are appropriate to the New Hampshire CLEC market.
4. Appropriate performance measurements are used in the PAP.
5. Appropriate benchmarks and retail analogs are used in the PAP.
6. The overall PAP provides the necessary performance incentives for FairPoint, but is straightforward, transparent, readily implementable, easy to maintain, and adaptable to changing circumstances.
7. The C2C metrics and PAP appropriately address the current range of products and services purchased by the diverse participants in the competitive local exchange market.
8. The overall PAP balances the interest of all stakeholders (FairPoint, the CLECs, the Commission, and the general public).

3. Work Activities

1. Reviewed C2C and PAP reports to look for trends and magnitudes of bill credits and substandard sub-metric performance.
2. Reviewed publicly available information on performance assurance plans used in other jurisdictions and compare them to the New Hampshire PAP.
3. Assessed whether the current standards (benchmarks and retail analogs) provide an accurate assessment of FairPoint's performance for each of the sub-metrics.
4. Assessed whether the metric definitions, exclusions and calculation formulas are appropriate.
5. Assessed whether the current set of metrics, sub-metrics and product disaggregations are appropriate.
6. Assessed whether improvements can be made in statistical testing procedures and minimum sample size rules.
7. Reviewed the current total dollars at risk to determine whether they are appropriate to the New Hampshire CLEC market.
8. Recommended PAP improvements.

V. Findings

A. Introduction and General Issues

1. Introduction

Liberty provides in this chapter the factual findings from the audit. General conclusions about these findings and evaluations of their significance are provided in Chapter VI and Appendix B. Recommendations based on these conclusions are provided in Chapter VII.

The findings provided in this chapter include: i) descriptions of how FairPoint implements the C2C Guidelines requirements for the in-scope metrics and the requirements of the PAP documentation for the bill credit calculations, ii) evidence indicating when FairPoint has correctly implemented metric and PAP requirements, and iii) evidence indicating when there are defects in FairPoint's interpretation of the requirements or in FairPoint's data processing and calculations. The defects Liberty has identified, which are numbered for easy reference, vary in significance and potential impact. Appendix B provides a summary listing of the defects together with Liberty's qualitative judgment of the potential impact of each defect and our understanding of FairPoint's response to each. Most corrections FairPoint implemented to address these defects became effective in 2012. Because the analysis of 2012 data is outside the scope of this audit, Liberty has not assessed the effectiveness of any corrections FairPoint made during 2012.

Liberty also reviewed FairPoint's metric system change control notices issued during 2011 and notes in this chapter the changes that affected the in-scope metrics. Liberty found that the changes were generally implemented to improve the efficiency of the metric calculation process or the accuracy of the reported metric values. Liberty did not attempt to evaluate the impact of these changes on each individual in-scope metric; this would have required the analysis of data in each month, which in most cases was not possible prior to August 2011 for the reasons outlined in Chapter IV. Liberty's attempt to replicate the metric for the specific months analyzed (August and December for most in-scope metrics, as shown in Table A-1 in Appendix A) allowed us to assess the success of FairPoint's changes to improve the metric accuracy. FairPoint's corrections appeared to be successful in most cases, although Liberty did note a few cases where the changes provided an incomplete correction or introduced additional errors. These cases are noted among the defects identified in this chapter.

The remainder of this section discusses Liberty's findings related to matters that are common to all or many of the C2C metric domains. The remaining sections of this chapter describe Liberty's findings specific to individual metrics and sub-metrics or a single metric domain.

2. Documentation

In addition to the publicly available C2C Guidelines and PAP documentation, FairPoint has internal documents that provide descriptions of the calculations and processes used to determine

the values of both automated and manual metrics and the bill credits derived from them. These include documents that describe:

- Metric business rules and technical requirements for metric calculations, including “pseudo-code” for the calculation process⁵²
- Derived data fields and data transformations⁵³
- A “Product USOC Mapping Table”⁵⁴
- The change control process⁵⁵
- The “Incoming Metrics Stop Clock Exclusion Logic” used for calculating trouble duration⁵⁶
- “Job Code Mapping.”⁵⁷

Liberty found numerous errors in FairPoint’s documentation.⁵⁸ **(Defect #1)** Examples of these errors include:

- The technical documentation is often out of date and not reflective of the current CAMP code⁵⁹
- Some documentation is inconsistent with C2C Guideline requirements⁶⁰
- Some documentation is incomplete⁶¹
- Some documentation is inaccurate.⁶²

FairPoint indicated that it is in the process of reviewing and updating its metric documentation to eliminate inaccuracies and inconsistencies.⁶³

3. Metric Reviews and Adjustments

Review of the outcome of metric calculations is a standard process to ensure that reported metric values are correct. FairPoint has such a process for CAMP-calculated (automated) metric values.

⁵² Response to Data Request #2.

⁵³ Response to Data Request #14.

⁵⁴ Response to Data Request #26

⁵⁵ Response to Data Request #8

⁵⁶ Response to Data Request #62 and #62 Errata, corrected in the response to Data Request #355.

⁵⁷ Responses to Data Requests #264 and #319.

⁵⁸ Responses to Data Requests #165, #166, #167, #185, #187, #188, #192, #195, #196, #211, #221, #222 clarification, #225, #226, #240, #261, #263, #279, #311, #312, #313 third clarification, #319, #337, #341, #342, #355, #357, #366, #368, #369, #370, #375 clarification, #388, #397, #456, #480, #489, #491, #554, and Interview #16.

⁵⁹ For example, responses to Data Requests #62 Errata, #319, #337, #355.

⁶⁰ For example, response to Data Request #187.

⁶¹ For example, responses to Data Requests #192, #221, #226, #240, and #279.

⁶² For example, responses to Data Requests #165, #166, #185, #195, #196, #211, #222 clarification, #225, and #261.

⁶³ December 7, 2012 response to Liberty’s Draft Audit Report.

Liberty found, however, based on attempts to replicate the reported metric values, that FairPoint's process does not consider all calculated metric values. Instead, FairPoint analysts investigate only the wholesale transaction records that do not meet the metric standards. These investigations can lead to manual adjustments of the metric calculations, if the investigations indicate any errors in the selection and processing of the transaction records. FairPoint does not conduct a similar review of any wholesale metric values that meet the standard but might have suspicious characteristics, such as a large month-to-month variance in volumes. FairPoint also does not conduct similar investigations and adjustments for the calculations of the retail analogs.⁶⁴ FairPoint indicated that its review "is intended to determine root causes of wholesale misses to improve systems and service delivery for wholesale orders."⁶⁵ Liberty also found that FairPoint incorrectly excludes records and changes the CAMP-calculated wholesale results due to human error or flaws in its manual review process.⁶⁶ FairPoint indicated that it is investigating using a process to review all metric values using a statistically valid sample.⁶⁷ **(Defect #2)**

Liberty found several examples of manual adjustments made to automated wholesale metrics that did not meet the standards in the August and December 2011 data months, the two months for which Liberty attempted replication of the automated metrics. These included adjustments to several in-scope OR, PR, and MR metrics, including OR-1-06-2320, OR-1-13-5000, OR-5-03,-2000, OR-5-03-3112, OR-5-03-3121, PR-4-04-2100, PR-4-04-3113, PR-4-05-2100, PR-4-14-3342, PR-5-01-3112, PR-6-01-2100, MR-4-01-3217, MR-4-03-2100, and MR-5-01-3200.⁶⁸ Conclusion #6 discusses the implications of these adjustments.

FairPoint also does not appear to have a general process for reviewing the values of manual metrics, even if the reported values are unusual, as long as the metrics meet the standard. An example of this is provided by the reported values of BI-1-02 (Timeliness of Daily Usage Feed) in December 2011, which showed anomalous volumes but did not trigger an investigation by FairPoint (See Section V.G.1.b, Defect #104)

4. Product Identification

It is necessary to categorize transactions by the products included in the metric product sub-code designations specified in the C2C Guidelines in order to report most OR, PR, and MR metrics. This is necessarily a complex process because of the large number of product types FairPoint offers. FairPoint uses several data fields and look-up tables in CAMP to assign OR, PR, and MR transactions to a numeric product code associated with a product group such as POTS business, UNE Loop, or UNE Specials DS1. These product groups are then associated with the appropriate metric product sub-codes.⁶⁹

⁶⁴ Responses to Data Requests #298, #309, #310, and #383.

⁶⁵ Response to Data Request #309.

⁶⁶ Responses to Data Requests #302, #302 clarification, #379, #380, #381, #382, and #393.

⁶⁷ December 7, 2012 response to Liberty's Draft Audit Report.

⁶⁸ Responses to Data Requests #287, #288, #298, #309, #310, #383, and #389.

⁶⁹ Responses to Data Requests #160 and #238 and Interview #15, April 4, 2012.

Liberty identified some defects in this process:

- FairPoint includes service orders for number ports in the wrong sub-metrics for many of the OR metrics. For example, of the 186 service orders FairPoint included in the calculation of OR-1-02-2320 in December 2011, 174 (94 percent) were number port orders. Similarly, 196 (94 percent) of the 209 records included in the OR-5-03-2000 calculation for December 2011 were number port orders. These sub-metrics should report confirmation timeliness for Resale service orders only and should not include service orders for number ports.⁷⁰ FairPoint acknowledged the error for these two sub-metrics and also for OR-1-04-2320.⁷¹ The company has confirmed that it implemented a CAMP coding change on July 30, 2012 to correct the problem.⁷² Liberty found in examining FairPoint's 2011 transaction-level data that this error also affects OR-2-02-2320 and OR-2-04-2320.⁷³ **(Defect #3)**
- FairPoint sometimes identifies hot cut orders as Resale services and includes these orders in the calculation of the metrics containing the 2320 sub-code (Resale POTS plus Complex/Pre-qualified) for the OR-1 and the OR-2 metrics and the 2000 sub-code (Resale) for OR-5. FairPoint acknowledged this error for OR-1-04-2320 and OR-1-05-2000⁷⁴ The company has confirmed that it implemented a CAMP coding change, on July 30, 2012, to correct the problem.⁷⁵ Liberty found in examining FairPoint's 2011 transaction-level data that this error also affects OR-2-02-2320 and OR-2-04-2320.⁷⁶ **(Defect #4)**
- The C2C Guidelines for OR-1 and OR-2 state: "The Pre-Qualified Complex category includes 2-Wire Digital, and 2-Wire xDSL Loop, orders that were pre-qualified." FairPoint counts all service orders for 2-Wire Digital service in both the product sub-code 3341 (UNE 2-Wire Digital Services) and the product sub-code 3331 (UNE Loop/Pre-qualified Complex/LNP), and all service orders for 2-Wire xDSL service in both the product sub-code 3342 (UNE 2-Wire xDSL Loop) and the product sub-code 3331 (UNE Loop/Pre-qualified Complex/LNP). FairPoint stated that it calculates the OR-1-04, OR-1-06, OR-2-04, and OR-2-06 sub-metrics using the same records twice because Common Product IDs are used in the metric calculations for these sub-metrics and because CAMP cannot differentiate between pre-qualified and non-pre-qualified xDSL loop orders.⁷⁷ Liberty notes that FairPoint's incorrect inclusion of service orders for UNE 2-Wire Digital Services and UNE 2-Wire xDSL Loops in product sub-code 3311 affects all in-scope OR sub-metrics with this product sub-code (OR-1-02-3331, OR-1-04-3331, OR-1-06-3331, OR-2-02-3331, OR-2-04-3331, OR-2-06-3331, and OR-6-03-3331), although the double counting only applies to sub-metrics

⁷⁰ Responses to Data Request #412 and #437.

⁷¹ Responses to Data Requests #412, #426, #429, and #437.

⁷² December 7, 2012 response to Liberty's Draft Audit Report.

⁷³ Response to Data Request #287.

⁷⁴ Response to Data Requests #427 and #438.

⁷⁵ December 7, 2012 response to Liberty's Draft Audit Report.

⁷⁶ Response to Data Request #287.

⁷⁷ Responses to Data Requests #199 and #429.

with product sub-codes 3341 and 3342 (OR-1-04, OR-1-06, OR-2-04, and OR-2-06). FairPoint indicated that its proposed Simplified Metrics Plan (SMP) definition for product sub-code 3331 would resolve this problem by the eliminating complex products from this product sub-code.⁷⁸ **(Defect #5)**

- When calculating the OR-1 and OR-2 sub-metrics for Resale services, FairPoint includes the same service order for Resale 2-Wire Digital Services in the calculation of both the product sub-code 2320 (Resale POTS and Complex/Pre-qualified) and the product sub-code 2341 (Resale 2-Wire Digital Services). FairPoint claimed that “[p]roduct code 17 (2-wire digital) is a complex service and should be counted in the OR-1 and OR-2 sub-metrics product groups 2320 and 2341 per the metric description.”⁷⁹ Liberty notes, however, that this position leads to double counting of all service orders for Resale 2-Wire Digital Services. FairPoint indicated that the SMP proposal to include all Resale products in a single metric product sub-code would make this issue moot.⁸⁰ **(Defect #6)**
- FairPoint has logic errors and missing data in a reference look-up table used as a secondary source of product identification for LSR service orders. These look-up table errors can cause products to be misidentified in OR metric calculations. FairPoint indicated that it will update this table to correct for the problems identified.⁸¹ **(Defect #7)**
- FairPoint does not include orders for reciprocal interconnection trunks in the calculation of the OR, PR, and MR metrics.⁸² FairPoint acknowledged this error and indicated that it implemented a CAMP code change, on July 30, 2012, to allow for identification and reporting of these types of trunk orders.⁸³ **(Defect #8)**
- FairPoint includes orders for Wholesale Package DSL⁸⁴ in the calculation of the OR-1-04-3331 and the OR-1-04-3342 sub-metrics. FairPoint stated that it will implement a code change to correct this.⁸⁵ FairPoint indicated that incorrect inclusion of Wholesale Package DSL service requests may also affect the calculation of any OR, PR, and MR metric with the product sub-codes of 3331 and 3342.⁸⁶ **(Defect #9)**
- The “Product USOC Mapping Table,” which FairPoint uses as a look-up table to match USOCs with product codes, contains a number of errors. **(Defect #10)** FairPoint implemented an update in its USOC look-up table, in November 2011, to correct a problem in which it listed multiple products for the same USOCs (e.g., orders or trouble reports with a USOC of ZZYEB were being classified as both POTS business and as Specials DS1). This issue involved 15 USOCs and

⁷⁸ December 7, 2012 response to Liberty’s Draft Audit Report.

⁷⁹ Response to Data Request #491.

⁸⁰ December 7, 2012 response to Liberty’s Draft Audit Report.

⁸¹ Responses to Data Requests #153, #240 through #243, and #511.

⁸² Response to Data Request #159 and #159 clarification.

⁸³ Response to Data Request #159 clarification and December 7, 2012 response to Liberty’s Draft Audit Report.

⁸⁴ These are service requests for which REQTYPE = ‘DB’.

⁸⁵ Response to Data Request #431 second clarification.

⁸⁶ Response to Data Request #431 third clarification.

affected a total of 71 sub-metrics.⁸⁷ Liberty identified additional errors in the “Product USOC Mapping Table” after the November 2011 update, which FairPoint indicated it will correct.⁸⁸ These errors include:

- Two Specials DS1 USOCs were mapped to the Businesses POTS product code.⁸⁹
 - A directory listing USOC was mapped to a Business POTS product code when it should have been mapped to the “UNE-POTS-Other” product code.⁹⁰
 - Two POTS business calling plan USOCs were mapped to the Centrex/PBX product code.⁹¹
 - A Specials DS1 USOC was mapped to the product code for 2-Wire digital services.⁹²
 - Two Centrex service USOCs were missing from the “Product USOC Mapping Table.”⁹³
 - Thirty-five private line USOCs were mapped to the product codes for Specials DS0 (18); 2-Wire digital services (7); and Specials non-DS0, DS-1 or DS-3 (10).⁹⁴
 - Three USOCs for products not intended for inclusion in the metrics calculations (*e.g.*, internet products) were mapped to the product code for DS1 Specials.⁹⁵
 - A USOC for Frame Relay service, which should not be included in metrics calculations, was mapped to the product code for Specials DS0.⁹⁶
 - Two Specials non-DS0, DS-1, or DS-3 were mapped to the product code for Specials DS0.⁹⁷
 - Sixty-eight other USOCs for various products were assigned to the wrong product code on the Product USOC Mapping Table.⁹⁸
 - Eight USOC for products that should have been included in the metrics calculation were missing from the Product USOC Mapping Table.⁹⁹
- FairPoint indicated that it implemented changes in CAMP on October 29, 2012 to correct these USOC table errors.¹⁰⁰ A flaw in FairPoint’s “SCM” table matching

⁸⁷ Responses to Data Requests #291 Errata, #291 clarification, and #363.

⁸⁸ Responses to Data Requests #440, #441, #445, #452 through #455, #457, #458, and #460 through #462.

⁸⁹ Response to Data Request #440.

⁹⁰ Response to Data Request #441.

⁹¹ Response to Data Request #445.

⁹² Response to Data Request #453.

⁹³ Response to Data Request #455.

⁹⁴ Responses to Data Requests #452, #454, #457, and #461.

⁹⁵ Response to Data Request #458.

⁹⁶ Response to Data Request #460.

⁹⁷ Response to Data Request #462.

⁹⁸ Response to Data Request #467.

⁹⁹ Responses to Data Requests #463 and #553.

¹⁰⁰ December 7, 2012 response to Liberty’s Draft Audit Report.

logic for product identification causes FairPoint to classify some UNE Line Sharing services as UNE 2-Wire xDSL services and include line sharing records in the OR, PR, and MR calculations.¹⁰¹ FairPoint indicated that it had resolved this issue beginning with the February 2012 data month.¹⁰² **(Defect #11)**

- FairPoint identifies EEL products as UNE Specials in the calculation of the OR, PR, and MR results by classifying the service order or line in trouble as both a UNE Special and an EEL. FairPoint indicated that it will change its logic in CAMP to eliminate this double counting and correctly classify the product as either an EEL or a UNE Special.¹⁰³ **(Defect #12)**
- FairPoint includes certain number port orders in the calculation of some PR metric retail results. These number port orders comprise orders for numbers ported from FairPoint to non-PAP carriers, such as cellular carriers.¹⁰⁴ FairPoint acknowledged this error and indicated that it implemented a CAMP code change, on August 29, 2012, to exclude these orders.¹⁰⁵ **(Defect #13)**

FairPoint associates trouble tickets with products for the MR metrics, PR-6, and PR-9-08 using a product identifier field for each trouble in the CAMP ODS Trouble Tickets data set.¹⁰⁶ To populate this product identifier field, FairPoint matches the line identifier (*i.e.*, the telephone number or circuit ID) on the trouble report with the line identifier in the Siebel lines-in-service data. For this purpose, FairPoint uses the most recently updated records¹⁰⁷ in Siebel for each line or circuit that is considered active. FairPoint then uses the same general process as that for the OR and PR metrics to associate the products with the 4-digit metric product sub-codes for reporting the metric product disaggregations. Liberty found that this process does not always correctly associate troubles with product codes. In particular:

- Lines or circuits often have multiple records in the Siebel data when POTS and DSL services are on the same line. In such cases, FairPoint only associates the most recently updated of the two products with the trouble. When the POTS and DSL services are updated simultaneously, only a single product is associated with the trouble and that product is the one that happened to be entered first in Siebel. FairPoint plans to base this on a defined product hierarchy in the future,¹⁰⁸ which the analysis of a sample of Remedy data discussed in Section V.E.1 suggests may significantly change the trouble-product matching. Liberty has not verified that this new approach provides consistently accurate trouble-product matching. **(Defect #14)**

¹⁰¹ This flaw specifically applies to services with FairPoint codes 'SWXX' or 'URXX'.

¹⁰² Responses to Data Requests #293, #293 clarification, and #317.

¹⁰³ Response to Data Request #358.

¹⁰⁴ FairPoint's December 7 and 13, 2012 responses to Liberty's Draft Audit Report

¹⁰⁵ Response to Data Request #333 and December 7, 2012 response to Liberty's Draft Audit Report.

¹⁰⁶ The identifier field is called 'DW_PRODUCT_ID'.

¹⁰⁷ Using the 'LAST_UPDATED' field imported into CAMP from Siebel.

¹⁰⁸ Response to Data Request #339 and #351.

- Valid troubles are excluded when lines are disconnected or added during the reporting month because FairPoint’s process only examines lines that are active at the end of the month and there are delays in updating records of new lines in Siebel. FairPoint has said it plans to add enhancements to address these issues.¹⁰⁹ **(Defect #15)**
- FairPoint has some logic errors in the trouble-product matching scheme, incorrectly assigning some product codes to trouble reports. FairPoint has introduced an unnecessary process for matching the trouble report product code to the M6 service-order product, which excludes some trouble report records that would have otherwise been included in the calculation. FairPoint indicated that it will implement a coding change to eliminate this matching process and use the product code identified in the trouble ticket data only.¹¹⁰ **(Defect #16)**

B. Pre-Ordering Metrics (PO)

1. PO-1

a. Metric Definition

PO-1 reports the responsiveness of FairPoint’s OSS pre-ordering interfaces. The PO-1 sub-metrics report the average response time of different pre-ordering queries (*e.g.*, requesting and receiving a customer service record). There are two interfaces through which a CLEC may request pre-ordering information from FairPoint: Electronic Data Interchange (EDI), and Web Graphical User Interface (GUI). FairPoint reports the PO-1 sub-metrics separately for each interface. There are nine PO-1 sub-metrics:

- PO-1-01: Average Response Time – Customer Service Record (CSR)
- PO-1-02: Average Response Time – Due Date Availability
- PO-1-03: Average Response Time – Address Validation
- PO-1-04: Average Response Time – Product and Service Availability
- PO-1-05: Average Response Time – Telephone Number Availability and Reservation
- PO-1-06: Average Response Time – Mechanized Loop Qualification- xDSL
- PO-1-07: Average Response Time – Reject Query
- PO-1-08: Percent Timeouts
- PO-1-09: Average Response Time – Parsed CSR

¹⁰⁹ Responses to Data Requests #353 second clarification and #477 clarification.

¹¹⁰ Response to Data Request #477 clarification.

Only PO-1-01 “Average Response Time - Customer Service Record” for the EDI (PO-1-01-6020) and GUI (PO1-01-6050) interfaces and PO-1-06 “Average Response Time – Mechanized Loop Qualification – xDSL” for the GUI (PO-1-06-6050) interface are in scope for this audit.

According to the C2C Guidelines the standard for the in-scope PO-1 sub-metrics is parity with retail plus an allowance for variations in interface functionality and the security requirements between retail and CLEC transactions.

The C2C Guidelines state that normal exclusions include Saturday, Sunday, and major holidays,¹¹¹ as well as hours outside of the normal report period which are 8:00 a.m. to 9:00 p.m. Monday through Friday.

FairPoint reports all of the in-scope PO-1 sub-metrics at an aggregate level and on a statewide basis. The C2C Guidelines provide the following formulas for the in-scope PO-1 sub-metrics:

PO-1-01: Average Response Time – Customer Service Record (CSR)

(Sum of all response times for CSR transactions)/(Number of CSR transactions)

PO-1-06: Average Response Time – Mechanized Loop Qualification – xDSL

(Sum of all response times for mechanized loop qualification)/(Number of mechanized loop qualification transactions)

The in-scope PO-1 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

FairPoint uses CLEC pre-ordering transaction data from its Wisor interface system for calculating the PO-1 metrics. PO-1 is an automated metric calculated using data extracted from Wisor into source tables in the CAMP Staging area. FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits.

In implementing the C2C Guidelines’ exclusions and other PO-1 metric calculation requirements, FairPoint:

- Excludes through the CAMP calculation logic transactions during Saturday, Sunday, major holidays, and hours outside of the normal report period.
- Selects only pre-orders with request dates within the report month.

¹¹¹ These holidays are New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas.

- Calculates the response time by subtracting the request date and time from the response date and time. Liberty, however, identified a systems error that affected the accuracy of some timestamps, which is discussed further below.
- Distinguishes EDI transactions from GUI transactions based on the value in a data field meant to designate the channel used for initiating the transactions.¹¹² Liberty, however, identified an error in the logic used to populate this data field, which is discussed further below.
- Identifies the pre-order type based on the value populated in the transaction type data field.¹¹³

Liberty identified three major defects in the PO-1 metric calculations:

1. FairPoint has no measurements to use for the retail parity comparison to the PO-1 sub-metrics. In its original implementation of the PAP, Verizon simulated retail pre-ordering transactions with its EnView system to determine parity response times. FairPoint does not use EnView and has not implemented equivalent functionality to simulate retail pre-ordering queries. In lieu of a parity standard, FairPoint takes the monthly average of its response times for each of the pre-ordering types specified by the PO-1 sub-metrics. If this monthly average is four seconds or less for transactions using the EDI interface or seven seconds or less for transactions using the GUI interface, FairPoint considers the metric to have met the standard for that month.¹¹⁴ However, FairPoint also indicated that if the average exceeds these thresholds, it cannot determine whether the metric has met the standard for that month and reports 'NA' for the metric.¹¹⁵ As a result, FairPoint's implementation means that it can never fail to meet the standard for its PO-1 performance. FairPoint indicated that the SMP proposal would have a benchmark standard for the PO-1 metric, which would resolve this issue.¹¹⁶
(Defect #17)
2. FairPoint's pre-order transaction data contains response times earlier than request times. Liberty identified such records in the August and December 2011 Wisor samples.¹¹⁷ FairPoint explained that different systems capture the pre-order request and the response timestamps. Specifically, Wisor captures the request timestamp and M6 captures the response timestamp. FairPoint indicated that these source systems experienced sporadic out-of-sync conditions during 2011 which created this discrepancy in the timestamps. FairPoint drops pre-order records with negative response times (response sent before the request was received) from the

¹¹² This is the "order_channel" data field.

¹¹³ This is the "TXTYP" data field.

¹¹⁴ The four seconds for the EDI interface and the seven seconds for the GUI interface were determined using the times specified in the C2C Guidelines chosen to allow for variations in interface functionality and security requirements between retail and CLEC transactions.

¹¹⁵ Interview #4, November 8, 2011 and December 7, 2012 response to Liberty's Draft Audit Report.

¹¹⁶ December 7, 2012 response to Liberty's Draft Audit Report.

¹¹⁷ Response to Data Request #272.

metric calculation.¹¹⁸ Liberty found this problem for 18 percent of the sampled Wisor records. FairPoint stated that based on a preliminary analysis, there were no occurrences of this issue for the first six months of 2011, but for the three-month period of July through September the out-of-sync problem caused FairPoint to drop an average of 32 records per month. For the last three months of 2011, the average number of dropped records increased dramatically to 11,393 per month¹¹⁹ FairPoint acknowledged the problem and indicated that the out-of-sync condition has been resolved and that the company is continuing to monitor the data to prevent future recurrences.¹²⁰ **(Defect #18)**

3. FairPoint has been misclassifying Web-GUI-interface transactions as EDI-interface transactions because of a systems flaw. The C2C Guidelines for PO-1 require separate reporting of pre-order requests transmitted using the GUI and EDI interfaces. Liberty found, based on analyzing August and December 2011 CAMP data, that FairPoint classified 98.5 percent of pre-order transactions and 100 percent of the order transactions as EDI for metrics calculation in those months, which is highly implausible because many CLECs doing business with FairPoint do not have an EDI interface and use the Web GUI for their pre-order and order transactions.¹²¹ Because of this interface misidentification, FairPoint based its 2011 reported results for PO-1-01-6050 and PO-1-06-6050 on a volume of transactions that were not representative of the actual number of GUI pre-order requests that it actually received. FairPoint also included most of the GUI transaction in the PO-1-01-6020 reported results. This issue also affected the quality of the reported OR-4 results. FairPoint indicated that it found an issue with Wisor's ability to distinguish transactions as EDI or Web GUI which caused the data field that identified the type of interface to have most records populated as 'EDI' during all of 2011. FairPoint stated that it corrected the EDI vs. GUI transaction identification process in Wisor in March 2012, and that it completed the CAMP code updates needed to accommodate the Wisor change in time to apply them to the May data month for PO-1 and to the September data month for OR-4.¹²² **(Defect #19)**

Liberty also found that FairPoint's Wisor system has no controls to prevent a CLEC from issuing multiple PO transactions using the same transaction number¹²³ and transaction type.¹²⁴ When this happens, FairPoint only selects the record with the latest request time for the metric calculation even though each transaction is a unique request, and drops all previous transactions from the PO-1 calculation. FairPoint indicated that it corrected this problem with a code change

¹¹⁸ Responses to Data Requests #409 and #416.

¹¹⁹ Responses to Data Requests #474 and #500. For October, November, and December 2011, FairPoint dropped 8,587, 19,820 and 5,773 pre-order records, respectively, from metric calculations.

¹²⁰ Response to Data Request #416 and December 7, 2012 response to Liberty's Draft Audit Report.

¹²¹ Responses to Data Requests #124 and #125.

¹²² Response to Data Request #260 and December 7, 2012 response to Liberty's Draft Audit Report.

¹²³ This is also known as the "TXNUM."

¹²⁴ This is also known as the "TXTYP."

implemented, on November 29, 2012, that will be effective beginning with the December data month.¹²⁵ **(Defect #20)**

FairPoint stated that it did not implement any system changes during the audit period that would have affected the reported PO-1 values.¹²⁶

2. PO-2

a. Metric Definition

PO-2 reports the availability of FairPoint's pre-ordering and maintenance interfaces. More specifically, this metric reports the actual time these interfaces are operational as a percentage of the scheduled availability. FairPoint reports two PO-2 sub-metrics in New Hampshire, PO-2-02 (OSS Interface Availability – Prime Time) and PO-2-03 (OSS Interface Availability – Non-Prime Time). Only PO-2-02-6020 (OSS Interface Availability – Prime Time) for the EDI interface and PO-2-02-6080 (OSS Interface Availability – Prime Time) for the combined maintenance and pre-ordering web GUI are in scope for this audit.

The C2C Guidelines define scheduled availability for the OSS interfaces as follows:

*Prime Time: 6:00:00 to 23:59:59 Eastern Time (ET) Monday through Saturday,
excluding major holidays*

*Non-Prime Time: 00:00:00 to 5:59:59 ET Monday through Saturday, and all day
Sunday and holidays.*

The exclusions listed in the PO-2 section of the C2C Guidelines are:

- Troubles reported but not found in FairPoint's interfaces
- Troubles reported by a CLEC that were not reported to the FairPoint's designated trouble reporting center
- Scheduled interface downtime for major system releases where CLECs were provided with advanced notification of the downtime in compliance with FairPoint's Change Management Guidelines
- Major Holidays (New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas).

For this metric, FairPoint reports the combined results for the three northern New England states (New Hampshire, Maine, and Vermont) aggregated across all CLECs. The standard for PO-2-02 is greater than or equal to 99.5 percent.

The C2C Guidelines provide the following formula for PO-2-02:

¹²⁵ Response to Data Request #481 clarification and December 7, 2012 response to Liberty's Draft Audit Report.

¹²⁶ Response to Data Request #8.

PO-2-02: OSS Interface Availability – Prime Time

(Total number of scheduled prime time hours in the month for all available processing complexes minus the total number of unscheduled prime time outage hours in the month for all available processing complexes)/(Total number of scheduled prime time hours in the month for all available processing complexes)

The in-scope PO-2 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

PO-2 is a manually calculated metric. FairPoint’s Wholesale Customer Center organization inputs the data used for the calculations into a spreadsheet each month. The wholesale organization provides this spreadsheet to the Operations Performance Metrics Team by the third working day of the following month to be populated into CAMP for metric reporting. FairPoint indicated that historical data is available beginning in July 2010 for both the system outage notifications to the CLECs and the monthly calculation spreadsheets.

FairPoint includes in PO-2 OSS interface outages reported through calls to the Wholesale Help Desk from one of three possible sources:

1. A CLEC
2. The wholesale group
3. The Wisor support group.

The C2C Guidelines specify an additional method for OSS interface outage detection. This method involves interface outage detection using EnView, a Verizon system that FairPoint does not use, as noted in the discussion of PO-1. According to the C2C Guidelines, EnView was intended as a system availability alarm. If EnView detected an outage that CLECs did not report to FairPoint, the C2C Guidelines state that the EnView outage should be included in the metric calculations as if the entire CLEC population experienced the outage. Because FairPoint does not use EnView or any other equivalent internal system availability alarm, this additional source of outage reporting is not part of FairPoint’s implementation of PO-2.

All OSS interface outages must be reported to the Wholesale Help Desk to be included in the metric calculation. In addition to creating the trouble ticket, the wholesale group issues an Accessible Letter via e-mail informing the CLECs of the start time of the outage. The wholesale group monitors the outage until the system is restored and the ticket is closed. FairPoint issues a second Accessible Letter to let the CLECs know when the system has been restored. FairPoint uses these Accessible Letters to identify the outages to be included in the metric calculation. The company includes only outages in the Wisor CLEC-interface system. As is normal practice for

metrics of this type, FairPoint does not include outages resulting from problems that occur in its back-end systems.¹²⁷

To evaluate the accuracy of the data and the reported calculations of PO-2-02-6020 and PO-2-02-6080, Liberty obtained copies of all of the e-mail system outage notifications sent to the CLECs and the tracking spreadsheets used for metric calculation during the audit period months.¹²⁸ Using this data, Liberty determined that there was only one outage in February 2011 that qualified for inclusion in the metric calculations. That is, only one outage involved a Wisor interface outage; all other outage reports were associated with problems in FairPoint's back-end systems. Liberty verified that FairPoint calculated and reported the outage interval correctly for this single outage.

3. PO-4

a. Metric Definition

PO-4 reports the timeliness of change management notices FairPoint provided to the CLECs to make them aware of scheduled interface software-affecting changes. FairPoint includes a "Type" designation (*i.e.*, Type 1, 2, 3, 4, and 5) in the notices. Change management confirmations verify that FairPoint has finalized its documentation prior to implementation.

PO-4 has three sub-metrics:

- PO-4-01: Percent Change Management Notices Sent on Time
- PO-4-02: Change Management Notices – Delay one (1) to seven (7) days
- PO-4-03: Change Management Notices – Delay eight (8) plus days.

Only PO-4-01-6660 (Percent Change Management Notices Sent on Time – Change Notification and Confirmation – Industry Standard, FairPoint Originated and TC Originated) and the PO-4-03-6600 (Change Management Notices – Delay eight (8) plus days Change Notification and Confirmation Combined) are in scope for this audit.

The C2C Guidelines define the different types of change notifications and confirmations and the associated timeliness standards as follows:

¹²⁷ Response to Data Request #2 and Interview #4, November 8, 2011.

¹²⁸ Responses to Data Requests #33, #96, and #96 supplemental.

Table V-1
Intervals Used in PO-4 Calculations

Change Type	Change Notification Interval	Change Confirmation Interval
Type 5: CLEC (TC) originated	<ul style="list-style-type: none"> Business Rules: ≥ 73 calendar days Technical Specifications: ≥ 66 calendar days or FairPoint/CLEC agreed upon timeframes 	<ul style="list-style-type: none"> ≥ 45 calendar days or FairPoint/CLEC agreed upon timeframes
Type 4: FairPoint originated	<ul style="list-style-type: none"> Business Rules: ≥ 73 calendar days Technical Specifications: ≥ 66 calendar days or FairPoint/CLEC agreed upon timeframes 	<ul style="list-style-type: none"> ≥ 45 calendar days or FairPoint/CLEC agreed upon timeframes
Type 3: Industry Standard	<ul style="list-style-type: none"> Business Rules: ≥ 73 calendar days Technical Specifications: ≥ 66 calendar days or FairPoint/CLEC agreed upon timeframes 	<ul style="list-style-type: none"> ≥ 45 calendar days or FairPoint/CLEC agreed upon timeframes
Type 2: Regulatory	<ul style="list-style-type: none"> Time frames specified in the Regulatory Order. If no time frame set, default to above. 	<ul style="list-style-type: none"> Time frames specified in the Regulatory Order. If no time frame set, change notification and change confirmation negotiated on an individual case basis through the change management process.
Type 1: Emergency Maintenance	<ul style="list-style-type: none"> Notification before implementation 	N/A

The C2C Guidelines state that FairPoint should not consider documentation available until all material changes are made.

There are no exclusions to the PO-4 measure.

FairPoint reports this metric in aggregate for all CLECs at a regional level for the three northern New England states. For each PO-4 sub-metric, FairPoint combines Type 1 and Type 2 notifications and reports them as one number; it combines Type 3, Type 4, and Type 5 notifications and reports them as a second number. FairPoint follows the same procedure for reporting Types 3, 4, and 5 change confirmations. Type 2 change confirmations are reported individually, as change confirmations do not apply for Type 1 notices. The standard for PO-4-01 is 95 percent, and the standard for PO-4-03 is no delayed notices and documentation over eight (8) calendar days. FairPoint indicated that it follows the specific change confirmation intervals specified in the C2C Guidelines as shown in the table above; there are no applicable “FairPoint/CLEC agreed upon timeframes.”¹²⁹

The C2C Guidelines provide the following formulas for the in-scope PO-4 sub-metrics:

PO-4-01: Change Management Notices Sent On Time

(Change management notifications sent within the required time frame)/(Total number of change management notices sent)

¹²⁹ Interview #4, November 8, 2011.

PO-4-03: Change Management Notice – Delay Eight Plus Days

Cumulative delay days for change management notices sent eight or more days late.

The in-scope PO-4 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

FairPoint has created a “self-signup” tool for the CLECs to receive change notifications. The notices are sent out via the e-mail Accessible Letter process and are also posted on FairPoint’s wholesale webpage.¹³⁰

FairPoint’s Wholesale Customer Center organization calculates this metric manually each month. It maintains a monthly record of each of the Accessible Letter notices to be included in the calculation on a spreadsheet. For PO-4-03, the cumulative delay days are recorded on the same spreadsheet for any notice that is late for eight or more days. The wholesale group forwards the completed spreadsheet for the report month to the Operations Performance Metrics Team by the third work day of the following month for input into CAMP for values reporting purposes.¹³¹

FairPoint indicated that the tracking spreadsheets and Accessible Letter notifications are available starting from July 2010.¹³² To evaluate the accuracy of the data and PO-4-01-6660 and PO-4-03-6600 calculations, Liberty obtained copies of all Accessible Letters issued by FairPoint and the monthly tracking spreadsheets for all of 2011.¹³³ FairPoint issued Type 3, 4, or 5 Change Management Notices in only four months during 2011. Liberty verified that all appropriate Accessible Letters from these four months appeared correctly on the tracking spreadsheet and that FairPoint did not issue any late notices.¹³⁴ Liberty verified through independent calculation FairPoint’s reported PO-4-01 values for the entire audit period. Liberty verified that FairPoint issued no Change Management Notices late during 2011, which is consistent with FairPoint’s reporting only zero values for PO-4-03 during this period.

¹³⁰ Interview #4, November 8, 2011.

¹³¹ Response to Data Request #2 and Interview #4, November 8, 2011.

¹³² Interview #4, November 8, 2011.

¹³³ Responses to Data Requests #34, #97, and #97 supplemental.

¹³⁴ FairPoint only issued Type 3, 4, or 5 Change Management Notices during January, February, July, and August 2011.

4. PO-6

a. Metric Definition

PO-6 reports data related to the adequacy of FairPoint's procedures for CLECs to validate software releases associated with the wholesale interface. The C2C Guidelines state that FairPoint installs CLEC-impacting software releases three times per year, usually in February, June, and October. In order to verify that the software will perform as designed, FairPoint tests the functionality of the software release using test decks of transactions. There is only one PO-6 sub-metric (PO-6-01 – Software Validation).

The C2C Guidelines state that FairPoint executes the test deck at the start of the Quality Assurance (QA) process and again at its completion. Within one business day following a non-emergency software release to production, FairPoint will begin to execute the test deck in production using training mode. After completing the test, FairPoint will report the number of test deck transactions that failed. A failed transaction occurs when the request cannot be submitted or processed, or results in incorrect or improperly formatted data.

According to the C2C Guidelines, FairPoint assigns a weight to each transaction in the test deck, distributes the weights between the transaction types (*e.g.*, pre-order), and then applies them to specific transactions within each of the transaction types. FairPoint reports the PO-6 metric using the weighted transaction values in both the numerator and denominator of the calculation.

The C2C Guidelines list no exclusions to the PO-6 measure.

FairPoint reports the combined PO-6-01 results for the three northern New England states. The result reflects an aggregate of all CLECs. The standard for PO-6-01 is less than five percent of weighted test deck transactions failing.

The C2C Guidelines provide the following formula for PO-6:

PO-6-01: Software Validation

(Sum of weights of failed transactions)/(Sum of weights of all transactions in the test deck).

The PO-6 measure is included in the New Hampshire PAP.

b. Metric Data and Calculations

FairPoint informed Liberty that it has not changed the Local Service Ordering Guidelines (LSOG) version of its interface software since cutover. Therefore, FairPoint has not reported the PO-6 metric since cutover. Liberty conducted a review of the Accessible Letters posted on FairPoint's wholesale web site during 2011, identifying seven "production deployment"

notifications that had “CLEC impacting incidents or enhancements.” FairPoint explained that these system changes all involved modifications to a FairPoint back-end system which, while potentially impacting the CLECs, did not involve a change to any of the CLEC business rules or front-end edits.¹³⁵ Therefore, these changes did not require any CLEC testing using the CLEC test environment, which is the focus of this sub-metric. The purpose for a CLEC Test Environment is to allow CLECs using the EDI interface to validate business rule changes to ensure that they are properly coded.¹³⁶

In preparation for its first LSOG release, scheduled for 2013, FairPoint purchased Validator, a system validation tool. FairPoint will create a test deck in Validator and will use the software validation test results from this system for PO-6 calculation and reporting.¹³⁷

5. PO-8

a. Metric Definition

PO-8 measures the time it takes FairPoint to respond to a request for manual loop qualification information and provide engineering record information. There are two PO-8 sub-metrics, PO-8-01 (Percent On Time – Manual Loop Qualification) and PO-8-02 (Percent On Time – Engineering Record Request). Only PO-8-01-6000 (Percent On Time – Manual Loop Qualification) is in scope for this audit.

Manual loop qualification information may be required to provision certain more complex services or when the information cannot be obtained electronically through FairPoint’s pre-ordering interface.

The C2C Guidelines allow the following exclusions to the PO-8 metric:

- Digital Design Loops that require loop conditioning (identified by an HXMU code)
- Test CLEC IDs
- Weekends and holidays. Weekends are excluded from 5:00 p.m. Friday to 8:00 a.m. Monday, and holidays, from 5:00 p.m. of the business day that precedes the holiday to 8:00 a.m. of the first business day following holiday.

The standard for PO-8-01 is 95 percent within 48 hours.

FairPoint reports CLEC aggregate results at a state-specific level.

The C2C Guidelines provide the following formulas for PO-8-01:

¹³⁵ Liberty has no information to indicate whether any of these changes did affect CLECs, because such data is out of the scope of this audit.

¹³⁶ Responses to Data Requests #113 and #148.

¹³⁷ Response to Data Request #473 clarification.

PO-8-01: Percent On Time – Manual Loop Qualification

(Sum of manual loop qualification requests where the time from receipt of request for a manual loop qualification to the distribution of the loop qualification information is less than or equal to 48 hours)/(Number of manual loop qualification transactions)

The PO-8 measure is included in the New Hampshire PAP.

b. Metric Data and Calculations

To request a manual loop qualification, the CLECs send e-mail requests to a mailbox that FairPoint established for this process. FairPoint's wholesale service representatives retrieve the e-mail requests from the mailbox and send them using Lotus Notes to FairPoint's Facility Inventory Group for review. The Facility Inventory Group populates the required loop make-up information to satisfy the request in Lotus Notes and sends them back to the wholesale service representative who requested the information. The requested information is then returned to the CLEC via e-mail.¹³⁸

FairPoint's Wholesale Customer Center manually calculates the PO-8 values. FairPoint indicated that, before September 2011, it used the timestamps in Lotus Notes for the exchange of information between the wholesale service representative and the Facility Inventory Group for the response time calculation. **(Defect #21)** This process was superseded by a revised process, introduced in October 2011 for the September 2011 data month, which calculates the timeliness of the response based on the times, as recorded in Lotus Notes, between FairPoint's receipt of the CLEC e-mail requesting a manual loop qualification and the e-mail response to the CLEC containing the requested loop information.¹³⁹

The Wholesale Customer Center forwards the calculated PO-8 values for the report month to the Operations Performance Metrics Team by the third work day of the following month for input into CAMP for metric reporting purposes. FairPoint indicated that historical calculation documentation, the Lotus Notes, and the CLEC manual loop qualification requests are available beginning in July 2010.¹⁴⁰

To evaluate the accuracy of the data and the calculation of PO-8-01-6000, Liberty obtained copies of all New Hampshire monthly Lotus Notes tracking spreadsheets used by the Wholesale Customer Center organization to calculate the values during the audit period.¹⁴¹ We also obtained copies of all the New Hampshire CLEC manual loop qualification e-mail requests and FairPoint's e-mail responses to these requests for September through December 2011, when

¹³⁸ Interview #4, November 8, 2011.

¹³⁹ Interview #4, November 8, 2011 and response to Data Request #2.

¹⁴⁰ Interview #4, November 8, 2011.

¹⁴¹ Responses to Data Requests #35, #98, and #98 supplemental.

FairPoint's revised calculation process was in effect.¹⁴² We used this documentation to determine whether all the requests were correctly included in the metric calculations and to evaluate the appropriateness and accuracy of FairPoint's methods for calculating the response times. Liberty found that FairPoint adjusts the receipt time of loop qualification requests in cases where the requested location was not populated in FairPoint's loop qualification database and needed to be added by FairPoint via the Master Street Address Guide (MSAG). In these cases, FairPoint does not begin its response time interval calculation until the MSAG has been updated to include the requested address.¹⁴³ The C2C Guidelines do not authorize this time exclusion. Liberty was able to replicate FairPoint's reported results for September through December 2011, but only after adjusting the receipt times by eliminating the time required to populate missing locations as described above for two transactions and adjusting for a reporting error made by FairPoint when reporting its October results.¹⁴⁴ FairPoint indicated that the proposed definition for this metric in the SMP would clarify what it refers to as the "implied exclusion."¹⁴⁵ **(Defect #22)**

C. Ordering Metrics (OR)

1. OR-1

a. Metric Definition

OR-1 reports FairPoint's ability to issue local service request confirmations (LSRCs) in a timely manner. FairPoint reports eight OR-1 sub-metrics in New Hampshire:

- OR-1-02: Percent On Time LSRC – Flow Through
- OR-1-04: Percent On Time LSRC/ASRC - No Facility Check (Electronic – No Flow-through)
- OR-1-06: Percent On Time LSRC/ASRC – Facility Check (Electronic – No Flow-through)
- OR-1-08: Percent On Time ASRC - No Facility Check (Fax/Mail)
- OR-1-10: Percent On Time ASRC - Facility Check (Fax/Mail)
- OR-1-12: Percent On Time Firm Order Confirmation (FOC)
- OR-1-13: Percent On Time Design Layout Record (DLR)
- OR-1-19: Percent On Time Response - Request for Inbound Augment Trunks.

Only the following OR-1 sub-metrics and product disaggregations are in scope for this audit:

- OR-1-02:
 - 2320 – Resale POTS and pre-qualified Complex

¹⁴² Response to Data Request #98 supplemental and #120.

¹⁴³ Response to Data request #119.

¹⁴⁴ Response to Data request #476.

¹⁴⁵ December 7, 2012 response to Liberty's Draft Audit Report.

- 3331 – UNE Loop, pre-qualified Complex and LNP
- OR-1-04
 - 2320 – Resale POTS and pre-qualified Complex
 - 3331 – UNE Loop, pre-qualified Complex and LNP
 - 3342 – UNE 2-Wire xDSL Loops
- OR-1-06
 - 1200 – Resale and UNE Combined Specials
 - 2320 – Resale POTS and pre-qualified Complex
 - 3331 – UNE Loop, pre-qualified Complex and LNP
 - 3342 – UNE 2-Wire xDSL Loops
- OR-1-12
 - 5020 – CLEC Trunks (< or equal to 192 forecasted trunks)
- OR-1-13
 - 5000 – CLEC Trunks

CLECs submit ordering requests for service in the form of local service requests (LSRs) or access service requests (ASRs) depending on the product or service ordered. The OR-1-02 through OR-1-06 sub-metrics focus on distinct categories of Resale and Unbundled Network Element (UNE) orders, *i.e.*, orders submitted electronically that flow through to FairPoint’s back-end systems and orders submitted electronically that require manual handling. FairPoint reports each of these sub-metrics for a specified number of distinct product groups, such as Resale POTS and pre-qualified resold complex services, Resale and UNE combined specials, and UNE 2-Wire xDSL loops. OR-12 and OR-13 report the timeliness of conformations and design layout requests for interconnection trunks ordered via an ASR.

FairPoint calculates the sub-metrics for different categories of orders on the basis of timeliness standards determined by product group and order characteristics (*e.g.*, flow through and non-flow through with or without facility check). The C2C Guidelines specify that all LSR orders with more than five lines and all ASR orders except those requesting a disconnection comprise the orders requiring a facility check.

The C2C Guidelines list the following exclusions from the OR-1 calculation:

- FairPoint test orders
- Special project purchase order numbers (PONs)
- Weekend and holiday hours for non-flow-through orders
- Scheduled service order processor (SOP) downtime hours for the OR-1-02 sub-metrics
- Incorrect “notifiers” (*i.e.*, rejects or confirmations) in response to the same service request instance; that is, if a reject and a confirmation are sent in response to the same PON-Version (VER) instance of a service request, FairPoint should not count the notifier that was incorrectly sent.

The C2C Guidelines specify that if an order confirmation is resent because of a problem within FairPoint's systems, the time stamp to be used in the confirmation timeliness calculation should be the time stamp of the last confirmation. If the resend was because of a CLEC problem, such as the inability of the CLEC systems to receive transactions, the time stamp to be used should be that of the first confirmation.

FairPoint reports all of the OR-1 sub-metrics on a statewide basis by individual and aggregate CLECs. The standard for all OR-1 sub-metrics is 95 percent on time based on the schedule outlined in the C2C Guidelines for each specific order type and product combination.

The C2C Guidelines provide the following formulas for the in-scope OR-1 sub-metrics:

OR-1-02: % On Time Local Service Request Confirmation (LSRC) – Flow-Through

(Number of electronic LSRCs sent, where the confirmation date and time minus the submission date and time is less than or equal to two hours for the specified product)/(Total number of flow-through LSRs confirmed for the specified product)

OR-1-04: % On Time LSRC/Access Service Request Confirmation (ASRC) – No Facility Check (Electronic – No Flow-through)

(Number of electronic LSRCs/ASRCs, not requiring a facility check sent, where the confirmation date and time minus the submission date and time is less than or equal to the standard for the specified product)/(Total number of electronic LSRs/ASRs not requiring a facility check confirmed for a specified product)

OR-1-06: % On Time LSRC/ASRC – Facility Check (Electronic – No Flow-through)

(Number of electronic LSRCs/ASRCs, requiring a facility check sent, where the confirmation date and time minus the submission date and time is less than or equal to the standard for the specified product)/(Total number of electronic LSRs/ASRs requiring a facility check, confirmed for the specified product)

OR-1-12: % On Time FOC

(Number of orders confirmed within the specified interval for the product type)/(Number of orders received, either electronically or via fax, confirmed by product type)

OR-1-13: % On Time Design Lay Out Record (DLR)

(Number of DLRs completed on or before the DLR due date)/(Number of DLRs completed)

The in-scope OR-1 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

FairPoint uses data from two different source systems, Wisor and M6, for calculating OR-1.¹⁴⁶ The Wisor data contains timestamps reflecting when the CLEC sent the service order and when FairPoint returned the confirmations. FairPoint uses M6 to determine whether the order achieved flow-through. Flow-through is defined for purposes of the C2C Metrics as the order-processing condition when FairPoint receives an order electronically and returns an automated FOC. Consistent with this definition, the processing of flow-through orders can still involve subsequent manual intervention after the FOC transmission.

OR-1 is an automated metric calculated using data extracted from Wisor and M6 into source tables in the CAMP Staging area. FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits.

In implementing the C2C Guidelines' exclusions and other OR-1 metric calculation requirements, FairPoint:

- Does not need to exclude FairPoint test orders in OR-1 or any other OR metric, because the company does not use test CLEC identification codes in the production versions of its OSS.¹⁴⁷
- Excludes special project PONs based on a list of such PONs created by the wholesale service managers and then imported into CAMP. FairPoint uses this file to populate data fields in CAMP which flag the specific transactions associated with special projects to be excluded from the metric calculations.¹⁴⁸
- Excludes weekend and holiday hours and for scheduled service order processor downtime through the CAMP calculation logic.¹⁴⁹
- Does not apply the required exclusion of incorrect notifiers, because it cannot identify which was the incorrect notifier for orders that have a reject and a confirmation sent on the same PON-Version combination. When this occurs, CAMP counts the confirmation in the OR-1 calculation and the reject in the OR-2 calculation, and hence effectively double counts the transaction.¹⁵⁰ FairPoint indicated that it is investigating this issue for potential corrective action.¹⁵¹
(Defect #23)
- Distinguishes flow-through from non-flow-through orders for determining which orders should be reported in OR-1-02, OR-1-04, and OR-1-06 through a set of derived data fields. Liberty, however, found that these fields did not accurately

¹⁴⁶ Response to Data Request #7 supplemental. The exception to this is the OR-1-12 sub-metric which uses only data sourced from Wisor for the calculation.

¹⁴⁷ Response to Data Request #58.

¹⁴⁸ Response to Data Request #37 Errata.

¹⁴⁹ Response to Data Request #2.

¹⁵⁰ Response to Data Request #488.

¹⁵¹ December 7, 2012 response to Liberty's Draft Audit Report.

identify whether orders actually flowed through FairPoint's systems. This matter is discussed in more detail below (see Defects #25 and 26).

- Identifies products through a complex process using several data fields and look-up tables described in Section V.A.4. Liberty identified some errors in this process that are discussed in that section.
- Includes all non-disconnect ASR orders among the facility-check orders, but inconsistently applies the correct five-line cutoff for identifying facility-check LSR orders.¹⁵² This error causes some orders to be excluded from both OR-1-04, which reports on-time confirmations for non-flow-through orders not requiring a facility check, and OR-1-06, which reports those requiring a facility check. This problem is discussed in more detail below (see Defect #30).
- Calculates OR-1 confirmation timeliness based on the first confirmation sent and does not count subsequent confirmations for service requests with the same PON-Version combination regardless of who was at fault for the subsequent confirmation transmissions. This is inconsistent with the C2C Guidelines, which require using the time of the last confirmation when sending multiple confirmations was FairPoint's fault.¹⁵³ FairPoint indicated that it is investigating this issue for potential corrective action.¹⁵⁴ **(Defect #24)**

One of the key requirements for accurately reporting OR-1, OR-2, OR-5, and OR-6 is to determine whether a service order flowed through to FairPoint's back-end systems without requiring manual intervention by a FairPoint service representative. FairPoint acknowledged that throughout 2011, the CAMP logic used to identify flow-through orders was flawed, sometimes resulting in the misclassification of service orders. From January through September 2011, FairPoint used a derived data field¹⁵⁵ in CAMP that was intended to flag the order with a 'yes' or a 'no' value to indicate whether the order flowed through. FairPoint found, however, that this flag was inaccurate. As a result, beginning with the October 2011 data month, FairPoint augmented the use of this flag with another derived data field¹⁵⁶ for flow-through identification. FairPoint stated that it implemented this new data field "in phases" and that it "implemented several improvements in the identification of flow-through orders during 2011 and continues to implement changes in 2012."¹⁵⁷ While these changes appear to have improved FairPoint's ability to accurately distinguish flow-through from non-flow-through orders, Liberty's review of these derived data field flags revealed that FairPoint continued to misclassify orders in December 2011.¹⁵⁸ FairPoint indicated that it implemented additional flow-through identification improvements in CAMP on March 28, July 30, and November 29, 2012, and plans to include additional changes in future releases.¹⁵⁹ **(Defect #25)**

¹⁵² Response to Data Request #38.

¹⁵³ Interview #5, November 8, 2011 and responses to Data Requests #40, #184, and #221.

¹⁵⁴ December 7, 2012 response to Liberty's Draft Audit Report.

¹⁵⁵ This is the "flow_through" data field.

¹⁵⁶ This is the "OR102_exclusion" data field.

¹⁵⁷ Responses to Data Requests #212, #235, #256, #267, #343, #344, and #390.

¹⁵⁸ Responses to Data Requests #390, #391, #428, #430, #435, and #450.

¹⁵⁹ Response to Data Request #516 and December 7, 2012 response to Liberty's Draft Audit Report.

FairPoint had an additional flaw in the process for identifying flow-through orders in calculating OR-1. This error applies to OR-2 also. The logic FairPoint implemented in CAMP for OR-1 and OR-2 requires a flow-through order not only to actually flow through but also to have been designed to flow through in FairPoint's systems. While the distinction between actual and designed flow-through is important for OR-5, as noted in the findings on that metric, the C2C Guidelines provide no justification for using designed flow-through as a criterion for other OR metrics. Furthermore, not only should FairPoint not have used this criterion but they applied it incorrectly because of unreliable values in a derived designed-flow-through data field, which caused FairPoint to improperly include some service orders and exclude others in various OR-1 sub-metrics. FairPoint indicated that it implemented a code change to remove designed flow-through as a criterion for OR-1 and OR-2 effective with the March 2012 data month.¹⁶⁰ **(Defect #26)** The error in the designed-flow-through field is discussed in Section V.C.4 (Defect #48).

The following CAMP coding mistakes also affected FairPoint's calculation of the OR-1 and some other OR sub-metrics:

- CAMP does not have logic for identifying related PONs in calculating the OR metrics. CAMP treats each PON separately and uses the individual PON receipt time and response time to calculate the OR-1 and OR-2 metrics. The C2C Guidelines for OR-1 and OR-2 specify that when a CLEC designates related PONs (RPONs), the start time of the calculation should be based on the date and time FairPoint receives the last RPON.¹⁶¹ FairPoint indicated that its SMP proposal would change the Guidelines to specify use of the actual receipt time of each PON rather than the timestamp of last RPON.¹⁶² **(Defect #27)**
- FairPoint excluded confirmations of customer-requested cancellation from the OR-1 calculations.¹⁶³ Liberty found, for example, using the December CAMP data¹⁶⁴ that 34 customer-requested cancellation confirmations were incorrectly excluded from the December OR-1-02-3331 calculation. Including these missing records changes the OR-1-02-3331 value to 94.40 percent, which falls below the standard of 95 percent for this metric, from FairPoint's reported value of 96.26 percent, which exceeds the standard. FairPoint indicated that it corrected this error beginning with the February 2012 data month.¹⁶⁵ **(Defect #28)**
- FairPoint included orders in the numerator of OR-1-02 that did not meet the sub-metric's two-hour on-time benchmark.¹⁶⁶ Liberty found, for example, five orders counted in the December OR-1-02-2320 numerator that did not meet the on-time benchmark. Removing these five orders changes the OR-1-02-2320 value to 93.0 percent, which falls below the 95 percent metric standard, from FairPoint's

¹⁶⁰ Responses to Data Requests #385 and #430 and December 7, 2012 response to Liberty's Draft Audit Report.

¹⁶¹ Responses to Data Requests #39 and #81.

¹⁶² December 7, 2012 response to Liberty's Draft Audit Report.

¹⁶³ Response to Data Request #182.

¹⁶⁴ Provided in response to Data Request #125.

¹⁶⁵ Response to Data Request #182.

¹⁶⁶ Response to Data Request #414.

reported value of 95.7 percent, which exceeds the standard. FairPoint indicated that it corrected this problem in CAMP on September 28, 2012.¹⁶⁷ **(Defect #29)**

- FairPoint excludes LSR orders for five or more lines in calculating OR-1-04 (no facility check required), but excludes orders for five or fewer lines in calculating OR-1-06 (facility check required). As noted, the C2C Guidelines specify that physical facility checks are performed on LSR orders for more than five lines, which is consistent with FairPoint’s implementation of OR-1-06 but not that of OR-1-04. The net effect of this method for identifying facility-check orders in the two sub-metrics is that FairPoint reports the confirmation timeliness of orders with exactly five lines in neither OR-1-04 nor OR-1-06. FairPoint indicated that it updated the CAMP logic to correct this problem on May 29, 2012.¹⁶⁸ Because of the relative infrequency of orders with precisely five lines, this error is likely to have a relatively small effect on FairPoint’s metric calculation. For example, Liberty found in the August and December 2011 data no five-line service requests that were excluded as a result of this issue. **(Defect #30)**
- CAMP does not accurately identify the scheduled and actual completion Design Layout record (DLR) dates in calculating OR-1-13. FairPoint indicated that it is investigating why the proper dates do not appear in CAMP and plans a correction in a future CAMP release.¹⁶⁹ **(Defect #31)** FairPoint also made a coding change in November 2011 that included records in the OR-1-13 calculation prior to the completion of a DLR. FairPoint indicated that it will implement a coding change in CAMP to correct this.¹⁷⁰ As an example, Liberty found that by incorrectly including one record in the December OR-1-13 calculation because of this coding error, FairPoint reported a value of 50 percent (one divided by two) instead of zero percent (zero divided by one). **(Defect #32)**
- FairPoint excludes records from the OR-1-04 calculation whenever there is a null value in the data fields¹⁷¹ used to determine the number of lines in the service order. FairPoint indicated that it corrected this problem in CAMP on September 28, 2012.¹⁷² **(Defect #33)**
- In calculating OR-1 and OR-2 when the primary data field for determining the number of lines in the service order is null or blank,¹⁷³ FairPoint uses an alternative approach to determine the number of lines. When there are service orders with multiple lines, CAMP generally has a separate record for each line in the order so that the number of lines can be determined by summing the number of these records. . The records are numbered sequentially with the number of each record placed in a “line-number” data field.¹⁷⁴ However, FairPoint uses the line-

¹⁶⁷ Response to Data Request #414 and December 7, 2012 response to Liberty’s Draft Audit Report.

¹⁶⁸ Response to Data Request #187 and December 7, 2012 response to Liberty’s Draft Audit Report.

¹⁶⁹ Response to Data Request #389 and December 7, 2012 response to Liberty’s Draft Audit Report.

¹⁷⁰ Response to Data Request #533.

¹⁷¹ These are the “PQTY” and the “LNUM” data fields.

¹⁷² Response to Data Request #535 and December 7, 2012 response to Liberty’s Draft Audit Report.

¹⁷³ This is the “PQTY” data field.

¹⁷⁴ This is the “LNUM” data field.

number value in the first CAMP record of the service order rather than summing the number of records associated with the order. Because the line-number value of the first record is always ‘1’, multiline orders are counted as single-line orders. FairPoint acknowledged this error and indicated that it updated its logic in an August 29, 2012 CAMP release to correctly set the number of lines to the sum of the number of records.¹⁷⁵ **(Defect #34)**

- FairPoint classifies three retail company codes as those of wholesale carriers and counts records with these company codes as wholesale transactions in the calculation of the OR metrics. FairPoint indicated that it made a CAMP coding change, on October 29, 2012, to correct this.¹⁷⁶ As an example of the impact of this error, Liberty found that FairPoint incorrectly included eight retail records in the December OR-1-04-2320 calculation and nine in the OR-1-04-3331 calculation. Removing these records, however, has a relatively minor effect, changing FairPoint’s OR-1-04-2320 values from 98.29 to 98.50 and the OR-1-04-3331 values from 98.56 to 98.67 percent. **(Defect #35)**
- FairPoint uses the characters “fix” and “lets” at the end of PONs to identify PONs used for internal orders (*e.g.*, an internal record update order) and excludes all PONs that end with these characters from the metric calculations. This logic would also exclude any CLEC order ending in these characters from the calculations. FairPoint has no logic in CAMP to override this exclusion for genuine CLEC orders or controls in Wisor or elsewhere to prevent a CLEC from using these same characters at the end of a PON.¹⁷⁷ FairPoint stated that this situation has never occurred but that it is investigating the matter.¹⁷⁸ **(Defect #36)**
- Flaws in the Wisor-to-CAMP download process caused some service-request records to be missing from the Wisor data sets in CAMP. When this happens and CAMP identifies a service-request PON in the M6 data that is missing from the Wisor download, the missing service requests are populated in CAMP from the EAI middleware. This secondary source of missing service requests, however, does not contain all of the data fields needed for calculating the OR metrics. FairPoint indicated that it implemented two corrections during 2012 to reduce the number of service requests that need to be sourced to CAMP in this manner.¹⁷⁹ **(Defect #37)**

FairPoint provided a description of the code changes that were made to CAMP from March through December 2011.¹⁸⁰ During this time there were 13 CAMP changes that specifically affected the in-scope OR-1 metrics. Some of these code changes involved significant modifications to the CAMP logic used to identify whether a service order achieved flow-through for the calculation of the OR-1 results. FairPoint also implemented an additional 11 “generic”

¹⁷⁵ Response to Data Request #332 and December 7, 2012 response to Liberty’s Draft Audit Report.

¹⁷⁶ Response to Data Request #528 and December 7, 2012 response to Liberty’s Draft Audit Report.

¹⁷⁷ Responses to Data Requests #368 and #370.

¹⁷⁸ December 7, 2012 response to Liberty’s Draft Audit Report.

¹⁷⁹ Responses to Data Requests #534 and #546.

¹⁸⁰ FairPoint could not provide details of changes made to CAMP before March 2011.

changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.¹⁸¹

2. OR-2

a. Metric Definition

OR-2 reports FairPoint's ability to issue order rejects or queries in a timely manner. FairPoint reports six OR-2 sub-metrics in New Hampshire:

- OR-2-02: Percent On Time LSR Reject (Flow-through)
- OR-2-04: Percent On Time LSR/ASR Reject – No Facility Check (Electronic – No Flow-through)
- OR-2-06: Percent On Time LSR/ASR Reject – Facility Check (Electronic – No Flow-through)
- OR-2-08: Percent On Time Reject – No Facility Check (Fax)
- OR-2-10: Percent On Time Reject – Facility Check (Fax)
- OR-2-12: Percent On Time Trunk ASR Reject

Only the following OR-2 sub-metrics and product disaggregations are in scope for this audit:

- OR-2-02
 - 3331 – UNE Loop, pre-qualified Complex and LNP
 - 2320 – Resale POTS and pre-qualified Complex
- OR-2-04
 - 2320 – Resale POTS and pre-qualified Complex
 - 3331 – UNE Loop, pre-qualified Complex and LNP
 - 3342 – UNE 2-Wire xDSL Loops
- OR-2-06
 - 1200 – Resale and UNE Combined Specials
 - 2320 – Resale POTS and pre-qualified Complex
 - 3331 – UNE Loop, pre-qualified Complex and LNP
 - 3342 – UNE 2-Wire xDSL Loops
- OR-2-12
 - 5020 – CLEC Trunks (< or equal to 192 forecasted trunks)

The OR-2-02 through OR-2-06 sub-metrics focus on distinct categories of Resale and UNE orders, *e.g.*, orders submitted electronically that flow-through to FairPoint's back-end systems and orders submitted electronically that require manual handling. FairPoint reports each of these

¹⁸¹ Response to Data Request #8 supplemental.

sub-metrics for a specified number of distinct product groups, such as Resale POTS and Resale pre-qualified complex services, Resale and UNE combined specials and UNE 2-Wire xDSL loops. The OR-2-12 sub-metric focuses on FairPoint's performance in issuing rejections on orders for CLEC-to-FairPoint interconnection trunks.

FairPoint calculates the OR-2 sub-metrics for different categories of orders on the basis of timeliness standards determined by product group and order characteristics, *e.g.*, with or without a facility check.

The C2C Guidelines list the following exclusions from the OR-2 calculation:

- FairPoint test orders
- Duplicate rejects
- Special project PONs
- Weekend and holiday hours for non-flow-through orders
- Scheduled SOP downtime hours for the OR-2-02 sub-metrics
- Incorrect notifiers in response to the same service request instance
- Any reject or query on an ASR for which a CLEC did not require a response.

The C2C Guidelines specify that if an order reject or query is resent because of a problem within FairPoint's systems, the time stamp to be used in the reject timeliness calculation should be the time stamp of the last reject or query. If the resend was because of a CLEC problem, such as the inability of the CLEC systems to receive transactions, the time stamp to be used should be that of the first reject or query.

FairPoint reports all of the OR-2 sub-metrics on a statewide basis by individual and aggregate CLECs. The standard for all OR-2 sub-metrics is 95 percent on time based on the schedule outlined in the C2C Guidelines for each specific order type and product combination.

The C2C Guidelines provide the following formulas for the OR-2 sub-metrics:

OR-2-02: % On Time LSR Reject (Flow-Through)

(Number of electronic rejects sent where the reject date and time minus the submission date and time is less than or equal to two hours for the specified product)/(Total number of flow-through LSRs rejected for the specified product)

OR-2-04: % On Time LSR/ASR Reject – No Facility Check (Electronic – No Flow-Through)

(Number of electronic rejects sent where the reject date and time minus the submission date and time is within the standard for orders not requiring a facility check for the specified product)/(Total number of electronically submitted LSRs/ASRs not requiring a facility check rejected for the specified product)

OR-2-06: % On Time LSR/ASR Reject –Facility Check (Electronic – No Flow-Through)

(Number of electronic rejects sent where the reject date and time minus the submission date and time is within the standard for orders requiring a facility check for the specified product)/(Total number of electronically submitted LSRs/ASRs requiring a facility check rejected for the specified product)

OR-2-12: % On Time Trunk ASR Reject

(Number of rejected trunk orders that meet reject the trunk standard of less than or equal to seven business days)/(Total number of rejected trunk orders for less than or equal to 192 trunks)

The in-scope OR-2 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

FairPoint uses data from Wisor for calculating OR-2.¹⁸² Wisor contains timestamp data reflecting when the CLEC sent the service order and when FairPoint returned the order rejection. The reject timestamps in Wisor are used for metric calculation regardless of where the order was rejected, that is, regardless of whether the rejection was initiated by the front-end interface or by FairPoint’s back-end systems such as M6.

OR-2 is an automated metric calculated using data extracted from Wisor into source tables in the CAMP Staging area. FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits.

In implementing the C2C Guidelines’ exclusions and other OR-2 metric calculation requirements, FairPoint:

- Excludes test orders, special project PONs, weekend and holiday hours, scheduled service order processor downtime and incorrect notifiers as discussed in the OR-1 section.
- Excludes duplicate rejects by counting only the first reject for each PON-VER combination in the calculation.¹⁸³
- Excludes ASR rejects or queries not requiring a response using a code in the “Response Type Requested” data field that indicates the CLEC did not require a response.¹⁸⁴

¹⁸² Responses to Data Requests #7 supplemental and #75.

¹⁸³ Response to Data Request #2.

¹⁸⁴ Response to Data Request #2.

Liberty identified the following defects related to the OR-2 metric:

- FairPoint indicated that “there is no reliable indicator currently available for the OR-2 metrics to distinguish orders that did not flow-through.” The C2C Guidelines define separate OR-2 sub-metrics for measuring rejection timeliness of orders that flow through (OR-2-02) and orders that do not flow through (OR-2-04 and OR-2-06). FairPoint indicated that the data field used to identify flow-through for the OR-1 and OR-5 metrics cannot be used for OR-2 and it is working on the design for a solution to this problem.¹⁸⁵ The company stated that it implemented a partial correction on March 28, 2012 and plans further corrections for a future release.¹⁸⁶ **(Defect #38)** The issues described in Section V.C.1 regarding FairPoint’s improper use of the designed-flow-through data field (Defect #26) and the errors of including and excluding some service orders because of an incorrect value populated in this field (Defect #48) also apply to the OR-2 metrics.
- FairPoint includes invalid rejects sent on an order in calculating OR-2. To process rejected orders, FairPoint’s wholesale service representatives filter the Wisor system data for all new rejects issued throughout the day. If a wholesale service representative finds a reject to be valid, the representative sends an additional reject message to the CLEC to “re-validate” the initial reject message, explaining to the CLEC that the initial reject was valid. If a reject is invalid, the representative manually writes the service order. FairPoint stated that CAMP cannot determine from the available data whether a reject is valid. Therefore, CAMPt includes the invalid rejects in the OR-2 calculations.¹⁸⁷ FairPoint indicated that interim system updates implemented in August and September 2012 have significantly reduced the number of invalid rejects. A pending interim release in December will further reduce invalid rejects. Additional source system updates are needed to totally resolve this issue.¹⁸⁸ **(Defect #39)**
- FairPoint includes jeopardy notices in calculating OR-2-12.¹⁸⁹ There is nothing in the C2C Guidelines to justify including jeopardy notices in the OR-2 calculations. FairPoint issues such jeopardy notices after the order has been confirmed to indicate the potential for missing committed provisioning due dates. These notices are clearly not reject notices, which are meant to indicate that FairPoint is rejecting the order. FairPoint indicated that it plans to correct this problem in a future CAMP release.¹⁹⁰ **(Defect #40)**
- Section V.A.4 describes defects associated with product identification that apply to OR-2.
- Several defects discussed in the OR-1 section also apply to the OR-2 metrics (see Section V.C.1 and Appendix B).

¹⁸⁵ Responses to Data Requests #198 and #516 clarification.

¹⁸⁶ December 7, 2012 response to Liberty’s Draft Audit Report.

¹⁸⁷ Responses to Data Requests #200 and #200 clarification.

¹⁸⁸ December 7, 2012, response to Liberty’s Draft Audit Report.

¹⁸⁹ Responses to Data Requests #202 and #203.

¹⁹⁰ December 7, 2012, response to Liberty’s Draft Audit Report.

FairPoint provided Liberty a description of the code changes made to CAMP from March through December 2011.¹⁹¹ During this time, there were five CAMP changes that specifically affected the in-scope OR-2 metrics. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.¹⁹²

3. OR-4

a. Metric Definition

OR-4 reports FairPoint’s performance in issuing timely completion notifications on orders it receives through the EDI interface. OR-4 measures the timeliness of both provisioning completion notices (PCNs) and billing completion notices (BCNs). FairPoint reports three OR-4 sub-metrics in New Hampshire:

- OR-4-11: Percent Completed orders with neither a PCN nor BCN sent
- OR-4-16: Percent Provisioning Completion Notifiers sent within one (1) Business Day
- OR-4-17: Percent Billing Completion Notifiers sent on time

Only the following OR-4 sub-metrics and product disaggregations are in scope for this audit:

- OR-4-16 & OR-4-17
 - 1000 – Resale and UNE Combined

The C2C Guidelines specify that the timeliness interval for the OR-4-16 sub-metric should begin with work order completion date of the last service order associated with a specific PON in the FairPoint SOP, and for the OR-4-17 sub-metric it should begin with the provisioning order completion date of the last service order associated with a specific PON. The interval ends when FairPoint distributes the PCN (for OR-4-16) or BCN (for OR-4-17) to the CLEC via the EDI interface.

The C2C Guidelines list the following exclusions from the OR-4 calculation:

- FairPoint test orders
- Orders not received through the FairPoint EDI interface
- Special project PONs.

FairPoint reports all of the OR-4 sub-metrics on a statewide basis by individual and aggregate CLECs. The standard for OR-4-16 is 95 percent. For OR-4-17, the standard is 95.5 percent of BCNs sent within two business days on orders not in bill cycle hold and within four business days on orders in bill cycle hold.

¹⁹¹ FairPoint could not provide details of changes made to CAMP before March 2011.

¹⁹² Response to Data Request #8 supplemental.

The C2C Guidelines provide the following formulas for the OR-4 sub-metrics:

OR-4-16: % Provisioning Completion Notifiers Sent within One Business Day

(Number of EDI PONs completed that produce a PCN one business day after work completion in WFA)/(Total number of EDI PONs for which the last service order has been updated as provisioning completed in the SOP in a month)

OR-4-17: % Billing Completion Notifiers Sent within Two Business Days

(Number of EDI PONs completed that produce a BCN within the specified intervals after SOP provisioning completion update.)/(Total number of EDI PONs for which the last service order has been updated as provisioning completed in the SOP in a month)

The in-scope OR-4 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

FairPoint uses data from two different source systems, Wisor and M6, for calculating OR-4.¹⁹³ To determine the timeliness of the transmission of the PCN and BCN, FairPoint uses the date in a derived “Order Completion” data field as the start time for both the work completion date and the provisioning completion date.¹⁹⁴

OR-4 is an automated metric calculated using data extracted from Wisor and M6 into source tables in the CAMP Staging area. FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits. FairPoint includes orders for Wholesale Package in the OR-4-16-1000 and OR-4-17-1000 calculations. The company has explained that “FairPoint includes orders for Wholesale Package (formerly UNE-Platform) ... because the UNE-Platform product is required to be reported in the PAP. UNE-P was removed from the C2C guidelines but was not removed from the PAP. For metrics reporting purposes, Wholesale Package products are reported as UNE in the PAP.”¹⁹⁵

In implementing the C2C Guidelines’ exclusions and other OR-4 metric calculation requirements, FairPoint:

- Excludes test orders and special project PONs as discussed in the OR-1 section.

¹⁹³ Response to Data Request #7 supplemental.

¹⁹⁴ Interview #5, November 8, 2011.

¹⁹⁵ Response to Data Request #556 clarification.

- Uses a derived data field intended to identify the interface through which the order was submitted to exclude orders not received through the EDI interface.¹⁹⁶ As noted in the PO-1 section, Liberty found a problem with the logic used to populate this data field. This problem caused all GUI orders to be included in the OR-4 metric calculation (see Section V.C.1, Defect #19).¹⁹⁷
- Includes orders in the calculation of the OR-4 sub-metrics based on an order completion date that is either in the report month or is in the last two days of the previous month (e.g., December report month includes orders with a completion date of November 29 or November 30).¹⁹⁸ This is because FairPoint designates orders as complete before they send the PCN and BCN notifiers to the CLECs. Hence, these notifiers will often not be recorded in FairPoint’s database in the same month as the completion date when that date is late in the month. Liberty identified problems with the logic used for determining the report month. These problems are described more completely below (see Defect #44).
- Calculates the timeliness of the PCN and BCN by subtracting the order completion date from the PCN or BCN task completion date in M6.

Liberty identified several defects related to the OR-4. In particular, FairPoint:

- Dropped all directory listing orders from the OR-4-17 (and OR-5-03) calculations because of missing M6 data. FairPoint’s process for downloading M6 data into CAMP excludes all administrative orders, such as retail suspend or restore for non-payment orders, based on an order’s “provisioning plan.”¹⁹⁹ The provisioning plan, which FairPoint associates with each order, provides the steps (“tasks”) required to complete the provisioning of the order and depends on the type of order. Liberty found that FairPoint classified all provisioning plans involving directory listings as administrative orders, thereby making the M6 data for these orders unavailable to CAMP for inclusion in any metric calculation.²⁰⁰ Because FairPoint calculates OR-4 and OR-5 using data from both Wisor and M6,²⁰¹ the lack of M6 data for the directory listing orders in CAMP caused these orders to be excluded from the calculation of these metrics. Liberty determined using Wisor data in CAMP that directory listing orders accounted for 30 percent of all CLEC LSRs in August and December 2011.²⁰² FairPoint indicated that it revised its code to remove this exclusion of directory listing orders from OR-5-03 on March 28, 2012, and from OR-4-17 on May 29, 2012.²⁰³ **(Defect #41)**

¹⁹⁶ Response to Data Request #2. The data field is called “order_channel.”

¹⁹⁷ Response to Data Request #499.

¹⁹⁸ Response to Data Request #2.

¹⁹⁹ Response to Data Request #22.

²⁰⁰ Responses to Data Requests #102, #204 third clarification, and #232 clarification.

²⁰¹ Response to Data Request #7.

²⁰² Responses to Data Requests #124 and #125.

²⁰³ Response to Data Request #204 third clarification and December 7, 2012 response to Liberty’s Draft Audit Report.

- Excluded records from the calculation of the OR-4-16 and OR-4-17 sub-metrics when there was a value of ‘ERROR’ in any of the M6 work queues used for service provisioning. FairPoint indicated that it updated CAMP to remove this exclusion on May 29, 2012.²⁰⁴ **(Defect #42)**
- Counted service orders that received premature PCNs and BCNs (*i.e.*, PCNs and BCNs sent prior to provisioning completion) as meeting the standard in its calculation of the OR-4-16 and OR-4-17 results. FairPoint indicated that it modified the CAMP code, on July 30, 2012, to report a premature notifier as a miss.²⁰⁵ FairPoint identified as the root cause of this problem ten of its provisioning plans that were not designed correctly and that resulted in the generation of PCNs and BCNs before service order completion. FairPoint stated that it “is reviewing all Provisioning Plans to ensure that the PCN Task completes based on the completion of the Due Date Task and not the Activation Task. Provisioning Plans will be modified as appropriate.”²⁰⁶ **(Defect #43)**
- Counted service orders in the wrong report month. An error in the logic used to identify the report month for the OR-4-16 and OR-4-17 metrics caused orders completed on the first or second day of the report month to be reported in the following month (*e.g.*, FairPoint reported orders with completion dates of November 1 and November 2 with the December results).²⁰⁷ A related logic error caused orders completed on the last two days of December to be reported in the December rather than the January data month. Fair Point indicated that this second logic error only affected orders that completed on the last two days of the year (*i.e.*, orders completed on December 30 and 31).²⁰⁸ FairPoint stated that it corrected the coding errors causing these two issues on May 29, 2012.²⁰⁹ As an example of the impact of this error, Liberty identified 89 service requests that FairPoint incorrectly included in the December data month calculations. Removal of these 89 orders, however, had a minimal effect on the reported values, changing the OR-4-16 value from 99.62 to 99.65 percent and the OR-4-17 value from 99.24 to 99.26 percent. **(Defect #44)**
- Counts any PCN sent within one business day as meeting the OR-4-16 standard even if that PCN is not for the last FairPoint internal service order associated with a CLEC’s service request. OR-4-16 measures the percentage of PCNs sent within one business day of the provisioning completion of a CLEC’s service request. A CLEC request is identified by its PON. FairPoint often issues multiple internal service orders to complete the provisioning of a CLEC’s service request, as, for example, when the service request is associated with multiple lines. FairPoint sends a PCN for each internal service order. The C2C Guidelines specify that

²⁰⁴ Response to Data Request #205 and December 7, 2012 response to Liberty’s Draft Audit Report.

²⁰⁵ Responses to Data Request #207 and #207 clarification, and December 7, 2012 response to Liberty’s Draft Audit Report.

²⁰⁶ Response to Data Request #207 clarification and #283.

²⁰⁷ Response to Data Request #270.

²⁰⁸ Response to Data Request #271.

²⁰⁹ Responses to Data Requests #270 and #271, and December 7, 2012 response to Liberty’s Draft Audit Report.

PCN timeliness should be calculated based on the elapsed time between the provisioning work completion of the last service order associated with a specific PON and the transmission of the PCN for that service order to the CLEC. The provisioning of the last service order associated with the PON represents the final completed provisioning of the PON for the CLEC. FairPoint, however, uses any PCN from a multi-service-order service request that meets the standard to score OR-4-16 as successfully met.²¹⁰ Liberty examined the December data and found that following the C2C Guidelines requirement to use the last service order when there are multiple service orders had a minimal effect, reducing the OR-4-16 numerator from 2,098 to 2,089 and changing the OR-4-16 value from 99.62 to 99.12. FairPoint indicated that it implemented a CAMP coding change on March 28, 2012 to correct this problem.²¹¹ **(Defect #45)**

- Does not wait until after all billing system updates are complete before sending a BCN. FairPoint bases its BCN notification process on completion of the due date task in M6. The due date task indicates that service provisioning is complete and triggers the transmission of a PCN to the CLEC which starts FairPoint's batch billing update process. Wisor automatically transmits a BCN to the CLEC upon the completion of the PCN task. This notifier, however, indicates only that provisioning has completed and that "the allowed timeframe for subsequent billing processing is complete."²¹² FairPoint indicated that its systems are not capable of sending a notifier to the CLEC after the due date completion task hence the automated transmission of the BCN by Wisor based on completion of the service provisioning, not based on a positive notification from FairPoint that it has updated the billing systems.²¹³ Subsequently, FairPoint stated that it will implement a change in a future release to correct this problem.²¹⁴ **(Defect #46)**
- Used the PCN completion date rather than the BCN completion date for calculating OR-4-17 as the result of a coding change introduced beginning with the November 2011 data month. FairPoint indicated that it corrected this problem effective with the May 2012 data month.²¹⁵ **(Defect #47)**

In addition,

- Section V.A.4 describes defects associated with product identification that apply to OR-4.
- Several defects discussed in the OR-1 section also apply to the OR-4 sub-metrics (see Section V.C.1 and Appendix B).

The state identification issue discussed in the PR-4 section affects the OR-4 calculations (see Section V.D.1, Defect #59).

²¹⁰ Response to Data Request #83.

²¹¹ December 7, 2012 response to Liberty's Draft Audit Report.

²¹² Response to Data Request #82.

²¹³ Responses to Data Requests #42 and #82.

²¹⁴ December 7, 2012 response to Liberty's Draft Audit Report.

²¹⁵ Responses to Data Requests #553, #553 clarification, and #556.

FairPoint provided Liberty a description of the code changes made to CAMP from March through December 2011.²¹⁶ During this time there were five CAMP changes that specifically affected the in-scope OR-4 metrics. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.²¹⁷

4. OR-5

a. Metric Definition

OR-5 reports the percentage of LSRs that FairPoint receives through the electronic ordering interfaces (EDI and Web GUI) that are processed directly to the SOP and are confirmed without any manual intervention. FairPoint reports two OR-5 sub-metrics in New Hampshire:

- OR-5-01: Percent Flow-through – Total
- OR-5-03: Percent Flow-through Achieved

Only the following OR-5 sub-metrics and product disaggregations are in scope for this audit:

- OR-5-3
 - 2000 – Resale
 - 3112 – UNE POTS – Loop
 - 3121 – UNE POTS – Other

The C2C Guidelines define flow-through orders as orders for which the confirmations require no action by a FairPoint service representative to input an order into the SOP.

The C2C Guidelines list the following exclusions for OR-5:

- FairPoint test orders
- Special project PONs
- For OR-5-03, orders not eligible to flow-through and orders with CLEC input errors

FairPoint reports the OR-5-03 sub-metric on a statewide basis in aggregate for all CLECs. The standard for OR-5-03 is 95 percent. The C2C Guidelines provides the following formula for OR-5-03:

OR-5-03: % Flow-Through Achieved

(Number of orders that flow-through for the specified product)/(Number of confirmed flow-through eligible orders)

²¹⁶ FairPoint could not provide details of changes made to CAMP before March 2011.

²¹⁷ Response to Data Request #8 supplemental.

OR-5-03 is included in the New Hampshire PAP.

b. Metric Data and Calculations

FairPoint uses data from two different source systems, Wisor and M6, to calculate OR-5.²¹⁸ FairPoint uses M6 to identify the orders that flowed through to transmission of a FOC. FairPoint indicated that orders that are designed to flow through FairPoint's systems differ from those listed in Appendix H of the C2C Guidelines. The list of FairPoint's flow-through-eligible orders can be found on FairPoint's wholesale web site.

OR-5 is an automated metric calculated using data extracted from Wisor and M6 into source tables in the CAMP Staging area. FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits.

FairPoint excludes test orders and special project PONs as described in the OR-1 findings section.

Calculating OR-5 requires determining not only whether an order actually flowed through FairPoint's systems but also whether it was eligible or designed to flow through. FairPoint uses the same derived data field for OR-5 as described in the OR-1 findings section (Section V.C.1) to identify orders that actually flowed through. As noted in that section, this process continued to be unreliable throughout 2011 despite enhancements introduced during the year (see Section V.C.1, Defect #25). FairPoint uses a flag set in a different derived data field to identify orders that are designed to flow through.²¹⁹ However, FairPoint acknowledged that the values populated in the designed-flow-through field are also not always reliable. This causes the exclusion of valid service orders and the inclusion of invalid service orders in the calculation of OR-5-03.²²⁰ **(Defect #48)** Thus, the flaws in the fields used to identify actual (Defect #25) and designed (Defect #48) flow-through make both the numerator and denominator of OR-5-03 unreliable. As noted in Section V.C.1, FairPoint has stated that it is taking a phased approach to fixing this problem, with some coding updates implemented during 2011 and 2012 and additional enhancements planned for future releases.

Liberty identified the following additional defects related to OR-5:

- FairPoint indicated that if a CLEC issues an order that does not conform to the published business rules, the order will be rejected by the Wisor interface and not included in the calculation of this measurement. However, if the CLEC makes an error unrelated to the business rules that causes a flow-through-eligible order to

²¹⁸ Response to Data Request #7 supplemental.

²¹⁹ This is the "designed_flow_through" field.

²²⁰ Responses to Data Requests #385, #516, #516 clarification, #545, #547 and #550. As noted, in the OR-1 and OR-2 findings sections, the inappropriate use of this field to select transactions in for calculating those metrics causes errors.

fall out for manual handling (such as an incorrect value in the terminal location data field²²¹, FairPoint does not exclude this order from the calculation of the results and takes this error as missing the flow-through objective.²²² FairPoint indicated that it is investigating this problem.²²³ **(Defect #49)**

- The exclusion of the directory listing orders from the M6-to-CAMP download discussed in the OR-4 section (Section V.D.3, Defect #41) also caused these orders to be excluded from the OR-5 calculation. FairPoint indicated that it fixed this problem for OR-5 beginning with the March 2012 data month.²²⁴
- Section V.A.4 describes defects associated with product identification that apply to OR-5. For example, the majority of the orders that FairPoint included in the calculation of the OR-5-03-2000 sub-metric, which is for Resale products only, were number port orders.²²⁵
- Several defects discussed in the OR-1 section also apply to the OR-5 sub-metrics (see Section V.C.1 and Appendix B).

FairPoint provided Liberty a description of the code changes that were made to CAMP from March through December 2011.²²⁶ During this time there were nine CAMP changes that specifically affected the in-scope OR-5 metrics. Some of these code changes involved significant modifications in the CAMP logic used to identify whether a service order achieved flow-through for the calculation of the OR-5 results. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.²²⁷

5. OR-6

a. Metric Definition

OR-6 reports on FairPoint’s order accuracy. FairPoint reports three OR-6 sub-metrics in New Hampshire:

- OR-6-01: Percent Service Order Accuracy
- OR-6-02: Percent Accuracy – LSRC
- OR-6-04: Percent Accuracy – Directory Listings.

Only OR-6-03-3331 (UNE Loop, Pre-qualified Complex and LNP) and OR-6-04-1040 (All Directory Listings combined standalone and other) are in scope for this audit:

²²¹ This is the “ACTL” field.

²²² Interview #5, November 8, 2011.

²²³ December 7, 2012 response to Liberty’s Draft Audit Report.

²²⁴ Response to Data Request #232 clarification.

²²⁵ Response to Data Request #437.

²²⁶ FairPoint could not provide details of changes made to CAMP before March 2011.

²²⁷ Response to Data Request #8 supplemental.

The C2C Guidelines for OR-6-04 indicate that FairPoint select a statistically valid random sample of approximately 400 orders requiring a directory listing modification each reporting month for error investigation.

The only exclusion listed for the OR-6 sub-metrics are orders that flowed through. FairPoint reports OR-6 values for all CLECs in aggregate on a statewide basis. For OR-6-03, the standard is not more than 5 percent of LSRCs resent due to FairPoint error. The standard for OR-6-04 is 95 percent.

The C2C Guidelines provide the following formulas for the in-scope OR-6 sub-metrics:

OR-6-03: % Accuracy – LSRC

(Number of LSRCs resent due to error)/(Number of LSRCs)

OR-6-04: % Accuracy – Directory Listing

(Number of orders sampled for Directory Listings minus orders with errors)/(Number of Directory Listing orders sampled)

Only OR-6-03 is included in the New Hampshire PAP.

b. Metric Data and Calculations

OR-6-03:

FairPoint calculated OR-6-03 manually for most of 2011. FairPoint calculated OR-6-03 during the first five months of 2011 by counting the firm order commitment (FOC) tasks in the M6 provisioning plans rather than counting actual confirmations (LSRCs). FairPoint changed the OR-6-03 calculation process in June 2011 to a new manual process that calculated the actual confirmations.²²⁸ Because there are more M6 FOC tasks on an order than actual confirmations, the transactions reported in the OR-6-03 denominator dropped from an average of 1,069 per month for the first five months of 2011 to an average of 199 per month for the remainder of the year.²²⁹

Between June and November 2011, FairPoint's Operations Performance Metrics Team calculated OR-6-03 by performing a SQL query of the Wisor data in the CAMP ODS module to identify all of the unique PONs and Versions (VERs) for the month that did not flow-through. The query then counted the number of PON-VER combinations that received multiple confirmations. FairPoint populated the output of these queries into a spreadsheet used for metric calculation and reporting. However, the errors in identifying orders that actually flowed through and the Wisor data missing in CAMP, which are discussed in the OR-1 section, also applied to

²²⁸ Interview #5, November 8, 2011.

²²⁹ Response to Data Request #281.

OR-6-03 and undermine the reliability of the reported metric values (See Section V.C.1, Defects #25 and #37).

FairPoint automated the OR-6-03 calculation using CAMP data beginning with the December 2011 data month.²³⁰ Because of this process change and the known issues with the manual processes, Liberty attempted to replicate only the December 2011 OR-6-03 values reported by FairPoint. Liberty found that a flaw in the newly developed CAMP logic for OR-6-03 caused the majority of the confirmation records reported in December not to be in fact from the December data month; that is, they had a confirmation date in a month other than December. Only 12.7 percent of the records FairPoint used in the OR-6-03 calculation actually had a December confirmation date.²³¹ FairPoint reported an OR-6-03 value of 3.18 percent with a denominator of 220 and numerator of 7. Liberty recalculated the sub-metric, restricting the calculation to orders confirmed during December and found no counts in the numerator and 28 in the denominator, producing an OR-6-03 value of zero percent. FairPoint indicated that it did not identify this error prior to reporting the metrics in December because CAMP-calculated values were within the performance standard, and the company only investigates reported metric values that do not meet the standard. FairPoint stated that this problem was limited to the December 2011 data month. It was corrected with a CAMP coding change implemented on February 27, 2012 in time to apply it to the January 2012 data month.²³² **(Defect #50)**

CLECs sometimes receive, as a designed procedure, two confirmations of expedited service requests. For such cases, the second confirmation was intentional, and FairPoint correctly did not count it in the OR-6-03 numerator. However, FairPoint maintains that all confirmations should be counted in the denominator of OR-6-03²³³ and thus counts both confirmations there, which can inflate the denominator relative to the numerator. Liberty found that this procedure caused FairPoint to include 13 additional counts in the OR-6-03 denominator for December 2011. This issue should be moot in the future, however, since FairPoint indicated that it plans to implement a systems change in M6 to eliminate the second confirmation on expedited orders. FairPoint could not provide a projected date for this change.²³⁴ **(Defect #51)**

FairPoint made additional changes to the OR-6-03 calculation process in February 2012. One of these changes added confirmations for CLEC-requested cancellations to the calculation. These had been incorrectly excluded in the manual and automated calculation processes used during 2011. **(Defect #52)** Another change involved removing the flow-through filter from the denominator of the calculation. Prior to this change flow-through orders were excluded from both the numerator and the denominator of the OR-6-03 results; they are now excluded only from the numerator of the results.²³⁵ The Guidelines list a single OR-6-03 exclusion of “[o]rders entered by the CLEC that flow-through.” On the other hand, the OR-6-03 Methodology section states, “[f]or sub-metric OR-6-03, the measure is a percentage of all confirmations sent due to

²³⁰ Response to Data Request #234 clarification.

²³¹ Response to Data Request #308 clarification.

²³² Interview #22, August 14, 2012, and December 7 and 17, 2012 responses to Liberty’s Draft Audit Report.

²³³ December 7, 2012 response to Liberty’s Draft Audit Report.

²³⁴ Response to Data Request #541 and Interview #22, August 14, 2012.

²³⁵ Response to Data Request #540 and Interview #22, August 14, 2012.

FairPoint error against the total number [emphasis added] of confirmations sent in the reporting month.” Liberty notes, however, that in its initial implementation of OR-6-03, Verizon apparently excluded flow-through from both the numerator and denominator.²³⁶ Thus, FairPoint’s inflation of the denominator by including flow-through transactions is likely to be incompatible with the fixed standard of 5 percent established for this sub-metric. FairPoint indicated that a CAMP change is pending that will remove flow-through orders from the denominator of the calculation.²³⁷

OR-6-04:

FairPoint currently does not take a sample of the data in calculating OR-6-04 but includes all directory changes that are manually worked by the wholesale center during the data month, because the New Hampshire directory listing transaction volume never exceeds the 400 orders specified in the C2C Guidelines. To identify orders with errors, the Wholesale Customer Center organization reviews 15 key data fields identified in FairPoint’s OR-6-04 manual calculation process document.²³⁸ Wholesale Customer Center personnel compare the information in these 15 data fields on the manually created service orders to the information that was sent to FairPoint on the CLEC’s LSR. The Wholesale Customer Center personnel use a spreadsheet to manually track the findings from this comparison. FairPoint counts a discrepancy between the service order and the LSR in any one of the 15 key data fields as missing the standard for the entire order. The Wholesale Customer Center calculates the final metric values by the third business day of the month following the report month and sends the spreadsheet to the Operations Performance Metrics Team for input into CAMP for reporting purposes.

FairPoint indicated that the current process is relatively new, implemented beginning with the August 2011 data month.²³⁹ The previous process involved pulling a sample of 50 directory listing PONs. When pulling this sample, FairPoint did not identify whether the order required manual handling; it included all orders in the sample population, including orders that flowed through, which is inconsistent with the C2C Guidelines. FairPoint then tracked these 50 orders to “Super Media,” which is FairPoint’s directory listing database. FairPoint scored as a miss any fallout of an order to manual handling. FairPoint acknowledged that its former process for calculating OR-6-04 was not in conformance with the C2C Guidelines and indicated that the current process was developed to conform to the C2C requirements.²⁴⁰ **(Defect #53)**

FairPoint collects source data for the OR-6-04 sub-metric each month through an e-mail request to FairPoint’s information technologies (IT) organization for all of the New Hampshire manually processed Directory Listing orders. The IT organization populates the requested data in a spreadsheet and e-mails it back to the Wholesale Service Center. The original source e-mails are

²³⁶ See, for example, “Final Report on the Review of the Performance Metrics and the Associated Performance Assurance Plan Filed by Verizon Maryland,” The Liberty Consulting Group, June 24, 2004.

²³⁷ December 7, 2012 response to Liberty’s Draft Audit Report.

²³⁸ Provided in response to Data Request #2.

²³⁹ Response to Data request #49 and Interview #11, March 6, 2012.

²⁴⁰ Response to Data Request #50 and Interview #5, November 8, 2011.

available for the months of September through November 2011.²⁴¹ FairPoint indicated that due to a change in the IT source vendor providing this information, it is unable to retrieve the source data for the December data month.²⁴²

To evaluate the accuracy of the data and calculations of the reported OR-6-04 values, Liberty obtained copies of source data spreadsheets for September through November²⁴³ and the manual calculation spreadsheets for August through December.²⁴⁴ Liberty traced this data through to the reported results calculation. Defects found during this analysis are listed below:

- FairPoint includes directory listing disconnect orders in the OR-6-04 calculation.²⁴⁵ The C2C Guidelines state that this sub-metric measures the accuracy of populating key data fields in the orders for directory listing modifications. Disconnect orders are not directory listing modifications, which are the only orders specified in the C2C Guidelines to be included in OR-6-04. In fact, disconnect orders should have only blank values in the 15 key data fields. Thus, disconnect orders should always qualify as meeting the standard, because it is virtually impossible to populate the 15 key fields incorrectly. Disconnect orders accounted for 24.5 percent of the orders included in the OR-6-04 calculation in December 2011, substantially inflating the denominator.²⁴⁶ FairPoint disagrees with Liberty's assessment of this issue, stating that disconnect orders impact directory listings and that the C2C Guidelines do not specify the exclusion of disconnect orders for OR-6-04.²⁴⁷ **(Defect #54)**
- FairPoint did not have enough time to review all of the 167 manual directory listing orders that were worked during August 2011. FairPoint explained that because it introduced a new process, the wholesale team did not receive the list of orders for review from FairPoint's IT group until two days before the date the reported results were due for submission. As a result, FairPoint reviewed and reported only 52 of the 167 (31 percent) directory listing orders for that month.²⁴⁸ FairPoint stated that it implemented "manual process corrective action" to address this issue in September 2011.²⁴⁹ **(Defect #55)**
- The manual tracking sheet used by FairPoint for reporting OR-6-04 for the November 2011 data month was missing two key data fields. As a result, Liberty was unable to confirm that FairPoint properly tracked and recorded all 15 of the key data fields.²⁵⁰ FairPoint also transposed the last digits of the numerator and denominator in November, reporting 161/197, rather than 167/191.²⁵¹ FairPoint

²⁴¹ Responses to Data Request #285 Errata and #472.

²⁴² Response to Data Request #285 clarification.

²⁴³ Response to Data Request #472.

²⁴⁴ Responses to Data Requests #94 and #100.

²⁴⁵ Interview #11, March 6, 2012.

²⁴⁶ Response to Data Request #100 supplemental.

²⁴⁷ December 7, 2012 response to Liberty's Draft Audit Report.

²⁴⁸ Interview #11, March 6, 2012

²⁴⁹ December 7, 2012 response to Liberty's Draft Audit Report.

²⁵⁰ Response to Data Request #138.

²⁵¹ Response to Data Request #137.

stated that it implemented “manual process corrective action” to address this issue in December 2011.²⁵² **(Defect #56)**

- FairPoint’s unreliable method for identifying orders that actually flowed through, discussed in the OR-1 section, also applies to OR-6-04 (see Section V.C.1, Defect #24).

D. Provisioning Metrics (PR)

1. PR-4

a. Metric Definition

PR-4 reports the percentage of orders that FairPoint completed after the order commitment date. FairPoint reports nine PR-4 sub-metrics in New Hampshire:

- PR-4-01: Percent Missed Appointments – FairPoint - Total
- PR-4-02: Average Delay Days – Total
- PR-4-03: Percent Missed Appointments – Customer
- PR-4-04: Percent Missed Appointments – FairPoint - Dispatch
- PR-4-05: Percent Missed Appointments – FairPoint – No Dispatch
- PR-4-07: Percent On Time Performance – LNP Only
- PR-4-08: Percent Missed Appointments – Customer – Due to Late Order Confirmation
- PR-4-14: Percent Complete On Time – 2-Wire xDSL
- PR-4-15: Percent On Time Provisioning – Trunks.

Only the following PR-4 sub-metrics and product disaggregations are in scope for this audit:

- PR-4-01
 - 3211 – UNE Specials DS1
 - 3213 – UNE Specials DS3
- PR-4-02
 - 3342 – UNE 2-Wire xDSL Loops
- PR-4-04
 - 2100 – Resale POTS
 - 3113 – UNE POTS – New Loop
- PR-4-05
 - 2100 – Resale POTS

²⁵² December 7, 2012 response to Liberty’s Draft Audit Report.

- 3113 – UNE POTS – New Loop
- PR-4-07
 - 3540 – UNE LNP
- PR-4-14
 - 3342 - UNE 2-Wire xDSL Loops
- PR-4-15
 - 5000 – CLEC Trunks

The C2C Guidelines provides the following definition of orders eligible to be included in the PR-4 calculations:

The PR-4 sub-metric calculations for the report month include Orders that are complete in the billing system. (Orders that are not billing completed in the report month are not included in the PR-4 calculations). Note: This does not apply to the following metrics, which are calculated based on physical work completion: Interconnection Trunks (CLEC) PR-4-02, PR-4-03, and PR-4-15.

For LNP: The percent of orders completed on time (not early)

xDSL Loops are considered complete if completed on time on the due date. After completing the installation of a UNE 2-Wire xDSL Loop, FairPoint will perform a cooperative continuity test for those CLECs that participate, as described in Appendix T of the C2C guidelines. The use of a DD-2 test or a CLECs 800 #, or a CLEC's serial number has no impact in the determination of a completed xDSL Loop.

Trunks: Includes reciprocal trunks from FairPoint to CLEC. For PR-4-03, the percentage of trunks completed for which there was a missed appointment due to CLEC reasons. For PR-4-15, the percentage of trunks completed on or before the order due date.

Metric PR-4-15 includes orders that were Customer Not Ready (CNR), and were completed in the report month.

The C2C Guidelines list the following exclusions from the PR-4 calculations:

- FairPoint test orders
- Disconnect orders (does not apply to the PR-4-07 sub-metric)
- FairPoint administrative orders
- Additional Segments on orders (parts of a whole order are included in the whole)
- LNP orders without office equipment which do not have a trigger placed on the line

- For PR-4-04 2-Wire Digital, and PR-4-14 UNE 2-Wire xDSL Loop *only* exclude orders missed for facility reasons.

FairPoint reports all PR-4 sub-metrics on a statewide basis for individual and aggregate CLECs, and for FairPoint retail for the parity sub-metrics. The standard for PR-4-01, PR-4-02, PR-4-04, and PR-4-05 is parity with retail. The standard for PR-4-07, PR-4-14, and PR-4-15 is 95 percent.

The C2C Guidelines provide the following formulas for the in-scope PR-4 sub-metrics:

PR-4-01: % Missed Appointment – FairPoint – Total

(Number of orders where the order completion date is greater than the order due date due to FairPoint reason for product groups)/(Total number of orders completed for product group)

PR-4-02: Average Delay Days – Total

(Sum of the completion date minus the due date for orders/trunks missed due to company reason by product group)/(Number of order/trunks missed due to company reasons by product group)

PR-4-04: % Missed Appointment – FairPoint – Dispatch

(Number of dispatch orders where the order completion date is greater than the order due date due to FairPoint reasons for product group)/(Number of dispatch orders completed for product group)

PR-4-05: % Missed Appointment – FairPoint – No Dispatch

(Number of no dispatch orders where the order completion date is greater than the order due date due to FairPoint reasons for product group)/(Number of no dispatch orders completed for product group)

PR-4-07: % On Time Performance – LNP Only

Number of LNP orders (1 order = Trigger message and disconnect order), where port trigger is completed one (1) business day before the due date and the retail disconnect is completed on or after 11:59PM of the due date/ Number of LNP orders completed (1 order = Trigger message and disconnect order)

The C2C Guidelines also provide the following PR-4-07 description, which provides additional information related to this sub-metric's calculation:

Percent of all LNP orders (including both the Trigger message and associated disconnect order) where trigger is in place one business day before the disconnect due date and disconnect is completed on or after 11:59PM of the due date. For LNP only orders, the percent of LNP (retail disconnect) orders completed in translation on or after due date on the order. Telephone Numbers disconnected

early at the customer's request are considered met. Orders where the trigger is in place less than one business day prior to the disconnect due date but before the number is ported by the CLEC are not scored as missed triggers.

PR-4-14: %Completed On Time – 2-Wire xDSL Loops

(Number of orders completed on or before the due date)/(Number of completed orders minus any orders delayed for customer reasons)

PR-4-15: % On Time Provisioning – Trunks

(Number of trunks where the order completion date is less than or equal to the order due date)/(Number of trunks completed within the month)

All in-scope PR-4 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

PR-4 is an automated metric calculated using service order data extracted from M6 into source tables in the CAMP Staging area.²⁵³ FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits.

In implementing the C2C Guidelines' exclusions and calculation requirements for PR-4 and the other in-scope PR metrics, FairPoint:

- Does not need to exclude FairPoint test orders in PR-1 or any other PR metric, because the company does not use test CLEC identification codes in the production versions of its OSS.²⁵⁴
- Does not apply the exclusion for additional segments on orders.
- Excludes administrative orders at the time the data is transferred to CAMP.²⁵⁵
- Identifies disconnect orders as those with a value of 'D' in the CAMP activity indicator data field or with a value of 'C' in the activity indicator data field and a value of 'D' in the activity code data field. Liberty, however, found a problem with this logic that caused the exclusion of valid service orders. This issue is discussed in more detail below (see Defect #60).
- Identifies orders missed for facility reasons for exclusion from the code in the CAMP jeopardy code data field.²⁵⁶

²⁵³ Response to Data Request #7 supplemental.

²⁵⁴ Response to Data Request #58.

²⁵⁵ Interview #6, November 9, 2011 and response to Data Request #22.

²⁵⁶ Interview #6, November 9, 2011.

- Uses the M6 provisioning plan task list to identify for exclusion LNP orders without office equipment that do not have a trigger placed on the line. This exclusion is applied based on the presence of the LNP trigger task on the order. If the task is present, the order is included in the metric. If it is not, the order is excluded.²⁵⁷
- Uses the billing completion date to determine the report month for orders in calculating the PR-4 sub-metrics.²⁵⁸ Liberty found, however, that FairPoint’s billing completion date does not always indicate that orders “are complete in the billing system,” as specified in the C2C Guidelines. FairPoint’s process does not require billing systems and other databases to be updated before the billing completion date is recorded in CAMP.
- Identifies products through a complex process using several data fields and look-up tables described in Section V.A.4. That section describes defects associated with product identification that apply to PR-4 and other PR metrics.
- Identifies CLEC-specific and retail orders through the company code in the service order and a look-up table that associates the code to a carrier or to a retail customer. Liberty found some issues with FairPoint’s process for distinguishing retail from wholesale service orders. These issues are discussed in more detail below (see Defects #57 and #58).
- Identifies the state associated with each service order through a code (*i.e.*, NH, VT, ME) populated in a derived data field in CAMP. Liberty found issues with FairPoint’s process for populating this derived data field, which are discussed in more detail in the issues section below (see Defect #59).
- Distinguishes dispatch orders from non-dispatch orders by a derived data field in CAMP.²⁵⁹
- Obtains the due date from a data field in CAMP that contains the most current desired due date.²⁶⁰
- Identifies LNP orders for the PR-4-07 sub-metric through a value of ‘CB’ in the request type data field²⁶¹ in the Wisor data in CAMP.²⁶²
- Includes official lines in the calculation of the PR and MR metrics due to a flaw in the logic used to set the official line indicator flag in CAMP.²⁶³ The C2C Guidelines require official lines to be excluded from all metrics.

The PR-4-07 calculations must comply with several special requirements. The C2C Guidelines list two criteria for counting orders in calculating the PR-4-07 numerator:

²⁵⁷ Response to Data Request #490.

²⁵⁸ Response to Data Request #2.

²⁵⁹ Response to Data Request #2 and Interview 6, November 9, 2011.

²⁶⁰ Responses to Data Requests #2 and #279. The data field is called “desired_due_date_last.”

²⁶¹ This is the “REQTYPE” data field.

²⁶² Response to Data Request #2 and Interview #14, March 29, 2012.

²⁶³ Response to Data Request #411 and #411 clarification.

1. The numerator should be the “[n]umber of LNP orders (1 order = Trigger message and disconnect order), where port trigger is completed one (1) business day before the due date.” The PR-4-07 description in the C2C Guidelines modifies this by stating “[o]rders where the trigger is in place less than one business day prior to the disconnect due date but before the number is ported by the CLEC are not scored as missed triggers.” FairPoint complies with this requirement by including orders where either: i) the difference between the most current desired due date²⁶⁴ and the date the trigger was set is greater than or equal to one day, or ii) the date and time the trigger was set is prior to the date and time the number was ported.²⁶⁵
2. “[T]he retail disconnect is completed on or after 11:59 PM of the due date.” To address this requirement, FairPoint includes all orders for which the date and time of the retail disconnect is greater than the date and time of the number port.²⁶⁶ FairPoint explained that all disconnect orders are scheduled to complete after 11:59 of the due date and any order that is disconnected prior to that time must be done manually at the customer’s request. The C2C Guidelines definition of PR-4-07 states, “Telephone Numbers disconnected early at the customer’s request are considered met.”²⁶⁷

Issues affecting all or most PR in-scope sub-metrics

Liberty identified the following defects related to the identification of the service provider:

- FairPoint did not include all eligible records in the calculation of the retail PR metrics due to a flaw in the identification of retail company codes. FairPoint indicated that it corrected part of this problem in the November 2011 data month and that the remainder of the problem was corrected with a CAMP release on October, 29, 2012.²⁶⁸ As an example of the impact of excluding such eligible retail records, Liberty found that FairPoint’s August retail PR-4-01-3211 denominator increased from the reported value of 27 to 42 and the numerator from 8 to 16, after correcting for company identification errors. This increases the PR-4-01-3211 value from 29.63 to 38.01 percent. **(Defect #57)**
- FairPoint excluded orders for Special Access DS1 service from the calculation of PR-metric retail analogs that include DS1 when the company identification field contained a null value. FairPoint indicated that it will implement a code change in CAMP to include these records in the metric calculations.²⁶⁹ **(Defect #58)**

Other defects that affect all or most in-scope PR sub-metrics include:

²⁶⁴ This date is in the field called “desired_due_date_last.”

²⁶⁵ Responses to Data Requests #2, #469, and #469 clarification and Interview #20, July 24, 2012.

²⁶⁶ Responses to Data Requests #2 and #469.

²⁶⁷ Response to Data Request #469 clarification and Interview #20, July 24, 2012.

²⁶⁸ Response to Data Request #55 Errata, #292, #292 clarification, and #558, and December 7, 2012 response to Liberty’s Draft Audit Report.

²⁶⁹ Response to Data Request #396.

- When FairPoint updates the state identifier on a service order in CAMP, it does not always update all the records associated with that service order. As a result, the same service order could be reported in the incorrect state or in multiple states. FairPoint indicated that it “will make a code change to update all state values in records under a single document number to the same state.”²⁷⁰ FairPoint also noted that the logic used to update the state identifier between CAMP’s Staging and ODS databases sometimes changes the state identifier incorrectly (e.g., a New Hampshire order will be misclassified as a Maine order and not included in the New Hampshire results). These state identification issues affect all of the PR metrics as well as the OR-4 sub-metrics. FairPoint indicated that it will implement a code change to correct its state identification logic in a future release of CAMP.²⁷¹ **(Defect #59)**
- FairPoint excludes from the PR-4, PR-5, PR-6, and PR-8 metrics any service order with a record that has an activity indicator of ‘C’ (change) and an activity code of ‘D’ (disconnect), even though these service orders had additional records with other activity codes such as ‘N’ (new service on an existing account).²⁷² These types of service orders entail more than a simple disconnect of the customer’s service and therefore should not have been excluded from the PR metric calculations. FairPoint indicated that it partially corrected this error, on June 30, 2012, and plans to fully correct the problem in a future CAMP release.²⁷³ As an example of the impact of this error, Liberty found that FairPoint incorrectly excluded one wholesale and three retail records in PR4-04-2100 in August because of the error. Including these records changes August wholesale values from 14.29 to 12.50 percent and the retail values from 15.44 to 15.64 percent. FairPoint incorrectly excluded four retail records from the PR4-04-2100 calculation in December because of the error. Including these four records changes the December retail values from 13.59 to 13.98 percent. **(Defect #60)**
- FairPoint fails to download from M6 into CAMP all the records for some service orders that require multiple provisioning activities. In particular, Liberty found that FairPoint did not download all records of service orders to establish a new customer service (activity code of ‘N’) that also required the provisioning of such “informational” services (activity code of ‘I’) as changing a billing address. The service order in such cases has separate records associated with establishing the new service and provisioning the informational requirements. FairPoint, however, has been downloading only the ‘I’ activity code (informational) records, not the ‘N’ activity code (new service) records. When CAMP does not have a complete set of service order records, it may include in the PR metric calculations orders that involve only a record change, such as a billing address change or an update to a cable and pair assignment, which have only ‘I’ activity codes and no other

²⁷⁰ Response to Data Request #335 clarification.

²⁷¹ Response to Data Request #395 clarification.

²⁷² Responses to Data Requests #2, #294, #295, #296, #305, #330 clarification, and #335 clarification.

²⁷³ Responses to Data Requests #158, #294 and #305, and December 7, 2012 response to Liberty’s Draft Audit Report.

provisioning activity. The C2C Guidelines require the exclusion of purely record-change orders from the PR metrics. FairPoint indicated that it plans to revise the M6-to-CAMP download process to include all activity codes associated with a service order and to review and revise the CAMP process for treating orders with 'I' activity codes to exclude purely record-change orders from the PR metric calculations.²⁷⁴ **(Defect #61)**

- The CAMP logic used to identify CLEC trunk products excluded valid records from the calculation of the PR-4-15-5000, PR-6-01-5000, PR-5-02-5000, and PR-8-01-5000 sub-metrics. FairPoint indicated that it corrected this logic flaw in CAMP effective the February 2012 data month.²⁷⁵ **(Defect #62)**
- When a service order contains multiple jeopardy codes, FairPoint uses a code hierarchy to determine which one to use for metric calculation.²⁷⁶ This hierarchy gives the greatest weight to customer-caused miss codes, followed by FairPoint facility miss codes, followed by all other codes. As a result of this hierarchy, FairPoint, sometimes excludes records from the metric calculations that should otherwise not be excluded. For example, Liberty's analysis of the hierarchy logic indicates that FairPoint's process would exclude a record with a no access code of '1G' even if the no access condition was resolved and the order could not be completed because of a FairPoint-caused reason, such as faulty facilities. FairPoint contends that the "likelihood of this occurring is slim."²⁷⁷ Liberty does not dispute that the impact of this defect is likely to be low, but it is nevertheless an error that should be corrected. **(Defect #63)**
- FairPoint excludes records from the denominator of PR-4-14 calculations when there is an excludable jeopardy code even if the jeopardy condition is resolved before the due date thereby allowing the due date to be met. FairPoint includes these orders in the numerator of the calculation only. FairPoint indicated that it will make a coding change to CAMP to correct this issue.²⁷⁸ **(Defect #64)**
- A flaw in the logic used to populate the completion date for the BCN task on some retail orders in CAMP caused these orders to be excluded from the calculation of the PR metrics. FairPoint indicated that it will investigate and implement a change in a future CAMP release.²⁷⁹ **(Defect #65)**

One other matter involves the definition of the order completion date. The C2C Guidelines specify that the denominator for the in-scope provisioning metrics is based on the number of orders completed for the product group. For its calculation of these metrics, FairPoint defines order completion as the date that service has been physically provisioned, not the actual order completion date. Specifically, FairPoint uses the completion of one of two M6 provisioning-plan

²⁷⁴ Response to Data Request #522 and Interview #22, August 14, 2012.

²⁷⁵ Responses to Data Requests #395 Errata and #395 clarification.

²⁷⁶ Responses to Data Requests #400 and #465.

²⁷⁷ December 7, 2012 response to Liberty's Draft Audit Report

²⁷⁸ Response to Data Request #386.

²⁷⁹ Response to Data Request #471 second clarification and December 7, 2012 response to Liberty's Draft Audit Report.

tasks, either the appointment task or the due date provisioning task, to determine completion in the metric calculation.²⁸⁰ The appointment task represents the completion of the physical provisioning of service in the field. FairPoint uses the completion date of appointment task when this task is required for completing an order; FairPoint uses the completion date of the M6 due date task when the appointment task is not required (e.g., if the order did not require a field dispatch). The due date task indicates that all central office and field work is complete, but not that all provisioning tasks are complete. FairPoint's systems complete both the appointment and due date tasks before completing all the steps, such as updating data bases and the billing records, required to fully provision service to the customer. In particular, updates to E911, LIDB, CNAM and directory assistance data bases occur after the physical provisioning step and therefore after the date and time FairPoint uses as the completion of provisioning for the purposes of the PR metrics. Thus, for example, full E911 capability and updated service billing records may not be available to a customer at that point in time.

The C2C Guidelines do not appear to include a clear definition of order completion. The PR-4 definition, for example, states:

*This metric measures the Percent of Orders completed after the commitment date. The PR-4 sub-metric calculations for the report month include Orders that are complete in the billing system. (Orders that are not billing completed in the report month are not included in the PR-4 calculations). **Note:** This does **not** apply to the following metrics, which are calculated based on physical work completion: Interconnection Trunks (CLEC) PR-4-02, PR-4-03, and PR-4-15.*²⁸¹

This definition clearly requires the billing tasks to be completed in the report month before orders are included in the metric calculations for that month. It is not clear from this definition or anywhere else in the C2C Guidelines, however, that this requires the billing tasks to be completed before the order is considered complete for the purposes of meeting the metric standard. A further complication noted in the OR-4 section is that FairPoint's bases its BCN notification process and billing completion date on completion of the due date task in M6. This task indicates that service provisioning is complete, triggering the transmission of a PCN to the CLEC and FairPoint's batch billing update process. Wisor automatically transmits a BCN to the CLEC upon the completion of the PCN task. However, this notifier indicates only that provisioning has completed and that "the allowed timeframe for subsequent billing processing is complete."²⁸² FairPoint indicated that its systems are not capable of sending a notifier to the CLEC after the due date completion task, hence the automated transmission of the BCN by Wisor based on completion of the service provisioning and not based on a positive notification from FairPoint that it has updated its billing systems.²⁸³ See Conclusion #13 in Chapter VI and Recommendation #10 in Chapter VII for a further discussion of this issue.

²⁸⁰ Responses to Data Requests #14 and #41 and Interview #5, November 8, 2011.

²⁸¹ The bold text is in the C2C Guidelines.

²⁸² Response to Data Request #82.

²⁸³ Responses to Data Requests #42 and #82.

Issues specific to the PR-4 sub-metrics only

Liberty also identified the following defects specific to PR-4:

- The C2C Guidelines specify that PR-4-15 include orders that were Customer Not Ready (CNR), and were completed in the report month. However, because of a CAMP coding error, FairPoint did not include CNR orders in the calculation of this sub-metric. FairPoint indicated that it updated CAMP beginning with the May 2012 data month to correct for this problem.²⁸⁴ **(Defect #66)**
- FairPoint uses source data from its MARCH system for the calculation of the PR-4-07 sub-metric, and CAMP did not retain a snapshot of the MARCH data used at the time the monthly performance measurements were calculated. FairPoint indicated that CAMP began capturing this information effective with the March 2012 data month.²⁸⁵ **(Defect #67)**
- Before reporting its PR-4-07 results, FairPoint manually examines all orders that CAMP identified as missing the standard to determine whether the miss was the result of a CLEC activity. FairPoint excludes all orders identified as a CLEC-caused miss from the calculation of the sub-metric's results.²⁸⁶ The C2C Guidelines do not authorize exclusion of CLEC-caused misses.²⁸⁷ Additionally, FairPoint has not documented the manual process used to identify CLEC-caused misses.²⁸⁸ FairPoint indicated that it has proposed definition change in the SMP to clarify metric description.²⁸⁹ **(Defect #68)**
- FairPoint includes cancelled orders in the denominator, but not in the numerator, of the PR-4-07 calculation because of a CAMP logic error. FairPoint indicated that it will implement a code change to correct for this.²⁹⁰ **(Defect #69)**
- FairPoint excludes some orders from the numerator but not the denominator of PR-4-07 because of CAMP logic errors involving the billing completion date and the retail disconnection date. FairPoint indicated that it will implement code changes to correct for these errors.²⁹¹ **(Defect #70)**

FairPoint provided Liberty a description of the code changes that were made to CAMP from March through December 2011.²⁹² During this time FairPoint made five CAMP changes specifically affected at least one of the in-scope PR-4 sub-metrics. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.²⁹³

²⁸⁴ Responses to Data Requests #273 and #375 clarification.

²⁸⁵ Response to Data Request #216 Errata and December 7, 2012 response to Liberty's Draft Audit Report.

²⁸⁶ Response to Data Request #217.

²⁸⁷ In fact, cases where the CLEC requested an early disconnect are treated as automatically meeting the standard.

²⁸⁸ Responses to Data Requests #217 and #218.

²⁸⁹ December 7, 2012 response to Liberty's Draft Audit Report.

²⁹⁰ Response to Data Request #470.

²⁹¹ Response to Data Request #470 and #471 clarification.

²⁹² FairPoint could not provide details of changes made to CAMP before March 2011.

²⁹³ Response to Data Request #8 supplemental.

2. PR-5

a. Metric Definition

PR-5 reports the percentage of missed provisioning appointments, held orders, and canceled orders because of a lack of FairPoint facilities. FairPoint reports four PR-5 sub-metrics in New Hampshire:

- PR-5-01: Percent Missed Appointments – FairPoint – Facilities
- PR-5-02: Percent Orders Held for Facilities >15 Days
- PR-5-03: Percent Orders Held for Facilities >60 Days
- PR-5-04: Percent Orders Cancelled (> five (5) days) after Due Date – Due to Facilities

Only the following PR-5 sub-metrics and product disaggregations are in scope for this audit:

- PR-5-01
 - 3112 – UNE POTS Loop
- PR-5-02
 - 3112 – UNE POTS Loop
 - 5000 – CLEC Trunks

The C2C Guidelines list the following exclusions from the PR-5 calculations:

- FairPoint test orders
- Disconnect orders
- FairPoint administrative orders
- Additional segments on orders.

FairPoint reports all of the PR-5 sub-metrics on a statewide basis for individual and aggregate CLECs, as well as for FairPoint retail. The standard for PR-5-01 and PR-5-02 is parity with retail.

The C2C Guidelines provide the following formulas for the PR-5 sub-metrics:

PR-5-01: % Missed Appointment – FairPoint – Facilities

(Number of dispatched orders or trunks where the order completion date is greater than the order DD due to FairPoint Facility reasons for product group.)/(Number dispatched orders or trunks completed for product group)

PR-5-02: % Orders Held for Facilities for More than 15 Days

(Number of dispatched orders or trunks where the completion date minus DD is 15 or more days for Company Facility reasons for product group)/(Number of dispatched orders or trunks completed for product group)

All in-scope PR-5 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

PR-5 is an automated metric calculated using service order data extracted from M6 into source tables in the CAMP Staging area.²⁹⁴ FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits.

In implementing the C2C Guidelines' exclusions and other PR-5 metric calculation requirements, FairPoint:

- Uses the same logic for identifying the four exclusions listed in the C2C Guidelines for the PR-5 metric as described in the PR-4 section above.
- Uses the billing completion date to determine which orders to include in the report month as described for PR-4.²⁹⁵
- Identifies orders held for facility reasons based on the jeopardy code on the service order.

Liberty identified the following defects related to PR-5:

- FairPoint calculates PR-5-02 based on business days, not calendar days. The C2C Guidelines specify that the PR-5-02 time interval should be calculated based on calendar days. FairPoint indicated that it implemented a change to the CAMP logic to correct for this on September 28, 2012.²⁹⁶ As an example of the impact of this error, Liberty found that FairPoint improperly excluded only one order out of 824 from the retail numerator of PR-5-02-3112 in December 2011 because of this error, which had a negligible effect on the PR-5-02-3112 reported value. **(Defect #71)**
- FairPoint does not include all orders that missed the due date due to FairPoint facility reasons in the calculation of the PR-5 metric. FairPoint indicated that facility jeopardy codes of 'H11,' 'H90,' and 'G90' are new codes that need to be added to CAMP as valid facility miss codes.²⁹⁷ FairPoint also excludes facility misses with a jeopardy code of '01' (central office equipment not ready) from the

²⁹⁴ Response to Data Request #7 supplemental.

²⁹⁵ Response to Data Request #2.

²⁹⁶ Response to Data Request #162 and December 7, 2012 response to Liberty's Draft Audit Report .

²⁹⁷ Response to Data Request #236.

PR-5 calculation. FairPoint indicated that it corrected all but jeopardy code '01' on May 29, 2012. The company plans to implement a correction for the '01' code in a future CAMP release.²⁹⁸ Liberty found that no records were improperly excluded from the in-scope PR-5 sub-metrics because of this error in August and December 2011. **(Defect #72)**

- Section V.A.4 describes defects associated with product identification that apply to PR-5 (Defects #8 - #13).
- Several defects discussed in the PR-4 section also apply to the PR-5 sub-metrics (see Section V.D.1, Defects #57 - #65).

FairPoint provided Liberty a description of the code changes that were made to CAMP from March through December 2011.²⁹⁹ During this time FairPoint made three CAMP changes that specifically affected at least one of the in-scope PR-5 sub-metrics. FairPoint also implemented an additional 11 "generic" changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.³⁰⁰

3. PR-6

a. Metric Definition

PR-6 reports the percentage of lines, circuits, or /trunks that FairPoint installed, on which a trouble was found in the network within 30 days of order completion (or seven days for hot cut orders). FairPoint reports three PR-6 sub-metrics in New Hampshire:

- PR-6-01: Percent Installation Troubles reported within 30 Days
- PR-6-02: Percent Installation Troubles reported within seven (7) Days
- PR-6-03: Percent Installation Troubles reported within 30 Days – Found OK (FOK) / Test OK (TOK) / Customer Premises Equipment (CPE).

Only the following PR-6 sub-metrics and product disaggregations are in scope for this audit:

- PR6-01:
 - 2100 – Resale POTS
 - 3113 – UNE POTS – New Loop
 - 3200 – UNE Specials
 - 3342 – UNE 2-Wire xDSL Loops
 - 5000 – CLEC Trunks
- PR-6-02:

²⁹⁸ Responses to Data Requests #236 and #236 clarification, and December 7, 2012 response to Liberty's Draft Audit Report.

²⁹⁹ FairPoint could not provide details of changes made to CAMP before March 2011.

³⁰⁰ Response to Data Request #8 supplemental.

- 3520 – Loop Basic Hot Cut (all lines size)

The C2C Guidelines list the following exclusions from the PR-6 calculations:

- Subsequent trouble reports (additional customer calls while the trouble is pending)
- Troubles closed due to customer action
- Troubles reported by FairPoint employees in the course of performing preventative maintenance, where no customer has reported a trouble
- Special project PONs (if applicable) per the process documented in Appendix S.

FairPoint reports all of the PR-6 sub-metrics on a statewide basis for individual and aggregate CLECs, and for FairPoint retail for the PR-6-01 sub-metric. The standard for PR-6-01 is parity with retail for found troubles. The standard for PR-6-02 is two percent.

The C2C Guidelines provide the following formulas for the PR-6 sub-metrics:

PR-6-01: % Installation Troubles Reported Within 30 Days

(Number of Central Office and outside plant loop (disposition codes 03, 04, and 05) troubles with installation activity within 30 days of the trouble report)/(Total lines installed in the calendar month)

PR-6-02: % Installation Troubles Reported Within Seven Days (POTS hot cut loops only)

(Number of Central Office and outside plant loop (disposition codes 03, 04, and 05) troubles with installation activity within seven days of the trouble report)/(Total lines installed in the calendar month)

All in-scope PR-6 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

FairPoint uses data from two different source systems, Remedy and M6, for calculating PR-6.³⁰¹ Remedy contains the trouble report data used to identify trouble reports associated with recent service installation activity. FairPoint uses M6 to identify installation and hot cut service orders.

PR-6 is an automated metric calculated using data extracted from Remedy and M6 into source tables in the CAMP Staging area. FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits.

³⁰¹ Response to Data Request #7 supplemental.

In implementing the C2C Guidelines' exclusions and other PR-6 metric calculation requirements, FairPoint:

- Excludes FairPoint-employee-reported troubles using a value of 'planned' or 'information' in the "category" field in Remedy.
- Does not create a trouble ticket on a subsequent report; therefore this exclusion does not apply.³⁰²
- Excludes troubles closed due to customer actions based on the value populated in the fault (disposition) code data field in CAMP. FairPoint's wholesale web site provides the definitions of FairPoint's fault codes.
- Excludes special project PONs based on an input file from the Wholesale Service Manager into CAMP. This file populates data fields in CAMP that flag specific transactions associated with special projects to be excluded from the metric calculations.³⁰³
- Includes orders in PR-6-01 when:
 1. The order was complete
 2. The line count on the order exceeded zero, indicating it was an order involving the installation of service
 3. The billing completion date was in the report month.³⁰⁴
- Identifies hot cut orders for calculating PR-6-02 by i) a value of 'BB' in the request type data field or ii) a value of 'AB' in the Request Type data field and a value of 'V' in the Activity data field.³⁰⁵
- Includes orders with billing completion dates in the report month in the PR-6 denominator, as specified in the C2C Guidelines.
- Identifies the trouble reports to be counted in the numerator by matching the trouble reports only with service orders that had a billing completion date in the current month. This method, however, excludes some troubles that should be counted in PR-6, as noted below (see Defect #73).
- Identifies troubles within seven or 30 days of order completion by comparing all the telephone numbers and circuit IDs in its Remedy trouble reports closed during the report month to the telephone numbers or circuit IDs in the orders for that month and for the previous month.³⁰⁶
- Calculates the interval between the service order and the trouble report from the order's provisioning completion date to the trouble report create date based on calendar days.
- Uses the trouble fault codes found on the trouble report to identify network troubles.

³⁰² Interview #6, November 9, 2011.

³⁰³ Response to Data Request #37 Errata.

³⁰⁴ Interview #6, November 9, 2011 and response to Data Request #2.

³⁰⁵ Response to Data Request #2.

³⁰⁶ Interview #6, November 9, 2011.

Liberty identified the following defects related to PR-6:

- By matching trouble reports only with service orders having billing completion date in the current month, FairPoint excludes troubles in the current month that were within 30 (or seven) days of installation activity that occurred in the previous month. For example, a trouble report created in November within 30 days of service established in October was excluded from the PR-6 numerator. FairPoint indicated that it fixed this problem effective with the May 2012 report month.³⁰⁷ **(Defect #73)**
- FairPoint excludes valid trouble reports from the PR-6 numerators because of a flaw in the process for matching the telephone number or circuit ID on a trouble ticket with the telephone number or circuit ID on the line associated with a service order. FairPoint indicated that it made a code change to its trouble ticket-to-service order matching logic in CAMP, on October 29, 2012, to correct this problem.³⁰⁸ Liberty found that the combined effect of this error and the error mentioned immediately above of dropping troubles outside of the report month can be significant. For example, FairPoint reported a PR-6-01-3113 wholesale numerator of 0 and a retail numerator of 36 in December 2011. Liberty found that correcting these two errors changes the wholesale numerator to 14 and the retail numerator to 50. The wholesale and retail denominators of 112 and 1073, respectively, are not affected by these errors. Thus, correcting for these errors increases the December PR-6-01-3113 wholesale value from the 0 to 12.5 percent and the retail value from 3.36 to 4.66 percent, which changes the status of this sub-metric from a “pass” to a “fail.” **(Defect #74)**
- FairPoint does not exclude trouble report records that contain two fault codes (0331 and 0332) that should be excluded from the calculation of the PR-6 metric because they designate Customer Premises Equipment (CPE) troubles rather than loop troubles, despite beginning ‘03’ like most loop troubles. FairPoint indicated that it implemented a code change, on July 29, 2012, to correct this problem.³⁰⁹ **(Defect #75)**
- FairPoint uses the service order with the earliest completion date when there are multiple service orders associated with the line to determine whether a trouble was reported within the specified interval (30 days for PR-6-01 and seven days for PR-6-02). FairPoint should use the service order with the order completion date prior but closest to the trouble report date. Using the earlier service order can exclude qualifying trouble reports from the metric calculation. For example, when the completion date of the order that is the earliest to be completed is greater than 30 days from the trouble report while the last service order was completed within 30 days of the trouble, the trouble would be incorrectly excluded from PR-6-01. Additionally using the earlier service order can sometimes cause trouble report

³⁰⁷ Response to Data Request #387.

³⁰⁸ Response to Data Request #394 and #554, and December 7, 2012 response to Liberty’s Draft Audit Report.

³⁰⁹ Responses to Data Requests #246, #301, #301 clarification, #301 second clarification, and #301 third clarification, and December 7 and 13, 2012 responses to Liberty’s Draft Audit Report.

and service order records to be improperly matched in determining the appropriate metric product sub-code. This can happen, for example when the last service order changed the product in service but the first service order did not. FairPoint indicated that it will implement a code change to consider the order with an order completion date that is closest to the trouble start date for the PR-6 calculations.³¹⁰ **(Defect #76)**

- FairPoint does not check repeat trouble reports to determine whether there was installation activity between the reported troubles. When a second trouble report is received within 30 days of the first trouble report, it should be identified as a repeat trouble and counted in MR-5. FairPoint, however, does not check whether there was new installation activity (*e.g.*, a migration from retail to wholesale on the same line) between the two trouble reports. When new installation activity occurs between the two trouble reports, the second trouble should be counted as an installation trouble and reported in PR-6, not as a repeat trouble in MR-5. FairPoint indicated that it will implement a code change to count these trouble reports in the PR-6 calculation.³¹¹ **(Defect #77)**
- Section V.A.4 describes defects associated with product identification (Defects #8 - #13) and matching products with troubles (Defects #14 - #16) that apply to PR-6.
- Several defects discussed in the PR-4 section also apply to the PR-6 sub-metrics (Section V.D.1, Defects #57 - #65).³¹²

FairPoint provided Liberty a description of the code changes that were made to CAMP from March through December 2011.³¹³ During this time there were eight CAMP changes that specifically affected at least one of the in-scope PR-6 sub-metrics. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.³¹⁴

4. PR-8

a. Metric Definition

PR-8 reports the percentage of open orders that, at the end of the reporting period, have been in a hold status for more than 30 or 90 days. There are two PR-8 sub-metrics reported in New Hampshire:

- PR-8-01: Percent Open Orders in a Hold Status > 30 Days

³¹⁰ Response to Data Request #449.

³¹¹ Responses to Data Requests #555 and #555 clarification.

³¹² Defect #63 involving incorrect exclusion of records with multiple jeopardy codes does not apply to PR-6, because jeopardy codes associated with a service order are not a criterion for order exclusion when calculating PR-6.

³¹³ FairPoint could not provide details of changes made to CAMP before March 2011.

³¹⁴ Response to Data Request #8 supplemental.

- PR-8-02: Percent Open Orders in a Hold Status > 90 Days

Only PR-8-01-3200 (UNE Specials) and PR-8-01-3342 (UNE 2-Wire xDSL Loops) are in scope for this audit.

According to the C2C Guidelines, an open order is a valid order that FairPoint has neither completed nor cancelled. The C2C Guidelines define open orders in a hold status to include open orders that have passed the originally committed completion date due to FairPoint reasons.

The C2C Guidelines list the following exclusions from the PR-8 calculations:

- FairPoint test orders
- Disconnect orders
- FairPoint administrative orders
- Additional segments on orders
- Orders that are completed or cancelled
- Orders that have passed the committed completion date, or whose completion has been delayed, due to CLEC or end-user delay, including FairPoint requests for cancellation
- Orders that, at the request of the CLEC or retail customer, FairPoint has not assigned a completion date.

FairPoint reports all of the PR-8 sub-metrics on a statewide basis for individual and aggregate CLECs, and for FairPoint retail. The standard for PR-8-01 is parity with FairPoint retail.

The C2C Guidelines provide the following formula for PR-8-01:

PR-8-01: Percent Open Orders in a Hold Status for More than 30 Days

(Number of open orders that, at the close of the reporting period have been in a hold status for more than 30 days)/(Total number of orders completed in the reporting period)

PR-8-01 is included in the New Hampshire PAP.

b. Metric Data and Calculations

PR-8 is an automated metric calculated using service order data extracted from M6 into source tables in the CAMP Staging area.³¹⁵ FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits.

³¹⁵ Response to Data Request #7 supplemental.

In implementing the C2C Guidelines' exclusions and other PR-8 metric calculation requirements, FairPoint:

- Excludes FairPoint test orders, disconnect orders, administrative orders, and additional segments on orders as described in the PR-4 section.
- Identifies completed orders by a date value populated in the derived order complete data field in CAMP and cancelled orders by a value of '1' in the "supplement" data field. FairPoint identifies open orders for the calculation of the numerator as orders with a null value in the order complete data field.³¹⁶
- Excludes orders not assigned a completion date based on a null value in the desired due date data field.³¹⁷
- Identifies CLEC- or end-user-caused delays by the jeopardy code populated in the jeopardy reason code data field in CAMP.³¹⁸ FairPoint indicated, however, that it only excludes orders that experienced such delays from the numerator of the PR-8 calculation (see Defect #79 below).³¹⁹
- Calculates the hold interval as the difference between the metric's calculation date and the desired due date data field.³²⁰

Liberty identified the following additional defects related to PR-8:

- FairPoint's calculation of the PR-8-01 numerator was based on the number of open orders at the close of the reporting period that had been in a hold status for more than 29 days rather than the 30 days, as specified in the C2C Guidelines. FairPoint indicated that it corrected this logic flaw in CAMP effective the February 2012 data month.³²¹ **(Defect #78)**
- FairPoint includes records with customer-caused misses in the PR-8 denominator. The C2C Guidelines specify that "[o]rders that have passed the committed completion date, or whose completion has been delayed, due to CLEC or end user delay" should be excluded from the calculation of the PR-8 metrics. According to FairPoint, this exclusion applies to only the numerator and not the denominator of the calculation because "only the numerator looks at open orders," while the denominator is "total orders completed in the time period," including those with CLEC- and end-user caused delays.³²² Liberty does not believe the language in the C2C Guidelines supports this contention. **(Defect #79)**
- FairPoint excludes records from the numerator of PR-8 whenever there is a null value in the PON data field, thereby excluding some legitimate orders. FairPoint indicated it implemented a code change, on October 30, 2012, to address this

³¹⁶ Response to Data Request #2.

³¹⁷ Interview #6, November 9, 2011.

³¹⁸ Interview #6, November 9, 2011.

³¹⁹ Responses to Data requests #171 and #278.

³²⁰ Interview #6, November 9, 2011 and response to Data Request #2.

³²¹ Responses to Data Requests #172 and #395 clarification.

³²² Responses to Data Requests #171 and #278.

issue.³²³ To examine the potential impact of this exclusion, Liberty examined the December retail value for PR-8-01-3200. After correcting for the erroneous exclusions, Liberty found that the numerator increased from 6 to 15, changing the PR-8-01-3200 measured percentage of orders held for more than 30 days from the reported 33.33 percent to 83.33 percent, demonstrating that the exclusion can have a large effect on the reported metric values. **(Defect #80)**

- Section V.A.4 describes defects associated with product identification that apply to PR-8 (Defects #8 - #13).
- Several defects discussed in the PR-4 section also apply to the PR-8 sub-metrics (Section V.D.1, Defects #57 - #65).

FairPoint provided Liberty a description of the code changes that were made to CAMP from March through December 2011.³²⁴ During this time there were five CAMP changes that specifically affected at least one of the in-scope PR-8 sub-metrics. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.³²⁵

5. PR-9

a. Metric Definition

PR-9 reports FairPoint’s UNE hot cut loop performance. FairPoint reports two PR-9 sub-metrics in New Hampshire:

- PR-9-01: Percent On Time Performance – Hot Cut
- PR-9-08: Average Duration of Hot Cut Installation Troubles

PR-9-01-3520 (Loop Basic Hot Cut) and the PR-9-08-3533 (Loop Hot Cut Total) are in scope for this audit.

The C2C Guidelines consider a hot cut to be complete when the following occurs:

- Work is done at the appointed Frame Due Time (FDT) as noted on the LSRC or the work is done at a time mutually agreed upon by FairPoint and the CLEC
- Orders missed for customer reasons, where there is no FairPoint miss, will be counted as complete on-time once completed.

The C2C Guidelines define the cut-over window, the amount of time from start to completion of physical cut-over of the lines, on the basis of the number of lines in the order as follows:

- 1 to 9 lines – 1 hour

³²³ Response to Data Request # 396 clarification and second clarification, and December 7, 2012 response to Liberty’s Draft Audit Report.

³²⁴ FairPoint could not provide details of changes made to CAMP before March 2011.

³²⁵ Response to Data Request #8 supplemental.

- 10 to 49 lines – 2 hours
- 50 to 99 lines – 3 hours.

If an Integrated Digital Loop Carrier (IDLC) is involved in the hot cut, a four-hour window (8:00 a.m. to 12:00 Noon or 1:00 p.m. to 5:00 p.m.) applies to the start time. This is only applicable if FairPoint notified the CLEC by 2:30 p.m. Eastern time two days before the due date that the service was on IDLC.

Similarly, the C2C Guidelines consider a hot cut to be “missed” when one of the following occurs:

- A premature disconnect is called into the FairPoint’s toll-free Hot Cuts number
- Work was not done due to a FairPoint reason (*e.g.*, late turn-up or due date pushed out due to FairPoint action).

The C2C Guidelines list the following exclusions from the PR-9 calculations:

- FairPoint test orders
- FairPoint administrative orders
- Additional segments on orders
- Orders that are not complete.

Additionally, if a CLEC cancels an order before the start of a Hot Cut window and FairPoint performs the hot cut, this FairPoint error will result in a retail, Resale, or UNE-L trouble report and need not be reflected elsewhere.

FairPoint reports the PR-9 sub-metrics on a statewide basis for individual and aggregate CLECs. The standard for PR-9-01 is 95 percent. The standard for PR-9-08 is parity with FairPoint retail.

The C2C Guidelines provide the following formulas for the PR-9 sub-metrics:

PR-9-01: % On Time Performance – Hot Cut

(Number of hot cut (coordinated loop) orders, with or without number portability completed within the commitment window as scheduled on the order on the due date)/(Number of hot cut (coordinated loop orders) completed)

PR-9-08: Average Duration of Service Disruption

(The sum of the trouble clear date and time minus the trouble receipt date and time for Central Office and loop troubles with disposition codes 03, 04, or 05 for hot cut installation troubles reported within seven days)/(Number of Central Office and loop troubles with disposition codes 03, 04, or 05 for hot cut installation troubles reported within seven days)

Both in-scope PR-9 sub-metrics are in the New Hampshire PAP.

b. Metric Data and Calculations

PR-9-01:

The Wholesale Customer Center manually compiles the data needed for the PR-9-01 calculation. The Operations Performance Metrics Team calculates the metric values.

To compile the data, the Wholesale Center retrieves all pending hot cut orders from Wisor. The Wholesale Center populates Wisor data for the order due date and frame due time (FDT) for each hot cut order in a tracking spreadsheet. The RCCC is responsible for providing the date and time the hot cut is completed to the Wholesale Center.³²⁶ The Wholesale Customer Center representative also indicates in the tracking spreadsheet whether the hot cut involved an integrated digital loop carrier IDLC line and the number of lines on the order.

At the end of the month, the Wholesale Customer Center sends the completed spreadsheets to the Operations Performance Metrics Team which determines whether the order was completed on time using the benchmarks in the C2C Guidelines. The Operations Performance Metrics Team also calculates the final values and inputs them into CAMP for reporting the calculated values. FairPoint indicated that it does not perform any acceptance testing of its hot cuts orders. FairPoint has been following this manual calculation process since before July 2010 and has maintained historical Wisor and M6 order information and tracking spreadsheets.³²⁷

Liberty obtained copies of the manual tracking and calculation spreadsheets for the entire audit period to evaluate the accuracy of the data and calculations of the reported PR-9-01-3520 values.³²⁸ Liberty also obtained source data for August and December 2011 from M6 that show the actual date and time of the hot cut.³²⁹ We verified that the hot cut completion data in the tracking sheets matched the M6 source data. We also used the data in CAMP for August and December 2011 to verify that all eligible hot cut orders were reflected on the tracking sheet.

Liberty independently calculated the metrics for the entire audit period using the data in the tracking spreadsheets and compared the values reported by FairPoint. We found that FairPoint misreported the number of hot cut orders in the September 2011 PR-9-01 numerator and denominator. This did not affect the reported ratio, however, which was 100 percent.³³⁰ Liberty was able to match FairPoint's other 2011 reported values for the in-scope PR-9-01 metrics.

³²⁶ Interview #6, November 9, 2011 and response to Data Request #231.

³²⁷ Interview #6, November 9, 2011

³²⁸ Response to Data Request #101 supplemental.

³²⁹ Response to Data Request #432. This is the "MGHOTCUT" task data field.

³³⁰ Response to Data Request #176.

PR-9-08:

PR-9-08 is an automated metric calculated using data extracted from M6, Wisor, Siebel, and Remedy into source tables in the CAMP Staging area.³³¹ FairPoint draws data from Staging source data tables, selecting the data for each sub-metric, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits.

In implementing the C2C Guidelines' exclusions and other PR-9-08 metric calculation requirements, FairPoint:

- Applied the four PR-9-08 exclusions listed in the C2C Guidelines as described in sections V.D.1 and V.D.4.
- Bases the report month on the date that the trouble report was closed, consistent with the C2C Guidelines.³³²
- Identifies hot cut orders using either: i) a value of 'BB' in the Request Type data field or ii) a value of 'AB' in the Request Type and a value of 'V' in the Activity Code data field.³³³
- Matches telephone numbers in the Remedy trouble reports with hot cut orders to identify trouble reports associated with a hot cut. FairPoint compares the create date of the trouble report to the order completion date in the order to determine the interval between the order completion and the trouble report.³³⁴

Liberty found that in calculating PR-9-08, FairPoint:

- Incorrectly excludes trouble reports from PR-9-08 with fault codes of '0342' and '0343'. This error also applies to the in-scope MR metrics. FairPoint indicated that it updated CAMP to correct this issue on July 29, 2012.³³⁵ **(Defect #81)**
- Excluded valid records from PR-9-08 because of an error in calculating the seven-day interval. FairPoint indicated that it made a CAMP code change, on November 29, 2012, to correct this error.³³⁶ **(Defect #82)**
- Includes trouble reports on "change" order activity in the PR-9-08 retail analog. The C2C Guidelines specify that PR-9-08 should only include troubles related to new and move service order activity. FairPoint indicated that it will correct this problem in a future release.³³⁷ **(Defect #83)**

³³¹ Response to Data Request #77.

³³² Interview #6, November 9, 2011 and response to Data Request #2.

³³³ Response to Data Request #2.

³³⁴ Interview #6, November 9, 2011.

³³⁵ Responses to Data Requests #246, #301, #301 clarification, and #301 second clarification, and #301 third clarification, and December 7 and 13, 2012 responses to Liberty's Draft Audit Report.

³³⁶ Response to Data Request #477.

³³⁷ Response to Data Request #478.

- Reported 17 wholesale trouble reports with an average duration of 16.34 hours for PR-9-08 in May 2011. FairPoint indicated that it should have reported ‘N/A,’ because this sub-metric only includes troubles reported within seven days of the hot cut order completion and no eligible records met this condition for that data month. FairPoint indicated that the misreporting was caused by a partial coding implementation in May 2011, which was corrected in August 2011.³³⁸ **(Defect #84)**
- Excludes records for troubles reported by a FairPoint technician with no reported trouble by the customer.³³⁹ The C2C Guidelines does not list this as a valid exclusion for PR-9-08. FairPoint disagrees with Liberty’s assessment, stating that “by definition” troubles excluded in the PR-6-02 sub-metric must be excluded from the PR-9-08 sub-metric as well.³⁴⁰ **(Defect #85)**
- Excluded troubles reported on the seventh day after order completion before the July 2011 data month.³⁴¹ The C2C Guidelines state that the PR-9-08 sub-metric “measures Average Duration of Hot Cut Installation Troubles where a reported trouble was found in the FairPoint network within 7 days of order completion.” **(Defect #86)**
- Includes trouble reports on service orders for feature changes in the calculation of the PR-9-08 retail analog, which is not in compliance with the C2C Guidelines. FairPoint indicated it will “implement a change in a future release” to correct for this CAMP logic flaw.³⁴² **(Defect #87)**
- Section V.A.4 describes defects associated with matching products with troubles that apply to PR-9-08 (see Defects #14, #15, and #16).

FairPoint provided Liberty a description of the code changes that were made to CAMP from March through December 2011.³⁴³ During this time there were six CAMP changes that specifically affected the PR-9-08 sub-metrics. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.³⁴⁴

³³⁸ Response to Data Request #277 and December 7, 2012 response to Liberty’s Draft Audit Report.

³³⁹ Response to Data Request #174.

³⁴⁰ December 7, 2012 response to Liberty’s Draft Audit Report.

³⁴¹ Response to Data Request #173.

³⁴² Response to Data Request #519 and #519 clarification.

³⁴³ FairPoint could not provide details of changes made to CAMP before March 2011.

³⁴⁴ Response to Data Request #8 supplemental.

E. Maintenance and Repair Metrics (MR)

1. MR-2

a. Metric Definition

MR-2 reports the network trouble report rate. MR-2 has five sub-metrics:

- MR-2-01: Network Trouble Report Rate
- MR-2-02: Network Trouble Report Rate – Loop
- MR-2-03: Network Trouble Report Rate – Central Office
- MR-2-04: Percent Subsequent Reports
- MR-2-05: Percent CPE/TOK/FOK Trouble Report Rate.

Only one MR-2 sub-metric and product disaggregation is in scope for this audit: UNE 2-Wire xDSL Loops (MR-2-03-3342).

The C2C Guidelines define the network trouble report rate as the number of direct or referred (“Category 1”) customer-reported troubles for which FairPoint finds the trouble disposition to be in its own network per 100 lines/circuits/trunks in service. Fault codes for drop wire (03), cable (04), and central office (05) identify a network trouble.

The C2C Guidelines list the following exclusions from the MR-2 calculations:

- Subsequent reports (a subsequent report is defined as a ticket opened on a trouble that has already been reported, when the original ticket for the trouble is still pending)
- Troubles reported on FairPoint official administrative lines
- Troubles closed due to customer action
- Troubles reported by FairPoint employees during preventative maintenance for which there is no associated customer report
- Switch and translation troubles from the retail analog of UNE POTS Loops, UNE 2-Wire Digital Loop, and UNE 2-Wire xDSL Loop
- Customer Premises Equipment (CPE) troubles and troubles reported but not found (*i.e.*, Found OK (FOK), Test OK (TOK), Non-Plant Classified (NPC), or Came Clear (CC)).

The C2C Guidelines specify that FairPoint should exclude “installation” troubles from the calculation of MR-2-03-3342. An installation trouble is defined, for the purpose of the C2C Guidelines, as the first trouble occurring within a specified period (seven or 30 days, depending on the context) after an installation. These troubles are measured in the PR-6 and PR-9-08 metrics. For the purpose of the MR metrics, the intention of the C2C Guidelines is for installation troubles to be measured within 30 days of an installation. If there is more than one trouble within 30 days, any trouble after the first is designated as a repeat trouble.

FairPoint reports the MR-2 sub-metrics on a statewide basis for individual and aggregate CLECs, and for FairPoint retail. The standard for MR-2-03 is parity with retail. The Retail Analog Compare Table of the C2C Guidelines defines the retail analog for a UNE 2-Wire xDSL Loop as “Retail POTS – Total (ALL),” which includes business POTS, residence POTS, and ISDN BRI.

The C2C Guidelines provide the following formula for the MR-2-03 sub-metric:

MR-2-03: Network Trouble Report Rate – Central Office

(Number of all central office trouble reports (disposition code 05))/(Number of lines in service)

The MR-2 measures are not included in the New Hampshire PAP.

b. Metric Data and Calculations

Like all in-scope MR metrics, MR-2 is an automated metric calculated using data extracted from two different sources systems, Remedy and Siebel, into source tables in the CAMP Staging area.³⁴⁵ Remedy contains the trouble report data used to calculate the numerator of MR-2. FairPoint uses Siebel to associate troubles with the product provided on the line experiencing the trouble in order to report MR-2 by product type; that is, 2-Wire xDSL Loops for MR-2-03-3342. Siebel is also the source of the number of lines in service used in the MR-2 denominator.

Methods Applicable to All In-scope MR Metrics:

FairPoint draws data from CAMP Staging source data tables, selecting the data for the in-scope MR-2 sub-metric and those of the other in-scope MR metrics, applying exclusions, generating derived data fields, and storing the resulting transaction-level data in tables within CAMP ODS. FairPoint uses these ODS tables for calculating the metric numerators and denominators and the PAP bill credits. The MR metrics are subject to a number of exclusions and metric calculation requirements that are generally applicable to all in-scope MR-2, MR-3, MR-4, and MR-5 sub-metrics. Liberty found that that to implement these general MR exclusions and calculation requirements FairPoint:

- Includes only Category 1 troubles by selecting for the metric calculations only troubles populated with “trouble” in the “Category” field imported into CAMP from Remedy. This also accomplishes the exclusion of troubles reported by FairPoint employees during preventative maintenance, because these are populated with either “information” or “planned” in the Category field.³⁴⁶

³⁴⁵ Interview #1, November 8, 2011, Interview #7, November 9, 2011, and response to Data Request #7 supplemental.

³⁴⁶ Interview #7, November 9, 2011.

- Uses the trouble closed date and time field imported into CAMP from Remedy for determining the month for reporting the troubles for this and other MR metrics.³⁴⁷ In general, a trouble is counted in the MR metrics if a unique trouble report is associated with the proper product and is closed in the reporting month. Additionally, company codes (CCNA or ACNA) are used to determine whether the trouble is a Wholesale or Retail trouble.
- Does not issue separate tickets for subsequent reports.³⁴⁸ Therefore, FairPoint does not need to explicitly exclude them from the metric calculation.
- Identifies and excludes administrative lines through special codes ('Y' or 'C') in a derived Official Lines Indicator field in the CAMP ODS module.³⁴⁹
- Excludes troubles closed due to customer action by selecting for the metric calculation only troubles coded as Central Office (fault code '05') or Loop (fault codes '03' and '04') troubles.³⁵⁰
- Excludes CPE, FOK, TOK, NPC, and CC troubles by selecting for the metric calculation only troubles coded as Central Office (fault code '05') or Loop (fault code '03' and '04') troubles, depending on the sub-metric. FairPoint excludes additional 4-digit fault codes beginning with '03' that it indicated represent customer wire problems and hence should be CPE troubles. An issue with FairPoint's application of these additional exclusions is noted below (see Defect #81 below and in Section V.D.5).
- Implements the exclusion of "translation and switch" troubles from the retail analog of the MR-2, MR-3, and MR-4 UNE POTS Loop (product sub-code 3112) and UNE xDSL Loop (product sub-code 3342) sub-metrics by excluding troubles with a set of 4-digit fault codes beginning '05'.³⁵¹ This exclusion does not apply to MR-5. Some issues with FairPoint's application of this exclusion are noted below (see Defect #88).

Liberty found the following defects in FairPoint's processes for applying the exclusions common to the in-scope MR metrics:

- Several of the codes excluding in FairPoint's process for applying the "translation and switch" exclusion for loop-product retail analogs were not associated with causes related to "translation and switch" issues. Instead, a smaller list should be used.³⁵² FairPoint stated that it updated the list of fault codes to use for the

³⁴⁷ Response to Data Request #2.

³⁴⁸ Interview #7, November 9, 2011.

³⁴⁹ Response to Data Request #59.

³⁵⁰ Interview #7, November 9, 2011.

³⁵¹ Response to Data Request #2. FairPoint excluded the following 4-digit fault codes in 2011: 0500, 0501, 0502, 0503, 0504, 0511, 0512, 0513, 0514, 0515, 0516, 0521, 0522, 0523, 0524, 0525, 0526, 0527, 0528, 0529, 0535, 0536, 0537, 0538, 0539, 0551, 0552, 0553, 0554, 0561, 0562, 0563, 0564, 0565, 0566, 0571, 0572, 0573, 0574, 0575, 0576, 0577, 0578, 0581, 0582, 0586, 0587, and 0597.

³⁵² Responses to Data Requests #336, #336 clarification, and #336 second clarification. FairPoint has concurred that the following fault code list is appropriate for the "translation and switch" exclusion: 0511, 0512, 0513, 0514, 0515, 0516, 0521, 0522, 0523, 0524, 0525, 0526, 0527, 0529, 0566, 0581, 0582, and 0586.

“translation and switch” exclusion in August 2012.³⁵³ Liberty found that this correction can have a large effect on the metric values for the retail analogs of the loop products (product sub-codes 3112 and 3342). However, its effect on FairPoint’s reported values was mitigated by the fact that FairPoint failed to code the exclusion correctly for four of the fault codes.³⁵⁴ For example, Liberty calculated that the numerator of MR-2-03-3342 would have been 27 in August 2011 and 20 in December, if FairPoint’s original list of fault codes had been used in the exclusion. Using the revised and reduced list of excluded fault codes, changes these values to 73 and 60, respectively, approximately tripling the retail trouble report rate (the MR-2 denominator is not affected by this exclusion). Because of FairPoint’s coding error, however, the reported values were 53 and 39, respectively. Thus correcting for the erroneous exclusion of too many ‘05’ codes has a smaller but still significant effect (approximately 50 percent increase) relative to FairPoint’s reported values. **(Defect #88)**

- FairPoint used an incorrect list of 4-digit fault in identifying the additional CPE exclusions with fault codes beginning with ‘03.’ Specifically, FairPoint excludes the following fault codes ‘0331,’ ‘0332,’ ‘0340,’ ‘0342,’ and ‘0343.’ FairPoint subsequently indicated that codes ‘0340,’ ‘0342,’ and ‘0343’ do not indicate customer wire problems and thus should not be on this list and plans to eliminate these codes from the exclusion.³⁵⁵ FairPoint also stated that these codes are associated with fiber-to-the-curb products and thus should not appear in transactions included in the C2C metrics. Liberty nevertheless noted that removing them does have an effect on the metric values. **(Defect #81)**

FairPoint counts unique troubles for all in-scope MR metrics except the MR-5 numerator using a trouble report identifier based on the trouble report number.³⁵⁶ FairPoint identifies products and associates them with troubles through a complex process using several data fields and look-up tables described in Section V.A.4. That section describes defects associated with product identification that apply to MR metrics. As an example, FairPoint confirmed that a defect in assigning products to product sub-codes 3331 and 3342 (Defect #9) affects the MR metrics with these sub-codes.³⁵⁷

To test FairPoint’s process of extracting trouble data from the Remedy source system, importing it into CAMP, and associating the troubles with products, Liberty requested a random sample of 100 troubles on New Hampshire lines in Remedy during the months of August and December

³⁵³ Response to Data Request #336 and December 7, 2012 response to Liberty’s Draft Audit Report.

³⁵⁴ Responses to Data Requests #419 and #419 clarification. The codes FairPoint failed to exclude were: 0523, 0564, 0576, and 0597. As the responses to Data Requests #336, #336 clarification, and #336 second clarification indicate, only one of these (0523) should have been excluded as a “translation and switch” trouble in any case.

³⁵⁵ Responses to Data Requests #301, #301 clarification, and #301 second clarification, and December 7 and 13, 2012 responses to Liberty’s Draft Audit Report.

³⁵⁶ Specifically, FairPoint selects troubles with unique instances of the ‘FLD_REQUESTID’ field imported into CAMP from Remedy.

³⁵⁷ Response to Data Request #431 third clarification.

2011. One of these troubles proved to be on a Vermont line and was dropped from the sample.³⁵⁸ Liberty compared the Remedy data fields for the remaining 99 troubles with the data on the same troubles in the CAMP Staging and ODS databases. Liberty found that FairPoint had accurately transferred the data from Remedy to CAMP, after correctly converting the dates and times from the Remedy to the CAMP time-zone convention.³⁵⁹ In examining the results of the process described above for matching troubles with products, Liberty found that:

- 21 of the 99 troubles did not receive a product identifier after the Siebel match process. FairPoint explained that 20 of these 21 troubles were associated with retail DSL, which is not reported in the C2C metrics.³⁶⁰ The remaining trouble was not matched to a product because of a delay in a Siebel update, which was noted above as one of the issues affecting FairPoint's ability to match lines with troubles (see Section V.A.4, Defects #14 and #15).
- 22 of the 99 troubles had lines with multiple products in Siebel, 19 of which would have received a different product identifier in CAMP ODS if the product hierarchy FairPoint plans to introduce in the future had been used. This suggests that approximately one-fifth³⁶¹ of the troubles may have been counted in the wrong four-digit metric product sub-code (see Section V.A.4, Defect #14).

Methods Specific to MR-2:

In implementing the calculation requirements that apply specifically to MR-2-03-3342, FairPoint:

- Calculates the denominator based on the active lines in service at month end for products identified as UNE 2-Wire xDSL Loops.
- Aggregates information on the counts of lines by product, state, and company identifier.
- Sums the number of active UNE 2-Wire xDSL Loop lines at month end by whether the line is wholesale or retail.³⁶²

Liberty found, however, the following defects in FairPoint's MR-2-03-3342 calculation process:

- FairPoint reports this sub-metric without dividing the lines in service by 100,³⁶³ although the C2C Guidelines require this division. These Guidelines describe MR-2 as follows: "This metric measures the total initial Customer Direct (CD) or Customer Referred (CR) troubles (Category 1) reported, where the trouble disposition was found to be in the network, per 100 lines/circuits/trunks in

³⁵⁸ Response to Data Request #190. FairPoint provided only New Hampshire records in response to Data Requests #124 and #125 for CAMP Staging and ODS data.

³⁵⁹ Response to Data Request #306. The field "FLD_OFFEREDCOMMITMENTTIME" is not converted, but it is not used in the MR measurements.

³⁶⁰ Responses to Data Request #339 and #339 clarification.

³⁶¹ 19 out of 99 is approximately one-fifth.

³⁶² Responses to Data Requests #154 and #284,

³⁶³ Response to Data Request #423 clarification.

service.”³⁶⁴ FairPoint acknowledged this error and indicated that it implemented a code update on August 29, 2012 to divide the lines in service by 100.³⁶⁵ **(Defect #89)**

- FairPoint does not exclude installation troubles for MR-2-03-3342, although the C2C Guidelines require this exclusion.³⁶⁶ FairPoint indicated that it plans to correct this in a future CAMP release.³⁶⁷ **(Defect #90)**

FairPoint provided Liberty a description of the code changes made to CAMP from March through December 2011.³⁶⁸ During this time, there was one CAMP change that specifically affected the in-scope MR-2-03-3342 sub-metric. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.³⁶⁹

2. MR-3

a. Metric Definition

MR-3 reports the percentage of network troubles not repaired and cleared by the committed date and time. There are three MR-3 sub-metrics:

- MR-3-01: Percent Missed Repair Appointment – Loop
- MR-3-02: Percent Missed Repair Appointment – Central Office
- MR-3-03: Percent CPE/TOK/FOK – Missed Appointment.

MR-3-01 and MR-3-02 are in scope for this audit for the follow product disaggregations:

- MR-3-01-
 - 1341 – Resale & UNE Combined 2-Wire Digital Services
 - 2110 – Resale POTS Business
 - 2120 – Resale POTS Residence
 - 3112 – UNE POTS – Loop
 - 3342 – UNE 2-Wire xDSL Loops
- MR-3-02-
 - 2110 – Resale POTS Business
 - 2120 – Resale POTS Residence
 - 3112 – UNE POTS – Loop

³⁶⁴ Response to Data Request #1.

³⁶⁵ Response to Data Request ##423 clarification and December 7, 2012 response to Liberty’s Draft Audit Report.

³⁶⁶ Interview #7, November 9, 2011.

³⁶⁷ December 7, 2012 response to Liberty’s Draft Audit Report.

³⁶⁸ FairPoint could not provide details of changes made to CAMP before March 2011.

³⁶⁹ Response to Data Request #8 supplemental.

- 3342 – UNE 2-Wire xDSL Loops.

Network troubles include troubles with the fault (disposition) code '03,' '04,' and '05'. MR-3-01 measures loop troubles, which are considered “dispatched out” and are identified by fault codes '03' and '04.' MR-3-02 measures central office troubles, which are considered “dispatched in” and are identified by fault code '05.'

For a UNE POTS voice loop, the C2C Guidelines state that the company uses a single ticket process that allows it to easily change dispatch direction in the event that a CLEC makes an error with the initial dispatch.

The C2C Guidelines list the following exclusions from the MR-3 calculations:

- Troubles reported on FairPoint official administrative lines
- CLEC or end-user caused missed appointments, or missed appointment due to no access
- Subsequent reports
- CPE troubles
- Troubles reported but not found (*i.e.*, FOK, TOK, NPC, or CC)
- Troubles closed due to customer action
- Troubles reported by FairPoint employees in the course of preventative maintenance when there is no associated customer report
- Switch and translation troubles from the retail analog of UNE POTS Loops, UNE 2-Wire Digital Loop, and UNE 2-Wire xDSL Loop
- Records for troubles on which FairPoint dispatches a technician prior to the appointment date and encounters a no access situation.

The C2C Guidelines indicate that the company should exclude “redirected” troubles on POTS loops from the MR-3-02 sub-metric. The C2C Guidelines define redirected troubles as troubles dispatched in and out when the company finds the trouble on the second dispatch after an incorrect initial dispatch by the CLEC.

FairPoint reports the MR-3 sub-metrics on a statewide basis for individual and aggregate CLECs, and for FairPoint retail. The standard for MR-3-01 and MR-3-02 is parity with retail.

The C2C Guidelines provide the following formulas for the in-scope MR-3 sub-metrics:

MR-3-01: Percent Missed Repair Appointment – Loop

(Number of loop troubles (disposition codes 03 and 04) for which clear time is greater than commitment time)/(Number of loop troubles (disposition codes 03 and 04))

MR-3-02: Percent Missed Repair Appointment – Central Office

(Number of central office troubles (disposition code 05) for which clear time is greater than commitment time)/(Number of Central Office troubles (disposition code 05))

Both MR-3-01 and MR-3-02 are included in the New Hampshire PAP.

b. Metric Data and Calculations

Like the other in-scope MR metrics, MR-3 is an automated metric calculated using data extracted from Remedy and Siebel into source tables in the CAMP Staging area. FairPoint uses data from two different source systems, Remedy and Siebel, for calculating MR-3.³⁷⁰ Remedy contains the trouble report data, and FairPoint uses Siebel to associate troubles with the product provided on the line experiencing the trouble in order to report MR-3 by product type.

FairPoint’s implementation of the general MR exclusions and calculation requirements that apply to MR-3 are noted above in the MR-2 discussion. The MR-2 discussion also includes Liberty’s findings regarding FairPoint’s association of troubles with products for reporting the metrics by product sub-code, which also applies to MR-3. In implementing the other exclusions and calculation requirements that apply to MR-3, FairPoint:

- Does not follow the “single ticket” process described in the Guidelines. Instead, when there is a misdirected trouble, FairPoint asks the CLECs to cancel the ticket and FairPoint issues a new one. Thus, redirected troubles are automatically excluded from FairPoint’s trouble reporting.³⁷¹
- Excludes end-user-caused missed appointments by including only troubles coded as Central Office (fault code ‘05’) or Loop (fault codes ‘03’ and ‘04’) troubles, depending on the sub-metric. FairPoint codes the end-user-caused missed appointments with fault codes that do not begin with ‘03’, ‘04’, or ‘05’.³⁷² FairPoint had additional coding to eliminate the end-user-caused missed, but found it to be ineffective. Using the fault codes alone appears to be sufficient to exclude the end-user-caused missed appointments.³⁷³
- Satisfies the “No Access Rule” in the MR-3 metrics by keeping the ticket open if the customer is not available outside the appointment period and the technician is re-dispatched during the appointment window.³⁷⁴

³⁷⁰ Interview #1, November 8, 2011, Interview #7, November 9, 2011, and response to Data Request #7 supplemental.

³⁷¹ Interview # 7, November 9, 2011.

³⁷² Responses to Data Requests #61,

³⁷³ Response to Data Request #354.

³⁷⁴ Response to Data Request #66.

- Does not exclude “redirected” troubles from MR-3-02. As noted, FairPoint indicates that it requires the CLEC to cancel trouble tickets for misdirected troubles, which obviates the need for the exclusion.³⁷⁵

Liberty found the following defect in FairPoint’s processes for applying the C2C Guidelines calculation requirements and exclusions for MR-3 in addition to those noted in the MR-2 section (Section V.E.1) above that apply to all MR metrics:

- FairPoint excludes “translation and switch” troubles from the wholesale values of MR-3-02-3112 and MR-3-02-3342, although such exclusions are specified in the C2C Guidelines only for the retail analogs.³⁷⁶ This erroneous exclusion caused FairPoint to report a wholesale denominator of 7 instead of 12 for MR-3-02-3112 in August 2011. Because the numerator was correctly reported as 2, the metric value was overstated by 58 percent. FairPoint indicated that it implemented a correction for this error in August 2012.³⁷⁷ **(Defect #91)**

Aside from the problems with correct assignment of transactions to product sub-codes discussed in Section V.A.4, Liberty observed no additional errors in FairPoint’s calculation of MR-3-01 for all in-scope product sub-codes or in the calculation of MR-3-02 for product sub-codes 2110 and 2120. Using FairPoint’s assignment of transactions to product sub-codes, Liberty was able to successfully replicate FairPoint’s reported values in August and December 2011 of MR-3-01-1341, 2110, 2120, 3112, and 3342 and MR-3-02-2110 and 2120. Because of flaws in FairPoint’s process for assigning transactions to product sub-codes, however, Liberty’s successful replication any MR-3 sub-metrics does not necessarily imply that the reported August and December values are accurate.

FairPoint provided Liberty a description of the code changes made to CAMP from March through December 2011.³⁷⁸ During this time, there was one CAMP change that specifically affected the in-scope MR-3 sub-metrics except MR-3-01-134. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.³⁷⁹

3. MR-4

a. Metric Definition

MR-4 measures the Mean Time to Repair (MTTR) and other characteristics of trouble duration for network trouble reports. There are eight MR-4 sub-metrics:

- MR-4-01: Mean Time to Repair – Total

³⁷⁵ Interview # 7, November 9, 2011.

³⁷⁶ Responses to Data Requests #424 and #424 clarification.

³⁷⁷ December 7, 2012 response to Liberty’s Draft Audit Report.

³⁷⁸ FairPoint could not provide details of changes made to CAMP before March 2011.

³⁷⁹ Response to Data Request #8 supplemental.

- MR-4-02: Mean Time to Repair – Loop Trouble
- MR-4-03: Mean Time to Repair – Central Office Troubles
- MR-4-04: Percent Cleared (All Troubles) Within 24 Hours
- MR-4-05: Percent Out of Service Greater than Two Hours
- MR-4-06: Percent Out of Service Greater than Four Hours
- MR-4-07: Percent Out of Service Greater than 12 Hours
- MR-4-08: Percent Out of Service Greater than 24 Hours.

Of these, all but MR-4-04 and MR-4-05 are in scope for this audit. The in-scope product disaggregations are as follows:

- MR-4-01-
 - 3217 – UNE Specials (DS1 & DS3)
- MR-4-02-
 - 2110 – Resale POTS Business
 - 2120 – Resale POTS Residence
 - 3112 – UNE POTS – Loop
 - 3342 – UNE 2-Wire xDSL Loops
- MR-4-03-
 - 2110 – Resale POTS Business
 - 2120 – Resale POTS Residence
 - 3112 – UNE POTS – Loop
 - 3342 – UNE 2-Wire xDSL Loops
- MR-4-06-
 - 3217 – UNE Specials (DS1 & DS3)
 - 5000 – All CLEC Trunks
- MR-4-07-
 - 3112 – UNE POTS – Loop
 - 3342 – UNE 2-Wire xDSL Loops
- MR-4-08-
 - 2110 – Resale POTS Business
 - 2120 – Resale POTS Residence
 - 3112 – UNE POTS – Loop
 - 3217 – UNE Specials (DS1 & DS3)
 - 3342 – UNE 2-Wire xDSL Loops
 - 5000 – All CLEC Trunks.

The C2C Guidelines define MTTR as the average duration from trouble receipt to trouble clearance. Calculation of the MR-4 measure includes troubles with fault (disposition) codes '03,' '04,' and '05.' FairPoint should measure the repair intervals on Resale POTS troubles on a running clock basis, which includes weekends and holidays. For special services and interconnection trunks, FairPoint should measure the repair intervals on a stop clock basis. That is, FairPoint should stop the clock when CLEC testing is occurring, FairPoint is awaiting carrier acceptance, or FairPoint cannot gain access. For UNE POTS-Loop, UNE 2-Wire Digital Loop, and UNE 2-Wire xDSL products, FairPoint should measure the repair interval on a limited stop clock basis. That is, FairPoint should stop the clock for outside dispatch tickets if access to the customer premises is after the offered repair interval. Otherwise, a running clock should be used.

The C2C Guidelines define Out of Service (OOS) as the condition for which there is no dial tone, the customer cannot call out, or others cannot call the customer. For specials, the C2C Guidelines define an OOS condition as a circuit that is completely out of service, not just intermittently so, and the completion code indicates that FairPoint finds the trouble in its own network. The C2C Guidelines specify that the OOS interval should be measured beginning at the time at which a trouble is entered into FairPoint's trouble management system. The Guidelines also state that the OOS durations should be calculated using the same rules depending on product class that apply to the MTTR calculations, as noted above.

The C2C Guidelines list the following exclusions:

- Troubles reported on FairPoint official administrative lines
- Subsequent reports
- CPE troubles
- Troubles reported but not found (*i.e.*, FOK, TOK, NPC, or CC)
- Troubles closed due to customer action
- Troubles reported by FairPoint employees in the course of preventative maintenance when there is no associated customer report.
- Switch and translation troubles from the retail analog of UNE POTS Loops, UNE 2-Wire Digital Loop, and UNE 2-Wire xDSL Loop.

The C2C Guidelines also specify exclusion of redirected troubles on POTS loops from sub-metric MR-4-03.

FairPoint reports the MR-4 sub-metrics on a statewide basis for individual and aggregate CLECs, and for FairPoint retail. The standard for the MR-4 sub-metrics is parity with retail.

The C2C Guidelines provide the following formulas for the in-scope MR-4 sub-metrics:

MR-4-01: Mean Time to Repair – Total

(Sum of trouble clear date and time minus trouble receipt date and time for central office and loop troubles (disposition codes 03, 04 and 05))/(Number of central office and loop troubles (disposition codes 03, 04 and 05))

MR-4-02: Mean Time to Repair – Loop Trouble

(Sum of trouble clear date and time minus trouble receipt date and time for loop troubles (disposition codes 03 and 04))/(Number of loop troubles (disposition codes 03 and 04))

MR-4-03: Mean Time to Repair – Central Office Troubles

(Sum of trouble clear date and time minus trouble receipt date and time for central office troubles (disposition code 05))/(Number of central office troubles (disposition code 05))

MR-4-06: Percent Out of Service Greater than Four Hours

(Number of OOS troubles for which the trouble clear date and time minus the trouble receipt date and time is greater than four hours)/(Number of OOS troubles, including loop and central office)

MR-4-07: Percent Out of Service Greater than 12 Hours

(Number of OOS troubles for which the trouble clear date and time minus the trouble receipt date and time is greater than 12 hours)/(Number of OOS troubles, including loop and central office)

MR-4-08: Percent Out of Service Greater than 24 Hours

(Number of OOS troubles, for which the trouble clear date and time minus the trouble receipt date and time is greater than 24 hours)/(Number of OOS troubles, including loop and central office)

All the MR-4 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

Like the other in-scope MR metrics, MR-4 is an automated metric calculated using data extracted from Remedy and Siebel into source tables in the CAMP Staging area. FairPoint uses data from two different source systems, Remedy and Siebel, for calculating MR-4.³⁸⁰ Remedy contains the trouble report data, and FairPoint uses Siebel to associate troubles with the product provided on the line experiencing the trouble in order to report MR-4 by product type.

FairPoint's implementation of the general MR exclusions and calculation requirements that apply to MR-4 are noted above in the MR-2 discussion. The MR-2 discussion also includes Liberty's findings regarding FairPoint's association of troubles with products for reporting the

³⁸⁰ Interview #1, November 8, 2011, Interview #7, November 9, 2011, and response to Data Request #7 supplemental.

metrics by product sub-code, which also applies to MR-4. In implementing the other exclusions and calculation requirements that apply to MR-4, FairPoint:

- Does not exclude “redirected” troubles because its trouble reporting process obviates the need for this, as noted for MR-3.
- Implements the “stop clock” exclusion for those products to which it applies (including Specials, Trunks UNE-Loop, and UNE xDSL Loop for the in-scope metrics) using a pending status (“inpending”) in Remedy. An associate in FairPoint’s Customer Service Maintenance Center manually sets this status in Remedy for dispatch out tickets only whenever a CLEC or end-customer delay causes FairPoint to be unable to perform the work as scheduled.³⁸¹ FairPoint implements the exclusion by subtracting the total time spent in “inpending” status from the total time to resolve the ticket (the difference between the clear date and time and the trouble receipt date and time). This procedure addresses both the “stop time” and “limited stop time” conditions as described in the C2C Guidelines.³⁸²
- Determined during 2011 whether troubles caused customers to be out of service using an “OOS” flag set in CAMP, for the purposes of calculating sub-metrics MR-4-06, MR-4-07, and MR-4-08,. Liberty has found that this procedure was not reliable, as noted below (see Defect #92).

Liberty found the following defects in FairPoint’s processes for applying the C2C Guidelines calculation requirements and exclusions for MR-4 in addition to those noted in the MR-2 section above (Section V.E.1) that apply to all MR metrics:

- The flag FairPoint used to identify OOS troubles during 2011 was not reliable. FairPoint set the “OOS” flag in CAMP based on a free-form field in Remedy. This procedure is the same as the one FairPoint used for the retail quality of service metrics in New Hampshire.³⁸³ Liberty noted in its recent audit of these metrics that this procedure is unreliable.³⁸⁴ As explained in the report to that audit, FairPoint’s process identified out-of-service trouble reports by looking for one of three values in a particular “Description of Symptom” data field in Remedy: ‘CBC’ (“cannot be called”), ‘CCO’ (“cannot call out”), or ‘NDT’ (“no dial tone”). FairPoint included a trouble ticket in the measurement calculation only when one of these three values is found in this data field. The “Description of Symptom” field is a free-form notes field in the Remedy trouble report; FairPoint’s service representatives and technicians use the field to describe the trouble condition on the line and to track the progress on the trouble report. FairPoint’s systems did not include checks to require that one of the three required conditions (CBC, CCO, or NDT) be specified when the trouble causes a line to be out of service. FairPoint relied, instead, on its employees remembering

³⁸¹ Responses to Data Requests #14, #15, and #92,

³⁸² Responses to Data Requests #62, #355, #356, and #397, and Erratum to Data Request #62.

³⁸³ Response to Data Request #63.

³⁸⁴ Audit of FairPoint Communications’ New Hampshire Retail Quality of Service Reports, Final Report, August 9, 2011, pp. 61-63.

to accurately populate the field with one of these three values when a line is out of service. FairPoint has confirmed that it introduced a partial repair of this process to check for 'OOS' in the free-form field through CAMP modifications implemented in January 2012. The company plans a more complete repair through future source system changes.³⁸⁵ Liberty has not reviewed these corrections. **(Defect #92)**

- FairPoint double counts the resolution times of troubles when there was a previous trouble within 30 days (identified with a flag set for the purposes of calculating MR-5, as discussed in the MR-5 section) in calculating the MR-4-01, MR-4-02, and MR-4-03 numerators.³⁸⁶ This can have a large effect on the reported metric values. Eliminating the double counting reduces the wholesale values of MR-4-02-2120, for example, from 29.69 to 21.91 in August 2011 and from 55.91 to 27.95 in December 2011. The retail values of this sub-metric in the same two months change from 22.49 to 19.96 and from 23.59 to 20.52, respectively, after correcting for the double counting. FairPoint indicated that it implemented a CAMP change to correct this error in May 2012.³⁸⁷ **(Defect #93)**
- FairPoint fails to identify all trunks in calculating sub-metrics with product sub-code 5000. This error also applies to MR-5.³⁸⁸ FairPoint plans to implement a code change to correct this error.³⁸⁹ **(Defect #94)**

FairPoint provided Liberty a description of the code changes made to CAMP from March through December 2011.³⁹⁰ During this time, there were two CAMP changes that specifically affected at least one of the in-scope MR-4 sub-metrics. FairPoint also implemented an additional 11 "generic" changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.³⁹¹

4. MR-5

a. Metric Definition

MR-5 reports the percentage of repeat trouble reports. The C2C Guidelines define a repeat trouble report as a trouble reported or cleared on the same line/circuit/trunk as a previous trouble report within the last 30 calendar days. The initial trouble can have any fault (disposition) code, with exceptions for some products noted below. The repeat report should have a fault code of '03,' '04,' or '05,' regardless of the fault code on the initial trouble. FairPoint determines the 30-day interval for a repeat report on the basis of the close date of the original report. MR-5 has only

³⁸⁵ Response to Data Request #63 and December 7, 2012 response to Liberty's Draft Audit Report.

³⁸⁶ Response to Data Request #436.

³⁸⁷ December 7, 2012 response to Liberty's Draft Audit Report.

³⁸⁸ Response to Data Request #448.

³⁸⁹ December 7, 2012 response to Liberty's Draft Audit Report.

³⁹⁰ FairPoint could not provide details of changes made to CAMP before March 2011.

³⁹¹ Response to Data Request #8 supplemental.

one sub-metric: MR-5-01 – Percent Repeat Reports within 30 Days. The following product disaggregations are in scope for the audit:

- MR-5-01-
 - 2110 – Resale POTS Business
 - 2120 – Resale POTS Residence
 - 3112 – UNE POTS – Loop
 - 3200 – UNE Specials
 - 3342 – UNE 2-Wire xDSL Loops
 - 5000 – All CLEC Trunks.

The C2C Guidelines list the following exclusions from the MR-5 calculations:

- Trouble reported on FairPoint official administrative lines
- Subsequent reports, while trouble is pending
- CPE troubles
- FOK or TOK troubles
- Troubles closed due to customer action
- Troubles reported by FairPoint employees in the course of preventative maintenance when there is no associated customer report
- Troubles included in the PR-6-01 sub-metric values for Percent Installation Troubles Reported within 30 Days.

The C2C Guidelines also require that FairPoint not consider a trouble report a repeat report if the original trouble report was a loop trouble that was either “no access” or misdirected. The C2C Guidelines also indicate that the company closes a trouble as “no access” if access is not available in the scheduled appointment window.³⁹² Additionally, the C2C Guidelines indicate that the company considers troubles closed out to CPE, TOK, or FOK misdirected if it finds the trouble in a second report dispatched in the opposite direction.

FairPoint reports the MR-5 metric on a statewide basis for individual and aggregate CLECs, and for FairPoint retail. The standard for MR-5-01 is parity with retail.

The C2C Guidelines provide the following formula for the MR-5 sub-metric:

MR-5-01: Percent Repeat Reports within 30 Days

(Number of central office and loop troubles, with disposition codes 03, 04, or 05, that had previous troubles with any disposition code within the last 30 days)/(Total central office and loop troubles, with disposition codes 03, 04, or 05, within the calendar month)

³⁹² Carrier-to-Carrier Guidelines Performance Standards and Reports, Version 13, adopted March 2007; page 83.

MR-5-01 is included in the New Hampshire PAP.

b. Metric Data and Calculations

Like the other in-scope MR metrics, MR-5 is an automated metric calculated using data extracted from Remedy and Siebel into source tables in the CAMP Staging area. FairPoint uses data from two different source systems, Remedy and Siebel, for calculating MR-5.³⁹³ Remedy contains the trouble report data, and FairPoint uses Siebel to associate troubles with the product provided on the line experiencing the trouble in order to report MR-5 by product type.

FairPoint's implementation of the general MR exclusions and calculation requirements that apply to MR-5 are noted above in the MR-2 discussion.³⁹⁴ The MR-2 discussion also includes Liberty's findings regarding FairPoint's association of troubles with products for reporting the metrics by product sub-code, which also applies to MR-5. In implementing the other exclusions and calculation requirements that apply to MR-5-01, FairPoint:

- Identifies that there was a previous trouble within the 30-day window by setting a Previous Trouble flag to 'Y'.³⁹⁵ Liberty found some errors with the setting of this flag as noted below (see Defect #95).
- Initially indicated that logic for setting the Previous Trouble flag also implements the exclusion of Installation troubles (troubles reported in PR-6-01).³⁹⁶ Liberty found, however, that this was not correct, as noted more fully below (see also Section V.D.3, Defect #77).
- Excludes previous "no access" and "misdirected" troubles by not setting the Previous Trouble flag to "Y" if a trouble within the 30-day window had specific four-digit fault codes that indicate that a "no access" or "misdirected" condition applied to the trouble.³⁹⁷ FairPoint applied this exclusion, however, to all products instead of only loop products (see Defect #96).

Liberty found the following defects in FairPoint's processes for applying the C2C Guidelines calculation requirements and exclusions for MR-5 in addition to those noted in the MR-2 section above (Section V.E.1) that apply to all MR metrics:

- Liberty found several cases where FairPoint did not properly set the Previous Trouble flag for lines with a trouble that had previous troubles within 30 days.

³⁹³ Interview #1, November 8, 2011, Interview #7, November 9, 2011, and response to Data Request #7 supplemental.

³⁹⁴ Note that the exclusion of the "translation and switch" troubles form the retail analogs of the loop products (product sub-codes 3112 and 3324 among the in-scope metrics) applies only to MR-2, MR-3, and MR-4, according to the C2C Guidelines "Retail Analog Compare Table." It is not applicable to MR-5.

³⁹⁵ Response to Data requests #14 and #15.

³⁹⁶ Response to Data Request #398.

³⁹⁷ Responses to Data Requests #357 and #357 clarification, The excluded 4-digit fault codes are 0666, 0941, 1201, 1207, 1208, 1209, 1225, 1233, 1241, 1298, and 1320.

FairPoint acknowledged that there were errors in setting this flag.³⁹⁸ In particular, FairPoint has been:

1. Erroneously requiring the previous trouble to have fault codes of '03,' '04,' or '05' when the troubles were in the same reporting month
2. Incorrectly calculating the interval between the two troubles in a way that would affect only troubles separated by precisely 30 days
3. Had a coding error for fault code exclusions that incorrectly misidentified some troubles as Previous Troubles.

FairPoint stated that it has corrected the first and third of these errors, which are likely to have the largest effect, as of May 2012 and plans to correct the second one in the future. Liberty found that these errors can have a large effect, particularly the first. For example, correcting the Previous Trouble flag changes the December 2011 wholesale numerator of MR-5-01-2100 from the reported value of 8 to 12. The denominator of 36 is unaffected by this change. Thus, the metric value increases from 22.2 to 33.3 percent. As another example, the August and December wholesale numerators of MR-5-01-3112 increase from 13 to 20 (with an unchanged denominator of 148) and from 4 to 8 (with an unchanged denominator of 101), respectively. These changes cause the August wholesale MR-5-01-3112 metric values to increase from 8.8 to 13.5 percent and the December values to change from 4.0 to 7.9 percent. **(Defect #95)**

- Liberty found troubles reported in both MR-5 and PR-6-01, which should not happen if Installation troubles are properly excluded. FairPoint confirmed that the Previous Trouble flag logic does not exclude Installation troubles, but will implement a change to the logic to accomplish this in the future.³⁹⁹ Liberty found that this sometimes significantly affected the reported metric values. For example, excluding Installation troubles reduces the reported December 2011 MR-5-01-2100 wholesale numerator from 8 to 7 and the retail numerator from 285 to 273. This reduces the wholesale metric value 12.5 percent and the retail value by 4.2 percent. The effect on the December MR-2-03-3342 value was even larger, reducing the value by 15.4 percent. This issue is also discussed in the PR-6 section of the report (see Section V.D.3, Defect #77).
- FairPoint excluded “no access” and “misdirected” troubles from all product disaggregations of MR-5. The C2C Guidelines specify that “[f]or Loop troubles (e.g. analog loop, 2-Wire Digital Loops, and 2-Wire xDSL Loops) a repeat is not scored when the original report is no access or misdirected.”⁴⁰⁰ FairPoint indicated that it interprets this statement to mean that the exclusion applies to troubles in a loop, regardless of the product on the line,⁴⁰¹ although the company apparently, inconsistent with this interpretation, applies the exclusion not only to loop troubles (fault codes '03' and '04') but also central office troubles (fault

³⁹⁸ Response to Data Request #557.

³⁹⁹ Response to Data Request #555.

⁴⁰⁰ Response to Data Request #1.

⁴⁰¹ December 7, 2012 response to Liberty's Draft Audit Report.

code '05').⁴⁰² Liberty believes that the parenthetical comment, “*e.g. analog loop, 2-Wire Digital Loops, and 2-Wire xDSL Loops,*” makes clear that the exclusion was intended to apply only to loop products. The loop products comprise UNE Loop (product sub-code 3112) and UNE xDSL Loop (product sub-code 3342) among the in-scope sub-metrics. FairPoint indicated that it plans to restrict the application of this exclusion in the future, but plans to apply it not only to the loop products UNE Loop, UNE 2-Wire Digital Loops, and UNE 2-Wire xDSL Loop, but also to Resale POTS and Resale 2-Wire Digital Loops.⁴⁰³ Liberty also noted that FairPoint did not identify as many “no access” and “misdirected” fault codes for excluding previous troubles as they should.⁴⁰⁴ Based on the examination of a few examples, it does not appear that FairPoint’s application of the “no access” and “misdirected” fault code exclusions to loop troubles for all products has a large effect on the MR-5 metric values. **(Defect #96)**

- FairPoint identifies troubles in the numerator and denominator with different methods. FairPoint uses an identifier based on the trouble report number for the MR-5-01 denominator, which is the same method as that used for numerators and denominators of the other in-scope MR metrics, using an identifier based on the trouble report number. However, FairPoint uses a method based on line characteristics for the numerator.⁴⁰⁵ This has the effect of excluding some legitimate troubles in the numerator that appear in the denominator, causing the MR-5-01 values to be smaller than they should be. FairPoint has acknowledged that both the numerator and denominator should be calculated using the trouble report number and corrected the numerator calculation in September 2012.⁴⁰⁶ **(Defect #97)**
- FairPoint incorrectly excluded a retail trouble from the denominator of MR-5-01-3200 in August because of an error in the logic for selecting the retail company codes. FairPoint corrected this error effective with the October 2011 data month.⁴⁰⁷ **(Defect #98)**
- FairPoint fails to identify all trunks in calculating sub-metrics with product sub-code 5000. FairPoint plans to implement a code change to correct this error.⁴⁰⁸ (See Section V.E.3, Defect #94)

FairPoint provided Liberty a description of the code changes made to CAMP from March through December 2011.⁴⁰⁹ During this time, there were two CAMP changes that specifically

⁴⁰² December 13, 2012 response to Liberty’s Draft Audit Report.

⁴⁰³ Response to Data Request #357.

⁴⁰⁴ Response to Data Request #357 second clarification. FairPoint should have also excluded the following fault codes: 1219, 1236, and 1238.

⁴⁰⁵ Specifically, FairPoint selects troubles with unique instances of the ‘FLD_CUSTOMERASSETNO’ field imported into CAMP from Remedy.

⁴⁰⁶ Responses to Data Requests #446 and #446 clarification and December 7, 2012 response to Liberty’s Draft Audit Report.

⁴⁰⁷ Response to Data Request #447.

⁴⁰⁸ Response to Data Requests #395 clarification and #448.

⁴⁰⁹ FairPoint could not provide details of changes made to CAMP before March 2011.

affected at least one of the in-scope MR-5 sub-metrics. FairPoint also implemented an additional 11 “generic” changes, such as changes to reference tables and the logic used to populate derived data fields, which had the potential to affect all metrics.⁴¹⁰

F. Network Performance Metrics (NP)

1. NP-1

a. Metric Definition

NP-1 reports the percent of dedicated one-way Final Trunk Groups (FTGs) carrying traffic from FairPoint’s tandem to the CLEC that exceed blocking design thresholds. There are four NP-1 sub-metrics:

- NP-1-01: % Final Trunk Groups Exceeding Blocking Standard
- NP-1-02: % Final Trunk Groups Exceeding Blocking Standard (No Exceptions)
- NP-1-03: Number of Final Trunk Groups Exceeding Blocking Standard – Two Months
- NP-1-04: Number of Final Trunk Groups Exceeding Blocking Standard – Three Months.

NP-1-03 and NP-1-04 are in scope for this audit for the “All CLEC Trunks” product disaggregation:

- NP-1-03-5000
- NP-1-04-5000.

The C2C Guidelines define CLEC trunks as dedicated final trunks carrying traffic from the FairPoint tandem to the CLEC and FairPoint retail trunks as Common Final Trunks carrying local traffic between offices.

The C2C Guidelines specify that FairPoint’s monthly trunk blockage studies use a “time consistent” busy hour, and note that the data collected during a single study period are a sample subject to statistical variation.

The C2C Guidelines indicate that FairPoint should provide notification to CLECs of certain specific blocked trunk situations. Upon identifying that the trunk group is blocked due to CLEC causes, FairPoint is required to exclude the trunk group from its NP-1 performance metrics unless the CLEC responds back with documentation that the blocking cause information is inaccurate. The trunk groups subject to this notification and confirmation process are:

- Trunks blocked due to CLEC network failure

⁴¹⁰ Response to Data Request #8 supplemental.

- Trunks that actually overflow to a final trunk, but are not designed as an overflow trunk
- Blocked trunks on which a CLEC order for augmentation is overdue
- Blocked trunks for which a CLEC has not responded to or has denied FairPoint request for augmentation
- Trunks blocked due to other CLEC trunk network rearrangements.

FairPoint is also required to exclude Interexchange Carrier (IXC) dedicated trunks and common trunks carrying only IXC traffic from the calculations of the NP-1 sub-metrics.

FairPoint reports all of the NP-1 sub-metrics on a statewide basis for individual and aggregate CLECs, as well as for FairPoint retail. There are no performance standards for NP-1-01, NP-1-02, and NP-1-03; however, FairPoint must provide an explanation and, if necessary, an action plan for individual trunks that are blocked for two consecutive months. The C2C Guidelines note that, because common trunks carry both retail and CLEC traffic, there will always be parity on them. The standard for NP-1-04 is zero, *i.e.*, no final trunk group should exceed the blocking standard for three consecutive months.

The C2C Guidelines provide the following formulas for the in-scope NP-1 sub-metrics:

NP-1-03: Number of Final Trunk Groups Exceeding Blocking Standard – Two Months

Number of final trunk groups that exceed blocking threshold, for two (2) consecutive months, exclusive of trunks that block due to CLEC network problems as agreed by CLECs

NP-1-04: Number of Final Trunk Groups Exceeding Blocking Standard – Three Months

Number of final trunk groups that exceed blocking threshold for three (3) consecutive months, exclusive of trunks that block due to CLEC network problems as agreed by CLECs.

NP-1-03 and NP-1-04 are included in the New Hampshire PAP. For the purposes of the PAP, these sub-metrics receive a score indicating a possible or definite penalty when their values are greater than zero.

b. Metric Data and Calculations

The Traffic and Capacity Management group in FairPoint's Network organization is responsible for creating the traffic reports that form the basis for calculating NP-1. The source for NP-1 data is Previsor, a FairPoint network management system that has direct connections to all the FairPoint switches. Network traffic data is kept in Previsor Reporting, which uses Business Objects to create customized Busy Hour Trunk Group Reports for use in reporting NP-1. The monthly NP-1 reporting process starts when the Network Service Coordinator pulls Busy Hour

Trunk Group Reports from Previsor. The Coordinator pulls two reports: one showing all direct final (DF) trunk groups for the month and another for the alternate final (AF) trunk groups. The Coordinator then combines the DF and AF data into a single spreadsheet. After applying filters to select the appropriate trunk groups, the Coordinator exports the data to the Operations Performance Metrics personnel, who import the Busy Hour Trunk Group Report data into monthly NP-1 Workbooks used to calculate the NP-1 sub-metrics. Because NP-1-03 and NP-1-04 require blocking data across multiple months, each monthly NP-1 Workbook is derived from that of the prior month by adding the new month's data and manually making the formula changes necessary to complete the calculations for the new month's report. FairPoint has documented the detailed methods and procedures necessary to accomplish each of the steps of the process from the creation of the Busy Hour Trunk Group Reports through the calculations in the NP-1 Workbooks.⁴¹¹

FairPoint's process for calculating NP-1 only examines busy hour blocking. Under certain circumstances, blocking can happen on trunk groups outside of the busy hour (*e.g.*, when calls have long holding times). FairPoint maintains that measuring only busy-hour blocking is the standard procedure and that it is consistent with the C2C Guidelines.⁴¹² Liberty notes that the C2C Guidelines for NP-1 include the statement: "Monthly trunk blockage studies are based on a time consistent busy hour," which appears to confirm FairPoint's contention.

To evaluate the accuracy of the data and the calculations of the reported NP-1-03-5000 and NP-1-04-5000, Liberty traced data from the Previsor-generated Busy Hour Trunk Group Reports through FairPoint's calculation of the reported values in the Carrier Trunk Group Report spreadsheets. Liberty obtained and reviewed copies of the Carrier Trunk Group Report spreadsheets for each month in 2011.⁴¹³ Liberty obtained and reviewed the combined AF and DF Busy Hour Trunk Group Reports used to populate the Carrier Trunk Group Report spreadsheets for June through December 2011.⁴¹⁴ Liberty also obtained and reviewed the original separate AF and DF Previsor reports for the months of August and December 2011 to compare with the combined AF and DF reports for those months.⁴¹⁵ Liberty found no discrepancies between the separate AF and DF reports and the combined reports.

In calculating the NP-1 sub-metrics, FairPoint eliminates from the Previsor-generated Busy Hour Trunk Group Reports trunk groups with the following characteristics:⁴¹⁶

- Overflow less than 0.9 percent
- Blocking less than two percent
- Used for E911, intercept services, or intraLATA private line service⁴¹⁷
- Used for independent telephone companies

⁴¹¹ Response to Data Request #2 and Interview #8, November 9, 2011.

⁴¹² Interview #8, November 9, 2011.

⁴¹³ Response to Data Request #64.

⁴¹⁴ Responses to Data Requests #483 and #483 clarification.

⁴¹⁵ Response to Data Request #493.

⁴¹⁶ Response to Data Request #2.

⁴¹⁷ Response to Data Request #494.

- Used exclusively by FairPoint⁴¹⁸
- Having two-way usage⁴¹⁹
- Having “maintenance” usage (which FairPoint defines as “the amount of time measured in CCS that trunks are removed from service due to equipment malfunction, routine maintenance, or transitions”⁴²⁰)
- Without a CLEC CCNA code (FairPoint assigns such trunks to CLEC ID ‘228’ for data processing purposes).

Several of the filters are applied to the Busy Hour Trunk Group Reports by the Traffic and Capacity Management Group before exporting the data to the Operations Performance Metrics Group to be placed into the NP-1 Workbooks. The Operations Performance Metrics personnel delete the trunk groups with maintenance usage and filter out the trunk groups with CLEC ID ‘228’ in the process of creating the NP-1 Workbooks. The logic in the NP-1 Workbook applies the two-percent blocking condition. FairPoint also indicated that it has a process that uses communication between account team managers and CLECs about blocked trunks to determine which trunk groups are blocked for the various CLEC-caused reasons listed in the NP-1 C2C Guidelines and exclude them from the NP-1 calculations. However, the company stated that it did not need to exclude any trunk groups from the calculation of NP-1-03 and NP-1-04 during the audit period for CLEC-caused reasons listed for NP-1 in the C2C Guidelines.⁴²¹

Although these filters do not implement exclusions explicitly listed in the NP-1 C2C Guidelines, they are intended to select trunk groups consistent with the intent of the Guidelines for this metric. In comparing these filters with the language in the C2C Guidelines for NP-1, Liberty found that:

- Filtering out FairPoint, independent telephone company, E911, intercept-service, intraLATA private line, and two-way trunk groups conforms with the definition of NP-1 as measuring blocking for dedicated one-way trunk groups from FairPoint’s tandem to the CLEC.⁴²²
- There does not appear to be any clear wording in the C2C Guidelines to justify eliminating trunk groups with what FairPoint calls “maintenance usage.” FairPoint justifies the exclusion of such trunk groups because NP-1 “measures only traffic delivered from FairPoint to a CLEC”⁴²³ and “[t]runks subject to maintenance usage may contain CCS related to maintenance activities and are not traffic delivered by FairPoint to the CLEC.”⁴²⁴ **(Defect #99)**
- Filtering out the trunk groups with CLEC identifier ‘228’ might be helpful in eliminating IXC trunk groups, which should not be reported in NP-1. However, it

⁴¹⁸ Response to Data Request #495.

⁴¹⁹ Responses to Data Requests #496 and #538.

⁴²⁰ Response to Data Request #497 clarification.

⁴²¹ Response to Data Request #482.

⁴²² Response to Data Request #496.

⁴²³ Response to Data Request #497.

⁴²⁴ Response to Data Request #497 second clarification and December 7, 2012 response to Liberty’s Draft Audit Report.

also excludes trunk groups that should appropriately be reported in the CLEC-aggregate NP-1 results, as FairPoint has acknowledged. FairPoint indicates that it has changed this practice beginning in July 2012.⁴²⁵ **(Defect #100)**

- The C2C Guidelines are somewhat ambiguous about the blocking design threshold that trunks need to meet in calculating NP-1. The Guidelines' Glossary states, "Final Trunks are designed so that no more than 0.5% (B.005 standard) of traffic will block during the busy hour ..." On the other hand, the NP-1 description states that FairPoint "uses blocking threshold tables (Service Threshold) to determine the statistical probability that the design blocking standard is not being met; with the resulting trunk group requiring service action. For the NP-1 metrics, trunk groups exceeding a 2% threshold require action to prevent future blocking."⁴²⁶ In fact, for the purpose of calculating NP-1, FairPoint includes only trunks for which the blocking, measured as one minus completed calls divided by calls offered, exceeds two percent. FairPoint stated that the Glossary section of the C2C Guidelines should be used only as a definition of various types of trunk groups, not as a description of how NP-1 should be calculated. Furthermore, using the 2 percent blocking threshold is consistent with "the definition for these metrics as historically implemented by FairPoint and its predecessor since adoption of the C2C Guidelines."⁴²⁷

To explore the blocking design threshold issue, Liberty analyzed the blocking data in the Busy Hour Trunk Group Reports for June through December 2011. Liberty found no cases for which use of a 0.5 percent blocking threshold instead of a 2 percent blocking threshold would have led to the inclusion of additional trunks in the calculation that would not be excluded through other legitimate exclusions. Thus, there appears to be no practical discrepancy between the 0.5 and 2 percent blocking thresholds at least for the last half of 2011. Nevertheless, if NP-1 or a similar metric will be used in future FairPoint PAPs, it would be helpful to clarify the precise blocking threshold to be used.

From a review of the data in the Busy Hour Trunk Group Reports for July through December 2011 and a comparison with the NP-1 Workbooks for these months, Liberty found **(Defect #101)**:

- Data for trunk groups showing overflow percentages calculated based on the data that are greater than 100. FairPoint acknowledged this unphysical result occurred because some of the 2011 data in the Busy Hour Trunk Group Reports from 2011 is corrupted.⁴²⁸
- FairPoint manual trunk group filtering process does not reliably exclude the appropriate trunk groups. Some of the filters on the trunk groups to select those for inclusion in the metric calculations in the NP-1 Workbook appear to be incorrectly applied. Liberty noted several trunk groups in the July, October, and

⁴²⁵ Response to Data Request #487 and December 7, 2012 response to Liberty's Draft Audit Report.

⁴²⁶ Response to Data Request #1.

⁴²⁷ Response to Data Requests #537 and #539.

⁴²⁸ Response to Data Request #483 clarification.

December Busy Hour Trunk Group Reports that should have been excluded in the NP-1 Workbooks but were not. These errors do not appear to have affected the calculation of NP-1-03 and NP-1-04 during 2011 because these trunk groups had been properly excluded in adjacent months.⁴²⁹

To calculate NP-1-03 and NP-1-04, the NP-1 Workbook applies logic to test whether any of the trunk groups meeting the filters set on the Busy Hour Trunk Group Report data also did so in the prior month (for NP-1-03) or in each of the last two months (for NP-1-04). The NP-1 Workbook collects the data by CLEC and aggregates across CLECs for CLEC-specific and CLEC-aggregate C2C reports and PAP bill credit calculations, respectively. The workbook compares the trunk group data against a list of CLEC codes to associate the trunks with the CLECs for the CLEC-specific reporting.

Liberty reviewed the calculations in the NP-1 Workbooks and compared all CLEC-aggregate and CLEC-specific NP-1-03 and NP-1-04 values calculated in the NP-1 Workbook for each month in 2011 with the CLEC-specific and aggregate C2C reports for those months.⁴³⁰ Liberty found that FairPoint correctly transferred the values calculated in the NP-1 Workbooks into the C2C and PAP reports. Liberty noted, however, that:

- FairPoint improperly assigned a trunk group to CLEC '228' in October 2011 when there was no code in the CCNA field but sufficient information in the ACNA field to assign the trunk group to a specific CLEC. FairPoint indicated that it changed its procedures to check for both valid CCNA and ACNA codes before assigning trunk groups to CLEC '228' beginning in July 2012. FairPoint also improperly assigned a trunk group to CLEC '228' in July 2011 that should have been designated as retail. Neither of these errors affected the reported NP-1-03 and NP-1-04 values.⁴³¹ **(Defect #101)**
- The NP-1 Workbook logic excluded the reporting of trunk group in NP-1-03 (two months' blocking) if it was also reported for NP-1-04 (three months' blocking). FairPoint acknowledged this error and indicated that it corrected the logic with the June 2012 report month.⁴³² **(Defect #102)**

2. NP-2

a. Metric Definition

The metrics within NP-2 report FairPoint's performance in responding to requests for collocation and in establishing collocation arrangements. There are eight NP-2 sub-metrics:

- NP-2-01: % On Time Response to Request for Physical Collocation
- NP-2-02: % On Time Response to Request for Virtual Collocation

⁴²⁹ Responses to Data Requests #483 second clarification and #538 clarification.

⁴³⁰ Responses to Data Requests #5 and #6.

⁴³¹ Response to Data Request #487 and December 7, 2012 response to Liberty's Draft Audit Report.

⁴³² Response to Data Request #486 and December 7, 2012 response to Liberty's Draft Audit Report.

- NP-2-03: Average Interval – Physical Collocation
- NP-2-04: Average Interval – Virtual Collocation
- NP-2-05: % On Time – Physical Collocation
- NP-2-06: % On Time – Virtual Collocation
- NP-2-07: Average Delay Days – Physical Collocation
- NP-2-08: Average Delay Days – Virtual Collocation

All of these sub-metrics except NP-2-03 and NP-2-04 are used in the New Hampshire PAP. The sub-metrics used in the PAP are aggregated across both physical and virtual collocation for the purpose of calculating penalties. That is, the PAP uses the following combinations: NP-2-01/2, NP-2-05/6, and NP-2-07/8.

The sub-metrics in scope for this audit are NP-2-01 and NP-2-05 for the following disaggregations:

- 6701: Collocation – New Applications
- 6702: Collocation – Augment applications – 45 days and 76 days combined.

Also in scope are the two PAP reporting combinations:

- NP-2-01/2
- NP-2-05/6.

The C2C Guidelines define the response and completion collocation intervals as the number of business days between the order application date and the date FairPoint notifies the CLEC of space availability, and the number of business days between the order application date (when FairPoint receives a valid service request) and order completion, respectively. The C2C Guidelines specify that FairPoint's work is not complete on a collocation arrangement until i) the arrangement is suitable for use by the CLEC and ii) FairPoint provides the CLEC with the cable assignment information necessary to use the facility. There are no exclusions for NP-2 except for the standard C2C Guidelines exclusions for FairPoint affiliate and test CLEC data.

FairPoint reports all of the NP-2 sub-metrics on a statewide basis for individual and aggregate CLECs. FairPoint reports separate values for new and augmented applications for all sub-metrics. The standard for the percentage on time sub-metrics, NP-2-01, NP-2-02, NP-2-05, and NP-2-06, is 95 percent. The applicable FairPoint tariff contains the specific collocation intervals for these on-time sub-metrics. The remaining average interval and average delay days sub-metrics do not have an associated standard. The C2C Guidelines provide the following formulas for the NP-2 in-scope sub-metrics:

NP-2-01: % On Time Response to Request for Physical Collocation

(Number of requests for physical collocation arrangements where a response to the request was due in the report period and was answered on time)/(Number of

requests for physical collocation where the initial response was due in the report period)

NP-2-02: % On Time Response to Request for Virtual Collocation

(Number of requests for virtual collocation arrangements where a response to the request was due in the report period and was answered on time)/(Number of requests for virtual collocation where the initial response was due in the report period)

NP-2-05: % On Time – Physical Collocation

(Number of physical collocation arrangements completed on or before the due date, including due date extensions resulting from CLEC milestone misses)/(Number of physical collocation arrangements completed)

NP-2-06: % On Time – Virtual Collocation

(Number of virtual collocation arrangements completed on or before the due date, including due date extensions resulting from CLEC milestone misses)/(Number of virtual collocation arrangements completed)

b. Metric Data and Calculations

The source data for the NP-2 metric is a collocation applications tracking workbook (“Applications”) maintained by customer representatives in FairPoint’s Wholesale Customer Relations group. The entries are based on collocation request e-mails received from CLECs and manual recording of the completion of various stages in the collocation process.⁴³³ The Applications workbook includes the key data necessary for calculating the in-scope metrics, including, among other key information used in the NP-2 calculations:

- Application request type
- Application e-mail receipt date
- Application fee payment date
- FairPoint initial response date
- Collocation completion due date
- Actual collocation completion date.

FairPoint uses the application request type to determine:

- Whether the application qualifies for inclusion in NP-2 calculations
- Which qualifying applications are for physical (reported in NP-2-01 and NP-2-05) and which are virtual collocations (reported in NP-2-02 and NP-2-06)

⁴³³ Response to Data Request #2 and Interview #8, November 9, 2011.

- Which qualifying physical or virtual collocations are new (reported with product sub-code 6701) and which are augments (reported with product sub-code 6702).

FairPoint counts the number of qualifying collocation applications as determined within the Applications workbooks in a separate Collocations template that records the counts by CLEC for each NP-2 sub-metric disaggregation (including the in-scope disaggregations NP-2-01-6701, NP-2-01-6702, NP-2-02-6701, NP-2-02-6702, NP-2-05-6701, NP-2-05-6702, NP-2-06-6701, and NP-2-6702) and the combinations used for PAP reporting and bill credit calculations (including the in-scope combinations NP-2-01/2 and NP-2-05/6). The Collocations template also sums across the CLEC values to obtain the CLEC-aggregate values for each of the above disaggregations and combinations.

The C2C Guidelines state, in the NP-2 definition, “Products ordered include new arrangements and augments to existing arrangements where [FairPoint] is required to perform work to add capacity for space, cable termination or DC power.”⁴³⁴ FairPoint includes all requests for space, cable terminations, or DC power, but no other types of collocation applications, in the calculation of the NP-2 sub-metrics.

The C2C Guidelines define the application date as the date on which FairPoint receives a valid service request, which is a service request that was populated in accordance with the collocation application instructions. If the application does not require a fee, FairPoint takes as the start date for the NP-2 interval calculations the date it receives a complete and accurate application. If an application fee is required, FairPoint generally uses the date it receives the application fee as the start date, but this can vary under certain circumstances and the reasons for the difference should be documented in notes in the Applications workbook spreadsheets.⁴³⁵

Upon receiving an application, FairPoint notifies the CLEC of any discrepancies in the application and whether the request requires an application fee, which is determined by the tariff and type of request. FairPoint assigns an application identification to the request and sends a Hold Letter to the CLEC outlining the necessary steps needed to initiate processing the application. The Wholesale group forwards the request to FairPoint’s Engineering department, which advises the Wholesale group whether the request can be provisioned. The FairPoint service representative then notifies the CLEC in a Cost and Schedule Letter whether the request can be provisioned, the estimated costs associated with request, and a scheduled completion date. The service representative enters this date in the Applications workbook spreadsheets. FairPoint uses the date of this notification as the initial response date in determining the NP-2-01 and NP-2-02 intervals. The standard for this interval is eight business days.

FairPoint determines the collocation completion due date based on the work required. The standard completion interval is 76 business days but 15 additional business days may be added for special construction or CLEC requirements. The completion interval for many types of collocation augments, as outlined in the tariff, have standard completion intervals of 45 business

⁴³⁴ Response to Data Request #1.

⁴³⁵ Responses to Data Requests #2, #505, #505 clarification, #505 clarification Errata, and #505 second clarification.

days. The CLEC must submit an acceptance form, indicating agreement with the estimated costs quoted in the cost estimate, and, if required by tariff and type of request, an advance payment before FairPoint begins construction. If the CLEC fails to meet those requirements within nine business days, FairPoint stops the interval clock and adjusts the final due date adjusted accordingly (day for day). The FairPoint service representative notifies FairPoint's Engineering Department to proceed with the collocation provisioning upon receipt of the acceptance form and any advanced payment required.

Approximately two weeks prior to the scheduled completion date, Engineering sends the Connecting Facilities Assignments (CFA) for cable terminations and DC Power Fuse Information (PFI) from Engineering, if applicable, to the service representative, who then informs the CLEC that the collocation request will be completed shortly and provides the CFA and PFI, if applicable. Engineering informs the Wholesale group of the completion date, which the service representative records in the Applications workbook as the completion date. FairPoint uses that date to determine whether the collocation was completed on time in calculating NP-2-05 and NP-2-06.⁴³⁶

To evaluate the accuracy of the data and the calculations of the reported in-scope NP-2 sub-metrics, Liberty obtained copies of the all Applications workbooks and Collocations templates used for reporting NP-2-01, NP-2-02, NP-2-05, and NP-2-06 during 2011.⁴³⁷ Liberty also obtained copies of the collocation e-mail correspondence between FairPoint and the CLECs.⁴³⁸ Liberty found that there were no virtual collocation applications during 2011, which is consistent with FairPoint's reporting no counts for NP-2-02 and NP-2-06 during 2011.

Liberty reviewed the data for all collocation applications made during 2011 that were recorded in the Applications workbooks, and found that FairPoint:

- Appears to have included the appropriate collocation applications as defined in the C2C Guidelines, which restrict the measurement to applications involving “new” arrangements and “augments” to existing arrangements required to “add capacity” for “space, cable termination, or DC power.” Liberty observed that the collocation applications during 2011 not included in the NP-2 calculations included such requests as collocation terminations, power reductions, and fiber pulls, which, although important for the CLEC, do not appear to meet the wording of the Guidelines for inclusion in NP-2.⁴³⁹ This restriction of collocation timeliness metrics to new arrangements and augments appears to be consistent with the general practice in other jurisdictions.
- Appears to have calculated the number of business days in the Applications workbook interval calculations based on the reported business holidays.⁴⁴⁰

⁴³⁶ Response to Data Request #2.

⁴³⁷ Responses to Data Requests #247 and #247 clarification.

⁴³⁸ Response to Data Request #248.

⁴³⁹ Responses to Data Requests #498, #503, and #503 clarification.

⁴⁴⁰ Response to Data Requests #504 and #544.

- Bases the completion date explicitly on proper transmission of the CFA or PFI to the CLEC, if this information is required.⁴⁴¹

Liberty found, however, that FairPoint made some minor errors in the manual calculation process. **(Defect #103)** In particular, FairPoint:

- Included a collocation located in New Hampshire in the Vermont rather than New Hampshire September 2011 NP-2-01-6702 value for C2C reporting and PAP calculations. FairPoint has not yet corrected this error.⁴⁴²
- Reported a collocation located in another state in the New Hampshire values for NP-2-05-6702 for November 2011.⁴⁴³
- Included a collocation in the September 2011 NP-2-05-6702 value for C2C reporting and PAP calculations that should have been reported in August 2011. FairPoint has not yet corrected this error.⁴⁴⁴
- Reported the wrong number of CLEC-aggregate collocations for NP-2-05/6 in the PAP reports for September 2011 because of an error in the Collocations template spreadsheet calculation, which excluded two CLECs from the calculation.⁴⁴⁵ However, this error did not affect the reported metric value of 100 percent.⁴⁴⁶
- Did not use the transmission of the PFI to determine the completion date for one collocation in September 2011. This error, however, did not affect the calculation of NP-2-05, because the collocation completion was still on time after correcting the completion time.⁴⁴⁷

G. Billing Metrics (BI)

1. BI-1

a. Metric Definition

BI-1 measures the number of business days from creation of the call message to the date that FairPoint makes the usage information available to the CLEC through the daily usage feed (DUF). There is one BI-1 sub-metric, BI-1-02, which measures the percentage of UNE and Resale usage records that FairPoint transmitted within four business days. This sub-metric is in scope for the audit for the product disaggregation: BI-1-02-1000 – Resale & UNE Combined.

⁴⁴¹ Responses to Data Requests #506 and #506 clarification.

⁴⁴² Responses to Data Requests #507 and #507 clarification.

⁴⁴³ Response to Data Request #543.

⁴⁴⁴ Responses to Data Requests #508 and #508 clarification.

⁴⁴⁵ Response to Data Request #502.

⁴⁴⁶ Response to Data Request #501

⁴⁴⁷ Responses to Data Requests #506 and #506 clarification.

The C2C Guidelines state that the company should exclude FairPoint test orders and long-duration calls from the calculation of this measure. The C2C Guidelines note that:

Long Duration calls are defined as those calls that remain connected through two successive midnights. On all such calls, the call assembly process may output up to three record types indicating the beginning, continuation, or end of a long duration call. An annual study will be performed each December to determine the current volume of long duration calls.

FairPoint reports the BI-1 sub-metric on a statewide basis for individual and aggregate CLECs. The standard for BI-1-02 is 95 percent within four business days. The C2C Guidelines provide the following formula for the BI-1 sub-metric:

BI-1-02: Timeliness of Daily Usage Feed

(Number of usage records on DUF tapes processed during the month, where the difference between the current date and the call date is four days or less)/(Number of usage records on DUF tapes processed during the month)

The BI-1-02 sub-metric is included in the New Hampshire PAP.

b. Metric Data and Calculations

The data used for calculating BI-1-02 is derived from Kenan Data Mediation (KDM), which is the system FairPoint uses to create the DUF files transmitted to the CLECs. The DUF files are automatically transmitted to a server that the CLECs access to download the files. The DUF transmission dates and times stored in the KDM are the dates and times of the transmission to the server, because FairPoint does not transmit the DUF files to the CLECs directly. FairPoint has contracted a vendor, Kansys, to pull data from KDM to create the reports used to calculate BI-1.⁴⁴⁸ Kansys creates the DUF Timeliness report on the second day of the month by extracting data for the prior month from the DUF Delivery tables. FairPoint summarizes the data summarized and calculates the ratio of files that were delivered within four days of the transmission date.⁴⁴⁹

FairPoint indicated that it does not test DUF transactions in the production environment. Thus, the exclusion for test orders does not apply.⁴⁵⁰ FairPoint also indicated that it does not exclude long duration calls from BI-1.⁴⁵¹

Liberty obtained copies of the Kansys reports that FairPoint used to calculate this metric for the entire audit period to evaluate the accuracy of the data and the calculations of BI-1-02-1000.⁴⁵²

⁴⁴⁸ Response to Data Request #2 and Interview #10, November 16, 2011.

⁴⁴⁹ Response to Data Request #69.

⁴⁵⁰ Response to Data Request #67.

⁴⁵¹ Response to Data Request #68.

Liberty independently calculated the metrics for all of 2011 using the data in the tracking spreadsheets and compared the values to the C2C and PAP reports for these months. Liberty verified the reported CLEC-aggregated values for all months except June. FairPoint acknowledged the June discrepancy, stating that it “erred when copying the June data over to the DUF template. The file was truncated and as a result the June reported results did not include the total monthly volumes.”⁴⁵³ Liberty also verified the reported CLEC-specific values for 19 of the 43 CLECs identified on the tracking spreadsheets. Of the remaining 24 CLECs, [REDACTED] [REDACTED] were CLECs that did not request to receive CLEC-specific results.⁴⁵⁵

Liberty identified the following defects related to the BI-1-02 metric:

- The aggregate volume of DUF records reported in December 2011 was only 55 percent of the average volumes reported for the other 11 months of the year. FairPoint indicated that this was the result of a configuration change deployed on December 6. The change was not implemented successfully, causing DUF records to fall out and not be sent to the CLECs.⁴⁵⁶ FairPoint did not investigate why these volumes were so low, stating that such an investigation was not necessary “because reported results were within the performance standard.”⁴⁵⁷ FairPoint has not explained why it conducts such investigations only when the metric calculations produce a value outside the performance standards, regardless of whether the numbers underlying the calculation are anomalous, as in this case. FairPoint indicated that it corrected this problem in the source systems beginning with the January 2012 data month.⁴⁵⁸ **(Defect #104)**
- FairPoint does not include in the BI-1-02 denominator DUF records created but not transmitted.⁴⁵⁹ **(Defect #105)**
- FairPoint made an error when copying the June 2011 data to the manual BI-1 calculation template. The source file was truncated, causing the total monthly volumes not to be included in the June reports.⁴⁶⁰ FairPoint indicated that it corrected its manual process in July 2011.⁴⁶¹ **(Defect #106)**

⁴⁵² Response to Data request #249. Liberty did not audit the process used by Kansys to develop these reports or the source data included in the report because of the volume of records involved (typically in excess of 120 million per month).

⁴⁵³ Response to Data Request #249.

⁴⁵⁴ Responses to Data Requests #54 and #111.

⁴⁵⁵ Response to Data Request #315.

⁴⁵⁶ Response to Data Request #359.

⁴⁵⁷ Response to Data Request #303.

⁴⁵⁸ December 7, 2012 response to Liberty’s Draft Audit Report.

⁴⁵⁹ Response to Data Request #359.

⁴⁶⁰ Response to Data Request #249.

⁴⁶¹ December 7, 2012 response to Liberty’s Draft Audit Report.

2. BI-3

a. Metric Definition

BI-3 reports FairPoint's ability to acknowledge and resolve billing adjustment claims in a timely manner. The metric applies to claims submitted within 60 calendar days of the bill date. BI-3 has four sub-metrics:

- BI-3-03: % CLEC Billing Claims Acknowledged within two (2) Business Days
- BI-3-04: % CLEC Billing Claims Resolved within 28 Calendar Days After Acknowledgement
- BI-3-07: % Full or Partial Denials
- BI-3-08: % CLEC Billing Claim Adjustments Appearing on the Bill within 45 days.

BI-3-03 and BI-3-04 are in scope for the audit for the Resale & UNE Combined product disaggregation (BI-3-03-1000 and BI-3-04-1000).

The C2C Guidelines indicate that CLECs must submit claims by e-mail and that only claims submitted by e-mail are included in the metric. The C2C Guidelines also state that FairPoint receives billing claims from 8:00 a.m. to 5:00 p.m., Monday through Friday, except for FairPoint holidays, and that FairPoint should consider any CLEC billing adjustment claims it receives outside of these hours as if it had received at 8:00 a.m. on the next business day. The C2C Guidelines define acknowledgement as transmission of a specifically formatted message acknowledging receipt of the claim and specify that the date and time stamp of the e-mail message containing the acknowledgement will be considered the acknowledgement time of record and constitute "day zero" for computing acknowledgement performance. According to the C2C Guidelines, a claim is considered "resolved" when FairPoint transmits an e-mail to the e-mail address from which the CLEC sent the claim that either: i) denies the claim, ii) grants the claim, or iii) denies the claim in part and grants the claim in part. If the 28th calendar day falls on a weekend or FairPoint holiday, resolution will be considered timely if returned on the next business day. A claim is considered "closed" when the credit appears (with both the FairPoint and CLEC claim numbers) in the adjustment section of the FairPoint invoice or when the CLEC agrees via e-mail with FairPoint's denial of the claim. For each master billing account number (BAN), each reason code submitted by a CLEC will count as a separate claim. There is no limitation on the number of claims by BAN or by reason code.

The C2C Guidelines require that FairPoint exclude from BI-3 CLEC claims for such adjustments as:

- Charges for directories
- Incentive regulation credits
- Credits for performance remedies
- Out-of-service credits

- Special promotional credits.

FairPoint reports the BI-3 sub-metrics for aggregate CLECs on a statewide basis. The standard for both BI-3-04 and BI-3-05 is 95 percent. The C2C Guidelines provide the following formulas for the in-scope BI-3 sub-metrics:

BI-3-04: % CLEC Billing Claims Acknowledged Within Two Business Days

(Number of billing claims acknowledged during the month within two business days)/(Total number of valid/complete billing adjustment claims acknowledged during the month)

BI-3-05: % CLEC Billing Claims Resolved Within 28 Calendar Days After Acknowledgement

(Number of billing adjustment claims during the month resolved within 28 calendar days after acknowledgment)/(Total number of billing adjustment claims resolved during the month)

Both BI-3 sub-metrics are included in the New Hampshire PAP.

b. Metric Data and Calculations

FairPoint uses SAP Crystal Reports IX to record e-mailed billing adjustments claims received in Wholesale Billing from wholesale customers. The company uses the Claims Desktop to acknowledge receipt of a claim, record the claim, and respond back to the claimant via e-mail with applicable information for dispute resolution.⁴⁶² FairPoint calculates the BI-3 metrics using manually populated “BI-3 WB Template” spreadsheets. The data sources for the BI-3 WB Templates are an “Uploaded Claims” report and the Claims Desktop.⁴⁶³

The Uploaded Claims report is created using the Crystal Reports application and contains data about the CLEC e-mails containing billing claims that were sent during the month: a list of the e-mail addresses, the receipt date and time of each e-mail, and the name of the person representing the CLEC who sent the e-mail.⁴⁶⁴ The CLEC e-mails frequently contain multiple billing claims.

The Claims Desktop data contains a list and the status of each individual billing claim, including such key data for the BI-3 calculations as:⁴⁶⁵

- “Created” or “Added” date, which is the date FairPoint sent an e-mail to the CLEC acknowledging the claim. The Claims Desktop automatically generates and sends the acknowledgement e-mail once a FairPoint representative “uploads” the claim into the Claims Desktop system.⁴⁶⁶

⁴⁶² Responses to Data Requests #20 and #21.

⁴⁶³ Responses to Data Requests #2 and #19, and Interview #9, November 9, 2011.

⁴⁶⁴ Responses to Data Requests #21 and #250.

⁴⁶⁵ Response to Data Request #251.

⁴⁶⁶ Response to Data Request #525.

- “Status,” which indicates whether the claim was resolved (denied, granted in whole, or granted in part) or is still pending.
- “Notification” date, which is the date on which the last e-mail was sent to the CLEC from the Claims Desktop.
- “Resolved” date, which is the date FairPoint resolved the claim by either denying it or granting it in whole or in part. FairPoint added this date to the Claims Desktop spreadsheet in October 2011, when the Claims Desktop tool was “upgraded in response to feedback received from CLECs and made claims processing, tracking and customer notifications more automated and efficient, requiring less manual intervention.”⁴⁶⁷

To calculate BI-3-04 and BI-3-05 for each data month, FairPoint begins by manually inserting the Uploaded Claims report for that month and the current Claims Desktop data into a BI-3 WB Template. The logic used for the metric calculations in the BI-3 WB Template:

- Matches claims in the Claims Desktop data with e-mails in the Uploaded Claims report to determine the receipt date for the e-mail associated with each claim. If there is no match, the date received is given a null value, which effectively excludes the claim from the BI-3-04 calculation.
- Calculates the interval between the receipt and acknowledgement dates, and compares this interval with the two-business-day standard for BI-3-04. Claims with null dates or dates outside the metric reporting period are excluded from further BI-3-04 calculations.
- Calculates the interval between the acknowledgement and notification dates, and compares this interval with the 28-calendars-day standard for BI-3-05. Claims with null dates or dates outside the metric reporting period are excluded from further BI-3-05 calculations. Prior to the upgrade to the Claims Desktop tool in October 2011, FairPoint based this calculation only on the Notification date field in the Claims Desktop spreadsheet, subject to status conditions that the claim was either resolved or escalated. (Liberty notes that including escalation status should not be conflict with the C2C Guidelines, since claims are escalated at CLECs’ requests in response to a claim denial.) Beginning in October, FairPoint used either the Notification date or the Resolved date, whichever was earliest, to determine the BI-3-05 interval. The original implementation of this new logic in October contained a logic flaw that could have incorrectly excluded certain claims based on their resolution date. This was corrected in November 2011.⁴⁶⁸
- Compares the CLEC names with a CLEC look-up table. If the CLEC name on the Claims Desktop date is not in the look-up table list, the billing claims are excluded from further BI-3-04 and BI-3-05 calculations.

⁴⁶⁷ Response to Data Request #529.

⁴⁶⁸ Response to Data Request #529.

- Calculates the BI-3-04 and BI-3-05 by CLEC by summing the number of non-excluded claims meeting the standards to determine the numerators and summing over all non-excluded claims to determine the denominators.
- Calculates the reported CLEC-aggregate BI-3-04 and BI-3-05 numerators and denominators by summing over the calculated individual CLEC numerators and denominators.

To evaluate the accuracy of the data and the BI-3-04 and BI-3-05 calculations, Liberty obtained copies of data and calculation spreadsheets FairPoint used for calculating BI-3 in New Hampshire during 2011. This included:

- BI-3 WB Templates for all report months during 2011.⁴⁶⁹
- Uploaded Claims source reports for all months during 2011. FairPoint stated that the September source report and the back-up misplaced, so that the September report provided to Liberty was a “re-creation” of the original.⁴⁷⁰ FairPoint also subsequently provided a corrected copy of the July source report to Liberty.⁴⁷¹
- Claims Desktop data, which was available beginning only in July 2011,⁴⁷² for the August and December 2011.⁴⁷³
- Copies of CLEC billing claims e-mails and FairPoint e-mail responses, which were available beginning only in July 2011,⁴⁷⁴ sent during August and December 2011.⁴⁷⁵

Using this data, Liberty compared:

- The calculated values for BI-3-04 and BI-3-05 in the BI-3 WB Templates with the reported values in the aggregate C2C and PAP reports for all months in 2011⁴⁷⁶
- The Uploaded Claims reports for all months in 2011 with the data in the BI-3 WB Templates
- The Claims Desktop data for August and December 2011 with the data in the August and December BI-3 WB Templates
- The claims e-mails sent during August and December 2011 with the data in the August and December BI-3 WB Templates.

Based on these comparisons, Liberty found that the same claims e-mail data appeared in the source Uploaded Claims reports and BI-3 WB Templates. Liberty also found, however, that:

- More claims e-mail addresses appear in the BI-3 WB Template Claims Desktop data than in the Uploaded Claims data for the months Liberty compared these

⁴⁶⁹ Response to Data Request #250.

⁴⁷⁰ Response to Data Request #250.

⁴⁷¹ Response to Data Request #512.

⁴⁷² Response to Data Request #76,

⁴⁷³ Response to Data Request #251.

⁴⁷⁴ Response to Data Request #76,

⁴⁷⁵ Response to Data Request #252.

⁴⁷⁶ Response to Data Request #5.

(June, August, September, and December 2011). FairPoint explained that e-mails only appear in the Uploaded Claims data if they were sent to the *wholesalebilling@fairpoint.com* e-mail box. Claims can be excluded from the BI-3-04 calculations if a CLEC e-mails the claims directly to a wholesale representative or submits an e-mail on the Claim Form that is not the same email address used to submit the claim. FairPoint also stated that sending a claim to this address is not an absolute requirement to file a claim.⁴⁷⁷ Thus, the process for identifying legitimate claims qualifying for the BI-3-04 calculation in 2011 “may not have captured all legitimate billing claims.”⁴⁷⁸ FairPoint stated that it implemented a manual process to correct this error in July 2012.⁴⁷⁹ **(Defect #107)**

- Some claims were assigned the wrong receipt date by the BI-3 WB Template because of e-mail address mismatches.⁴⁸⁰ **(Defect #108)**
- Some data in the Claims Desktop data FairPoint provided were not in the BI-3 WB Templates and vice versa. FairPoint noted that this is mainly due to an imperfect process for identifying claims with the state, so that claims that should have been reported in New Hampshire were not and some claims reported in New Hampshire should have been reported in other states. FairPoint indicated that it planned to implement a manual review to identify and correct claims with unpopulated state information in the BI-3-WB workbook beginning with the July 2012 data month.⁴⁸¹ **(Defect #109)**
- FairPoint’s process for matching billing claims with CLECs qualifying for BI-3-04 and BI-3-05 reporting sometimes fails to correctly identify such CLECs.⁴⁸² FairPoint indicated that it implemented a correction for this in July 2012.⁴⁸³ **(Defect #110)**
- FairPoint includes billing claims from interexchange carriers, internet service providers, and wireless carriers in the BI-3 calculations. FairPoint stated that it corrected this error beginning with the July 2012 data month.⁴⁸⁴ **(Defect #111)**
- FairPoint did not exclude billing claims made 60 calendar days after the bill date prior to October 2011. FairPoint indicated that it was able to implement this required exclusion after the transition to a new Claims Desktop, which was deployed in July 2011. The company began using the new capability to apply the exclusion in October 2011, which Liberty confirmed in our analysis.⁴⁸⁵ **(Defect #112)**

⁴⁷⁷ Response to Data Request #250 clarification.

⁴⁷⁸ Response to Data Request #250 second clarification.

⁴⁷⁹ Responses to Data Requests #250 clarification and #250 second clarification, and December 7, 2012 response to Liberty’s Draft Audit Report.

⁴⁸⁰ Response to Data Request #527.

⁴⁸¹ Response to Data Request #251 clarification.

⁴⁸² Response to Data Request #526.

⁴⁸³ December 7, 2012 response to Liberty’s Draft Audit Report.

⁴⁸⁴ Responses to Data Requests #523,#526, and #526 clarification, and December 7 and 13, 2012 responses to Liberty’s Draft Audit Report.

⁴⁸⁵ Response to Data Request #524 and #524 Errata, and December 7 and 17, 2012 responses to Liberty’s Draft Audit Report.

Liberty also found the following manual process errors (**Defect #113**):

- FairPoint reported the wrong number of claims in the BI-3-05 denominator in the June and September C2C reports, with 32 too few reported in June and 32 too many in September. FairPoint also noted a small reporting error in October for BI-3-04 that had been corrected in the October BI-3 WB Template FairPoint provided to Liberty.⁴⁸⁶
- FairPoint service representatives did not upload some of the claims into the FairPoint data bases, thereby excluding them from the tracking and metric reporting.⁴⁸⁷

H. Performance Assurance Plan Implementation and Bill Credit Evaluation

1. PAP Implementation

a. PAP Structure

The intention of the New Hampshire PAP is to ensure that FairPoint “continues to provide quality wholesale services to competitive carriers after...entry into the long distance market.”⁴⁸⁸ The PAP provides for financial remedies when FairPoint does not meet certain performance standards.

The New Hampshire PAP is a self-executing remedy plan that will ensure that FairPoint continues to provide quality wholesale services to competitive carriers after entry into the long distance market pursuant to Section 271 of the Telecommunications Act of 1996.

The Commission adopted the “New York Carrier-to-Carrier Guidelines Performance Standards and Reports” (Guidelines) for evaluating FairPoint’s wholesale performance; the PAP takes its performance measures and standards from the Guidelines. The PAP divides these measures into three service segments eligible for possible bill credits: i) MOE, ii) Critical Measures, and iii) Special Provisions. In addition, the PAP provides for additional bill credits on the basis of metrics related to the CCAP implementation.

FairPoint provides financial remedies to CLECs in the form of bill credits, payments, or penalties against FairPoint. The calculation of bill credits varies depending on the type of measure missed; each service segment has an associated credit schedule and a cap on the dollar value of penalties. The Commission requires that FairPoint apply credits to the CLECs’ bills within 30 days of the end of the second month after the report month.

⁴⁸⁶ Response to Data Request #250.

⁴⁸⁷ Response to Data Request #530.

⁴⁸⁸ Performance Assurance Plan FairPoint New Hampshire, August 19, 2005; p. 1.

i. Mode of Entry (MOE)

The MOE segment measures the overall level of service for the five service types through which carriers can enter the local exchange market. These five service types are Resale, UNE-P, UNE-L, Trunks, and DSL.

FairPoint generates bill credits when any one of the five service types falls below a certain level, as measured by a weighted average of performance measures. A total of \$10.27 million is available each year in bill credits related to the MOE measures, and the PAP limits the monthly amount of bill credits \$855.8 thousand (1/12th the yearly maximum), with threshold amounts at the Resale, UNE-P, UNE-L, DSL, and Trunk levels. Under certain circumstances, the PAP permits doubling of this amount.

FairPoint gives performance for each MOE measure a grade of 0, -1, or -2 on the basis of its statistical analyses for parity measures and on a sliding scale for measures with an absolute standard.⁴⁸⁹ For parity measures, the magnitude of the Z-statistic⁴⁹⁰ for the month determines the performance grade. A grade of 0 indicates performance that meets the standards for the measure, while a -2 grade identifies sub-standard performance. A performance grade of -1 also indicates sub-standard performance for a single month, but is subject to change depending on FairPoint’s performance during the last two months; if FairPoint received a 0 for both past months, it revises the -1 to 0.

The PAP provides the following conversion for statistical scores on MOE measures:

**Table V-2
MOE Performance Grades**

Statistical Score	Performance Grade
$Z \leq -1.645$	-2
$-1.645 < Z \leq -0.8225$	-1
$-0.8225 < Z$	0

This conversion of statistical score into performance grade means that, when FairPoint is performing at the standard, there is a 5 percent chance of obtaining a performance grade of -2 for a given month, approximately a 15 percent chance of obtaining a performance grade of -1 for the month, and an 80 percent chance of obtaining a performance grade of 0 for the month.

A performance grade of -1 or -2 does not necessarily translate into fines, because FairPoint weights and sums performance scores for each measure to create an overall performance score

⁴⁸⁹ Appendix C of the PAP specifies the performance grade computations for non-parity measures, while Appendix D specifies the performance grade computations for parity measures.

⁴⁹⁰ The Z-statistic is sometimes known as the Z-score. It is a measure of how far the metric is from its standard, in units of the standard deviation. Negative Z-scores indicate the metric is below its standard and positive Z-scores indicate a metric is above its standard.

by service type. It is this weighted score that determines bill credits. The following table from the PAP shows the MOE scores that require bill credits, with the minimum adjustment implying a credit of 20 percent of the maximum monthly fine and the maximum adjustment implying a credit of the maximum monthly fine.

Table V-3
Market Adjustments from MOE Weighted Scores

	<u>Minimum Market Adj.</u>	<u>Maximum Market Adj.</u>	<u>% Market Adj. at Minimum</u> ⁴⁹¹
UNE – Platform	-0.25292	-0.67000	20%
UNE – Loop	-0.24862	-0.67000	20%
Resale	-0.24715	-0.67000	20%
Interconnection	-0.21429	-1.0000	20%
DSL	-0.23024	-0.67000	20%

The PAP requires that FairPoint issue bill credits for each month when the aggregate performance in the five categories falls below the score listed in the “Minimum Market Adj.” column in the above table. If the score is at or below the score in the “Maximum Market Adj.” column in the above table, the PAP requires FairPoint to provide the highest wholesale bill credit. The PAP contains “credit tables” for each category that list the bill credit rates for the range of scores.

If FairPoint’s performance is below the midpoint of the first and second columns in the above table for three consecutive months, FairPoint doubles the credits for the applicable category for all three months. In addition, the PAP requires FairPoint to continue paying double fines until FairPoint achieves a score of “one quarter (or greater) the difference between the minimum and maximum scores in that category in any given month.”⁴⁹²

The PAP also looks at four domains (Pre-Order, Order, M&R, and Provisioning) under the Resale, UNE-P, UNE-L, and DSL categories. Typically, if 75 percent or more of the performance scores under these measures are below the standard, FairPoint should determine the bill credits depending on the greater of the domain results or overall market score.⁴⁹³ The PAP refers to this as the Domain Clustering Rule.

⁴⁹¹ The “% Market Adj. At Minimum” indicates the amount of monthly bill credits that will be due to CLECs if FairPoint trips the minimum score. For example, if FairPoint were to score -.253 on the UNE-P MOE in a month, 20% of the \$251,044 monthly amount would be due (see Appendix A of the PAP for details).

⁴⁹² Performance Assurance Plan, FairPoint New Hampshire, August 19, 2005; p. 12.

⁴⁹³ Pages 12 and 13, as well as Appendix E of the PAP explain the complete rules with respect to Domain Clustering.

FairPoint allocates MOE bill credits to individual CLECs in proportion to each CLEC's lines in service in that category, with the exception of interconnection trunks, for which FairPoint determines the allocation by the monthly usage.

Liberty examined the MOE results and bill credits reported in the August and December 2011 PAP Reports. FairPoint reports the MOE results separately by product (*e.g.*, UNE Platform, UNE Loop, and Resale). Liberty examined FairPoint's implementation of the MOE measures and reviewed the performance scores, weights, total weights and any resulting bill credits to determine whether they follow the PAP.

Liberty found that FairPoint reported all of the MOE measures as required by the PAP. The performance scores, weights, total weights and any resulting bill credits follow the PAP with the exception of measures that require percentage, parity comparisons, as detailed below.

ii. Critical Measures

The Critical Measures are individual reported values or groups of measures for which bill credits are available. The Critical Measures include collocation, specials, and resolution process measures, as well as a subset of the MOE for Resale, UNE-P, UNE-L, Trunks, and DSL. As a result, FairPoint could provide both MOE and Critical Measure bill credits for the same measure. When even one of the Critical Measures is a failure, FairPoint issues bill credits. This method of issuing bill credits differs from that for MOE measures, in that FairPoint issues bill credits for MOE measures only when one of the five broad categories is a failure.

Also, unlike MOE measures, Critical Measures that pass in aggregate may still fail for individual CLECs. In those cases, FairPoint pays penalties to the CLECs for which a failure occurred. However, these individual penalties are only available for a measure that did not receive aggregate penalties.

The scoring of the Critical Measures follows a process similar to that described for MOE above, except that FairPoint typically does not weight the results.⁴⁹⁴

The PAP requires that FairPoint calculate each measure as an average of the performance for the CLECs in a given month. If the performance score in any category is -1, the PAP requires FairPoint to pay between 50 and 95 percent of the maximum bill credits for that measure to eligible CLECs, with the exact amount calculated according to the tables in Appendix F of the PAP. The PAP requires FairPoint to pay the maximum bill credit for a score of -2.

Only those CLECs receiving sub-standard performance on Critical Measures are eligible to collect bill credits. The amount of the bill credit on a Critical Measure is proportional to the

⁴⁹⁴ There are some critical measures listed in Appendix table B-2 of the PAP that are weighted before being rolled up into a critical measure. However, most of the critical measures are for a single reported result or the (unweighted) combination of two or three reported results.

amount of service that a CLEC receives from FairPoint as compared to other eligible CLECs. Additionally, any individual CLEC with sub-standard performance for two consecutive months will receive bill credits even if the aggregate CLEC result for the measure meets the performance standard.

The total of individual CLEC bill credits cannot be above the maximum credit amount. Appendix F of the PAP states how FairPoint should determine this amount:

Calculate Bill Credit Adjustment to apply to the CLECs impacted. The monthly dollars available to the CLEC are converted to a rate assuming that 1/3 of the market would receive a Z or t-score of -.8225 or less or a performance score of -1 or less. This rate is multiplied by the CLEC's qualified volume (e.g., lines in service) to determine the amount to be credited to the CLEC for that critical measure.

Liberty examined the Critical Measure results and bill credits reported in the August and December 2011 PAP Reports. The Critical Measures results at the CLEC Aggregate level are interspersed with the reported MOE results. FairPoint reports the CLEC distribution of the bill credits for the Critical Measures separately. Liberty examined FairPoint's implementation of the Critical Measures as required by the PAP and reviewed the performance scores, weights, total weights and any resulting bill credits to determine whether they follow the PAP.

FairPoint does not follow PAP Appendix F Table F-1-2 for Critical Measures with 95 percent Standards. FairPoint's model returns one higher increment (five percent larger) than called for when the performance is exactly 90.5 percent, 91 percent, 91.5 percent, 92 percent, 92.5 percent, 93 percent, 93.5 percent, 94 percent, or 94.5 percent. FairPoint indicated that it corrected this error beginning with the July 2012 data month.⁴⁹⁵ **(Defect #114)**

Liberty found that FairPoint reported all of the Critical Measures as required by the PAP. The performance scores, weights, total weights and any resulting bill credits comply with the PAP requirements with the exception of following PAP Appendix F Table F-1-2 (detailed above) and the separate exception of measures that require percentage, parity comparisons, as detailed below.

iii. Special Provision Measures

The Special Provision Measures consist of three categories: i) flow-through measures (\$1.37 million of potential annual bill credits); ii) UNE ordering performance (\$3.28 million of potential annual bill credits, taken from MOE pool of unused dollars); and iii) Additional Hot Cut Performance Measures (\$3.28 million of potential annual bill credits).

⁴⁹⁵ Response to Data Request #515 second clarification and December 7, 2012 response to Liberty's Draft Audit Report.

For the UNE flow-through measures, OR-5-01 (Percent Flow-Through Total) and OR-5-03 (Percent Flow-Through Achieved), the performance standards are 80 percent and 95 percent, respectively. FairPoint compiles the results for these measures for cumulative quarterly results. If FairPoint misses the standard for either of these measures, it will pay a quarter of the bill credits allotted for the entire year to all CLECs that order UNEs. Each CLEC receives bill credits proportional to the number of lines it has in service.

The PAP specifies that FairPoint should take the bill credits for UNE ordering performance from unused MOE funds, and thus may not total the full \$3.28 million available per year. There are four categories of Special Measures for UNE ordering performance:

- OR-1-04, Percent On Time LSRC/ASRC – No Facility Check (Electronic – No Flow-Through) – Platform and Loop/Pre-Qualified Complex/LNP
- OR-1-06, Percent On Time LSRC/ASRC – Facility Check (Electronic – No Flow-Through) – Platform and Loop/Pre-Qualified Complex/LNP
- OR-2-04, Percent On Time LSR/ASR Reject – No Facility Check (Electronic – No Flow-Through) – Platform and Loop/Pre-Qualified Complex/LNP
- OR-2-06, Percent On Time LSR/ASR Reject –Facility Check (Electronic – No Flow-Through) – Platform and Loop/Pre-Qualified Complex/LNP.

The standard for each is 90 percent. For any measure with sub-standard performance, any CLEC ordering UNEs should receive bill credits proportional to the number of lines it has in service.

The Special Measures additional hot cut performance measures consist of PR-9-01 (Percent On Time Performance – Hot Cut) and PR-6-02 (Installation Quality – Percent of Installation Troubles Reported Within Seven Days). The PAP requires that FairPoint distribute bill credits for these Special Measures as it would for Critical Measures. FairPoint provides bill credits in either of the following scenarios:

- For two consecutive months, PR-9-01 falls below its standard of 90 percent or PR-6-02 is greater than 3.00 percent.
- For one month PR-9-01 is less than 85 percent or PR-6-02 is greater than 4.00 percent.

Liberty examined the Special Provision Measures results and bill credits reported in the August and December 2011 PAP Reports. FairPoint reports the Special Provision Measures results separately from the other Measures. Liberty examined FairPoint's implementation of the Special Provision Measures and reviewed the performance scores and any resulting bill credits to determine whether they follow the PAP.

Liberty found that FairPoint reported all of the Special Provision Measures as required by the PAP. The performance scores and any resulting bill credits comply with the PAP requirements.

iv. Change Control Assurance Plan (CCAP)

A total of \$1.37 million in annual bill credits are available to the CLECs based upon performance under four measures related to change control:⁴⁹⁶

- PO-4-01: Percent of Change Management Notices Sent on Time
- PO-4-03: Change Management Notice Delay for More than Eight Days
- PO-6-01: Percent Software Validation
- PO-7-04: Delay Hours – Failed/Rejected Test Transactions – No Work Around.

The CCAP includes ten reported results, all in the Pre-Ordering domain.

Liberty examined the CCAP results and bill credits reported in the August and December 2011 PAP Reports. FairPoint reports the CCAP results separately from the other measures. Liberty examined all CCAP measures and reviewed the performance scores and any resulting bill credits to determine whether they complied with the PAP requirements.

Liberty found that FairPoint reported all of the CCAP Measures as required by the PAP. The performance scores and any resulting bill credits comply with the PAP requirements.

v. Statistical Testing and Comparisons

The PAP specifies the testing requirements for those metrics requiring statistical testing to determine scoring.⁴⁹⁷ For metrics requiring statistical testing, FairPoint uses two separate SAS Data Flows: Fisher's Exact Test (F_Test) and Permutation Test (P_Test).⁴⁹⁸ FairPoint uses the F_Test process for metrics that are not means or averages and have a parity comparison.⁴⁹⁹ The F_Test process pulls data from the CAMP ODS Reference Tables and DW Layer Tables. FairPoint uses the P_Test process for metrics that are means or averages and have a parity comparison.⁵⁰⁰ The P_Test process pulls data from ODS Layer Views. These ODS Layer Views are based on data in ODS Layer Transaction Tables, ODS Layer Reference Tables, and a DW Layer Table. As noted, the Business Objects macro process creates the monthly PAP reports by

⁴⁹⁶ Appendix I of the PAP states that while the initial amount of annual bill credits for all CLECs will be \$1.37 million, the PAP allows for additional incentives of up to \$2.05 million (for a total of \$3.42 million), taken from the MOE allocation, if the CCAP incentives exceeds the initial amount.

⁴⁹⁷ PAP Appendix D.

⁴⁹⁸ Response to Data Request #16.

⁴⁹⁹ This applies to the following metrics: MR-2-03-3342, MR-3-01-1341, MR-3-01-2110, MR-3-01-2120, MR-3-01-3112, MR-3-01-3342, MR-3-02-2110, MR-3-02-2120, MR-3-02-3112, MR-3-02-3342, MR-4-06-3217, MR-4-06-5000, MR-4-07-3112, MR-4-07-3342, MR-4-08-2110, MR-4-08-2120, MR-4-08-3112, MR-4-08-3217, MR-4-08-3342, MR-4-08-5000, MR-5-01-2100, MR-5-01-3112, MR-5-01-3200, MR-5-01-3342, MR-5-01-5000, PR-4-01-3211, PR-4-01-3214, PR-4-04-2100, PR-4-04-3113, PR-4-05-2100, PR-4-05-3113, PR-5-01-3112, PR-5-02-3112, PR-5-02-5000, PR-6-01-2100, PR-6-01-3113, PR-6-01-3200, PR-6-01-3342, PR-6-01-5000, PR-8-01-3200, PR-8-01-3342, and PR-8-01-5000

⁵⁰⁰ This applies to the following metrics: MR-4-01-3217, MR-4-02-2110, MR-4-02-2120, MR-4-02-3112, MR-4-02-3342, MR-4-03-2110, MR-4-03-2120, MR-4-03-3112, MR-4-03-3342, PR-4-02-3342, and PR-9-08-3533.

extracting the calculated values and statistical results from the updated Fact Tables and format the reports. This macro process also conducts the “look-back” in order to calculate any payments due for the “2 Month Individual Rule.”

For measures with percentage, parity comparisons, FairPoint conducts a hypergeometric test in order to calculate a p-value and resulting Z-score. The hypergeometric test should calculate the p-value based on the probability of observing “x” or more elements that have the attribute of interest (“x” or fewer if smaller indicates worse performance). FairPoint’s hypergeometric test calculates the p-value based on the probability of observing more than “x” elements that have the attribute of interest (or fewer than “x” if smaller indicates worse performance). FairPoint’s calculations produce a smaller p-value, and possibly higher bill credits than necessary. **(Defect #115)**

The following table shows examples from December 2011 of the effect on Z-scores of using correctly calculated p-values:

**Table V-4
Examples of Z-Score Recalculations**

Month	Measurement	FairPoint p-value	Liberty p-value	FairPoint Z-score	Liberty Z-score
December 2011	PR-4-04-2100	0.016	0.059	-2.151	-1.564
December 2011	PR-6-01-2100	0.006	0.020	-2.533	-2.062
December 2011	MR-5-01-2100	0.022	0.057	-2.012	-1.578

As noted above in Table V-2, the scoring rules for MOE assign a performance grade of -2 if the Z-score is less than -1.645 and a performance grade of -1 if the Z-score is between -1.645 and -0.8225. Therefore, FairPoint’s calculation of the Z-scores produced a performance grade of -2 for all three of measurements shown in Table V-4 for December 2011. Liberty’s correction to the calculation changes the performance grade for both PR-4-04-2100 and MR-5-01-2100 to -1. In this case, Liberty calculates that the increase in the performance grade would reduce FairPoint’s MOE bill credit obligation from \$94,892 to \$75,674. The Critical Measures bill credits will also be less; Liberty has not attempted to calculate this effect. Nevertheless, the calculation of the MOE impact illustrates that FairPoint’s error can sometimes significantly change the bill credits. The error will always decrease the credits, if it affects them at all.

Liberty was unable to fully analyze the permutation test results calculated by FairPoint for mean, parity measures reported in the August and December 2011 PAP Reports. In order to replicate FairPoint’s permutation test calculations, Liberty must use sub-metrics that: i) have a mean, parity comparison; ii) are reported in August or December 2011, the months for which Liberty obtained transaction-level data from FairPoint; iii) are in scope for the audit; iv) have sufficient sample size to obtain a statistical result; and v) have reported mean values that Liberty can replicate. The MR-4-02 and MR-4-03 metrics were the only two potential candidates for such an analysis. They satisfy conditions i, ii, iii, and iv. However, the double counting of durations for

certain troubles by FairPoint for the calculation of the MR-4-02 and MR-4-03 numerators,⁵⁰¹ noted in the MR-4 section (Section V.E.3) of this report, prevented Liberty from verifying FairPoint's permutation test process through replication.

2. Bill Credits

Based on the rules specified in the PAP, FairPoint calculates on a monthly basis the bill credits for specific CLECs (that are subject to the PAP) based on substandard performance. These bill credits are reported in the monthly CLEC-specific PAP reports at the MOE, Critical Measure, Special Provision Measure, and CCAP levels.

To examine whether FairPoint actually applied the bill credits that appear on CLEC-specific PAP reports to CLECs' bills, Liberty requested CLECs active in New Hampshire to volunteer to provide bill credit data. Two CLECs volunteered and provided data. Liberty received CLEC-specific PAP Reports for the August and December 2011 data months. We also requested from FairPoint CLEC-specific bills related to the August and December 2011 data months for the volunteering CLECs. Liberty compared the CLEC-specific PAP Reports and the CLEC-specific bills provided by both FairPoint and the CLECs. We also examined the date information provided on the bills.

Liberty found that the CLEC-specific bills provided by FairPoint and the bill credits received by the CLECs matched. We also found that these same bill credits were provided on the next available bill cycle after the issuance of the CLEC-specific PAP Reports for August and December 2011.

⁵⁰¹ Responses to Data Requests #436 and #436 clarification.

VI. Conclusions

1. FairPoint has developed metric systems and processes that are capable of correctly calculating the New Hampshire PAP and metrics.

FairPoint inherited from Verizon a particularly complex performance assurance plan, based on metrics with complicated definitions and business rules that are not easy to implement. FairPoint developed systems and processes for the PAP and metrics calculations in the midst of implementing a completely new set of operations support systems and processes that experienced numerous problems once they were introduced. Despite these obstacles, FairPoint's metric reporting group succeeded in developing metrics systems and processes that implement the PAP and C2C Metric calculation requirements and with some corrections should be able to accurately calculate all the C2C Metrics and PAP bill credits. FairPoint developed the CAMP system to automatically calculate most of the metrics monthly and developed manual processes that follow specified procedures to complete the monthly calculations of the remaining metrics. CAMP also uses the PAP rules to calculate bill credits to CLECs if the metrics fail to meet the standards.

Liberty found that FairPoint's implementation of the PAP rules in CAMP for determining the bill credits based on the calculated metric values is largely accurate. The majority of defects Liberty found during the audit, which many of the remaining conclusions in this chapter highlight, involve the metric calculations rather than PAP calculations. These defects nevertheless can affect not only the accuracy of the reported metric values but also the PAP bill credits based on them. It is noteworthy that most of these defects are related to the complex and difficult-to-implement requirements that the C2C Guidelines specify for these metrics. Furthermore, FairPoint acknowledged almost all of these defects during the course of Liberty's audit and has already implemented or plans to implement corrections to them.

2. FairPoint has implemented a change control process for the automated Carrier-to-Carrier metric calculations.

FairPoint has implemented, for the automated (CAMP-calculated) metrics only, a process to manage changes to the systems used for metrics. FairPoint updated the change control process and its documentation in June 2011. This revised process increased the level of systems change detail maintained by FairPoint and the updated change control documentation describes how FairPoint initiates, tracks, approves, prioritizes, validates and notifies CLECs of a systems change. FairPoint provided Liberty documentation of all system changes that affected the metric calculations it implemented from March through December 2011. FairPoint could not provide documentation for the system changes implemented before March 2011. The system change documentation provided information on the date of the change, the sub-metrics affected by the change, a change description summary, and the tracking number assigned to each change. Although Liberty, at times, found it difficult to understand the nature of the change based on FairPoint's summary description, FairPoint was able to respond to all of Liberty's inquiries regarding these changes.

3. FairPoint’s calculations of most in-scope metrics contain multiple defects that affect the accuracy of the metric calculations. (Recommendation #1)

A key characteristic of a performance assurance plan that the FCC articulated in its first order approving a 271 application was that such a plan must provide “reasonable assurances that the reported data is accurate.”⁵⁰² Liberty found 115 defects from the audit, which are described in Chapter V. Appendix B provides a table (Table B-1) that lists these defects, provides references to sections of this report containing a description of each defect, and indicates which in-scope sub-metrics are or may be affected by each defect. Table B-1 in Appendix B shows that virtually every in-scope metric is subject to more than one calculation flaw that has or could have affected the reported metric values and PAP bill credits during 2011. The only in-scope sub-metrics that do not have at least one associated defect are:

- PO-2-02
- PO-4-01
- PO-4-03, and
- PO-6-01.

The defects Liberty has found in this audit are not of equal impact. Liberty believes that some can have significant impact on the metric calculations, while others have less significant impact. Table B-1 provides Liberty’s qualitative assessment of the potential impact of each individual defect. The cumulative effect of some of the less significant defects, however, could be substantial. On the other hand, even defects with significant individual impacts may cancel the impact of other defects, because not all defects would change the metric values in the same direction.

Common characteristics of defects affecting a wide range of sub-metrics are noted in Conclusions #6 - #9, and #11 - #14 below. Some of the more significant defects affecting individual sub-metrics or classes of sub-metrics and some assessment of their significance are highlighted below. FairPoint has acknowledged most of these defects and stated that it has corrected or plans to correct those it has acknowledged.⁵⁰³ FairPoint’s specific response to each defect is provided in Table B-1 in Appendix B.

FairPoint incorrectly identifies the system interface used to transmit most CLEC pre-orders and service orders, causing incorrect reported values for PO-1 and OR-4.

The C2C Guidelines for the PO-1 metric require separate reporting of pre-order requests transmitted using the GUI and EDI interfaces. The C2C Guidelines also specify that PCN and BCN timeliness reported in OR-4 be restricted to orders received via the EDI interface.

⁵⁰² Application by Bell Atlantic New York for Authorization Under Section 271 of the Communications Act To Provide In-Region, InterLATA Service in the State of New York, FCC CC Docket No. 99-295, December 22, 1999, ¶433, p. 214.

⁵⁰³ December 7, 2012 response to Liberty’s Draft Audit Report.

FairPoint, however, misclassified most GUI transactions as being received via the EDI interface because of a systems flaw (Defect #19). Liberty analyzed August and December 2011 CAMP data to investigate the impact of this error, and found that FairPoint classified 98.5 percent of pre-order transactions and 100 percent of the order transactions as EDI for metrics calculation in those months.

FairPoint's implementation of PO-1 makes it impossible to determine whether transactions fail to meet the standard.

The C2C Guidelines specify the standard for the PO-1-01 and PO-1-06 sub-metrics to be parity with retail plus an additional four seconds (EDI interface) or seven seconds (GUI interface). The purpose of adding the additional times is to allow for difference between the retail and wholesale transactions associated with variations in functionality and time associated with the wholesale interface security and other processing requirements. FairPoint, unlike Verizon for whose processes the PO-1 metric was designed, has no system to measure or simulate the actual retail processes that are comparable to the wholesale pre-ordering transactions measured by PO-1. In lieu of this, FairPoint examines whether an average EDI CLEC pre-order response time is four seconds or less and the average GUI response time is seven seconds or less. FairPoint has stated, however, that if the average response times exceed these thresholds it cannot determine whether the metric has missed the standard. Thus, FairPoint never shows a failure for PO-1 in the C2C reports and PAP bill credit calculations no matter what values it measures for this metric (Defect #17).

Some pre-order records have invalid response times due to source system synchronization problems, causing records to be dropped from the PO-1 calculation.

Liberty identified pre-order records used in the CAMP PO-1 calculations showing response times earlier than request times. FairPoint explained that different source systems capture the pre-order request and the response timestamps and these systems experienced sporadic out-of-sync conditions during 2011, which created this discrepancy in the timestamps. As a result, all records containing these negative timestamps were dropped from the metric calculations. Liberty found this problem in 18 percent of its sampled pre-order records. FairPoint indicated that for the first six months of 2011 there were no occurrences of this issue, for the three-month period of July through September the out-of-sync problem caused FairPoint to drop an average of 32 records per month and for the last three month of the year FairPoint averaged 11,393 dropped records per month (Defect #18).⁵⁰⁴

FairPoint does not accurately distinguish flow-through from non-flow-through orders in calculating OR-1, OR-2, OR-5, and OR-6.

FairPoint acknowledged that the CAMP logic used to identify flow-through orders was flawed throughout 2011, sometimes causing misclassification of service orders (Defect #25). The company acknowledged that it needed to develop a unique process to identify order flow-through

⁵⁰⁴ Response to Data Request #474. For October, November and December 8,587, 19,820 and, 5,773 pre-order records were dropped from results calculation respectively.

for OR-2, because, the standard process it used for the OR metrics did not apply to OR-2 (Defect #38). FairPoint also acknowledged that the CAMP logic to identify flow-through eligibility for calculating the OR-5 sub-metrics was also flawed (Defect #48).

The reported OR-6-04 values overstate the accuracy of FairPoint's directory listing orders.

FairPoint calculates the OR-6-04 sub-metric manually using data from Wisor and M6. FairPoint's calculation process compares 15 key data fields in the CLEC's LSR to the comparable data fields in the manually created service order. If FairPoint finds a discrepancy in any of these 15 data fields, it scores the entire service order as missing the standard in the metric calculation. FairPoint, however, includes directory listing disconnect orders in the sub-metric calculation (Defect #54), contending that such orders are appropriate to include because the C2C Guidelines do not specify they should be excluded.⁵⁰⁵ Liberty believes that disconnect orders do not qualify as a directory listing modifications, which are the only orders allowed in OR-6-04 according to the C2C Guidelines. Furthermore, disconnect orders should have only blank values in the 15 key data fields ensuring that they will virtually always qualify as meeting the standard. According to the December 2011 directory listing data provided by FairPoint, disconnect orders accounted for 24.5 percent of the directory listing orders reviewed by FairPoint that month for inclusion in the OR-6-04 calculation. For December, FairPoint reported an OR-6-04 value of 90.96 percent with a numerator of 171 and a denominator of 188. Removing the 46 directory listing orders incorrectly included in the calculation reduces the OR-6-04 value to 88.03 percent. Liberty notes, however, that although this defect causes the accuracy of the directory listing orders to be overstated, it has no impact on the PAP bill credits, because OR-6-04 is not a PAP metric.

FairPoint's provisioning process can cause premature billing completion notices, which are counted as meeting the standard in calculating OR-4.

Wisor automatically transmits a BCN to the CLEC upon the completion of the PCN task. However, this notifier indicates only that provisioning has completed and that the allowed timeframe for the subsequent billing update process is complete (Defect #46). FairPoint indicated that its systems are not currently capable of sending a notifier to the CLEC after the PCN task hence the automated transmission of the BCN by Wisor based solely on completion of the service provisioning and an allowed interval for updating the FairPoint billing systems and not based on a positive notification that the FairPoint billing systems have been updated. All BCNs sent by FairPoint within two days of the provisioning completion date simply assume that the billing update has been completed and are considered as meeting the standard.

⁵⁰⁵ December 7, 2012 response to Liberty's Draft Audit Report.

The calculated values of PR-6 and PR-9-08 are inaccurate due to numerous calculation flaws specific to these metrics.

Liberty identified a number of flaws in the logic used for the PR-6 and PR-9-08 calculations. In particular, FairPoint:

- Incorrectly excluded valid trouble reports from the numerator of PR-6 by using only service orders with a billing completion date in the report month in the calculation, thus eliminating troubles related to orders with a billing completion date in the prior month (Defect #73).
- Excluded trouble reports from the PR-6 numerator as a result of a flaw in the trouble report-to-service order circuit identification matching process (Defect #74).
- Excluded trouble reports from the PR-6 and PR-9-08 calculations because of flaws in the trouble-report-to-service order product matching process (Defects #14, #15, and #16)..
- Excluded records from PR-6 by matching the trouble report to the earlier rather than the later service order when there were multiple service orders associated with a line (Defect #76).
- Did not exclude trouble report records that contain one of two fault codes (0331 or 0332) that should have been excluded from the PR-6 calculation (Defect #75).
- Incorrectly identified trouble reports on the same line as repeat troubles for the MR-5 calculation when there was new installation activity between the two trouble reports (Defect #77). These reports should be counted as an installation trouble and reported in the PR-6 metric, not as a repeat trouble for the MR-5 calculation.
- Incorrectly excluded trouble report records that contained one of three fault codes (0340, 0342, or 0343) from the PR-9-08 calculation (Defect #81).
- Excluded valid records from PR-9-08 due to an error in the logic used to calculate the seven day interval (Defect #82).
- Incorrectly included trouble reports on change order activity when calculating the PR-9-08 retail analog (Defect #83).
- Excluded records from the PR-9-08 calculation for troubles reported by a FairPoint technician with no reported trouble by the customer, which is not a valid exclusion in the C2C Guidelines (Defect #85). FairPoint disagrees that this is a defect.⁵⁰⁶
- Excluded troubles reported on the seventh day after order completion in the PR-9-08 calculation prior to July 2011, in conflict with the C2C Guidelines requirements (Defect #86).

⁵⁰⁶ December 7, 2012 response to Liberty's Draft Audit Report.

FairPoint overstated the performance of some MR-2, MR-3, and MR-4 retail analogs.

The C2C Guidelines require the exclusion of “translation and switch” troubles from the retail analogs of loop products (in-scope product sub-codes 3112 and 3342) for the MR-2, MR-3, and MR-4 metrics. Implementing this requires the exclusion of certain ‘05’ fault codes. FairPoint excluded too many such codes, thereby overstating the retail performance relative to the wholesale performance (Defect #88). This may have caused FairPoint to render some bill credits that a correct application of the business rules in the C2C Guidelines would not have required.

FairPoint’s flawed process for identifying out-of-service troubles and double counting of some trouble resolution times affected the reliability of the calculated MR-4 metric values.

FairPoint determines whether a trouble caused a customer to be out of service in calculating MR-4-06, MR-4-07, and MR-4-08 using an unreliable process based on text that technicians manually enter in a free-form Remedy field (Defect #92). Liberty found in the audit of FairPoint’s New Hampshire retail quality of service measurements, which rely on the same process to determine out-of-service conditions, that the out-of-service status of almost 25 percent of the troubles was suspect.⁵⁰⁷

Liberty also found that FairPoint double counted the resolution of some trouble in calculating the MR-4-01, MR-4-02, and MR-4-03 numerators (Defect #93). This double counting can significantly affect some reported metric values, increasing both the wholesale and retail mean times to repair, which could affect bill credits depending on the relative adjustments of wholesale and retail metric values.

FairPoint does not always accurately identify previous troubles in calculating MR-5.

The C2C Guidelines for MR-5, which measures the percentage of repeat troubles, specify certain rules to follow in determining what previous troubles to count in the calculation. In particular:

- Previous troubles with any fault codes must be included except for loop products (in-scope product sub-codes 3112 and 3342)⁵⁰⁸
- Previous troubles with fault codes indicating the trouble report misdirected the technician or the technician was not granted access at the trouble location should be excluded for loop products, but only for loop products
- Previous troubles that are actually installation troubles should be excluded from MR-5, since they should already be reported in PR-6
- Aside from the special conditions, all troubles on the same line within the last 30 days should be included.

⁵⁰⁷ Audit of FairPoint Communications’ New Hampshire Retail Quality of Service Reports, Final Report, August 9, 2011, pp. 61-63.

⁵⁰⁸ FairPoint’s interpretation of the C2C Guidelines loop exclusion differs from Liberty’s. See the discussion in Section V.E.4.

Liberty found flaws with FairPoint's application of these rules (Defects #77, #95, #96, and #97). We also found that FairPoint undercounted the number of previous troubles because it uses different methods to identify troubles in the MR-5 numerator (the repeat trouble count) and denominator (the count of all troubles).

4. FairPoint began retaining most of the monthly transaction-level data used for metric calculations beginning in August 2011, but did not do so prior to that data month. (Recommendation #2)

FairPoint began with the August 2011 data month to retain a frozen copy ("snapshot") of the Wisor, M6, Siebel and Remedy source data at the individual transaction level in the CAMP Staging databases. At the same time, FairPoint began to retain the transaction-level data fields, such as calculated time intervals and flags designating different transaction types, in the CAMP Staging and ODS databases. FairPoint also started retaining the CAMP monthly processing code used to select individual transactions appropriate to each metric and calculate the metrics. The combination of the original source data, the derived data fields, and processing code applicable to a given data month can be used to recreate the end result of the metric calculations for that data month. FairPoint indicated that it plans to retain these data and processing code snapshots for five years.

FairPoint's new data retention policy provides major improvements in the capability of researching past months' metric reports and bill credits. Prior to August 2011, FairPoint only retained the CAMP-calculated metric numerators and denominators, not the transaction-level source data used to calculate those values. FairPoint has been retaining transaction-level data in the source systems themselves. The data in these systems is dynamic, however, with individual customer accounts changing as the transactions alter the status of customer services and line characteristics. Although the retention of the transaction-level data in the source systems might allow the data used in a particular report month prior to August 2011 to be recreated in principle, such recreation is difficult to accomplish and subject to many potential errors in practice. Recalculation and auditing of the reported CAMP-calculated metrics prior to August 2011 can therefore be unreliable, because it is difficult to determine whether observed discrepancies come from calculation errors or simply errors in reconstructing the underlying data.

FairPoint can enhance its data retention policy by addressing two additional concerns:

- The new data retention policy does not include the MARCH system source data, which is used in calculating one sub-metric, PR-4-07.
- The new policy does not require the retention of the specific transaction-level records selected in CAMP for the calculation of each metric numerator and denominator and resulting metric values. These transaction-level records at the final processing stage of CAMP are extremely helpful for auditing and validating the transactions that produce each reported metric. The records are also necessary for recalculating any PAP bill credits that require permutation testing. The lack of such data requires the laborious process of starting with the source data in CAMP

and using FairPoint's code to reconstruct the selection of transactions for each metric. Liberty noted during the audit that FairPoint's use of this process was not always reliable.⁵⁰⁹

5. Many of the individual defects in FairPoint's metric calculations can significantly affect the reported metric values and bill credits; however, FairPoint would need to recalculate the metrics and bill credits after correcting these defects to determine whether their combined impact has been material. (Recommendation #3)

Liberty has noted the potential impact of many of the individual defects affecting FairPoint's calculations noted in Conclusion #3 in the Findings section and some of the remaining conclusions of this report. It is extremely difficult, however, to quantify the defects' net impact on the actual reported metric values and bill credits, because of the large number and interrelated nature of most of these defects. Large effects of multiple defects may cancel in some cases. Small effects may accumulate to produce large net effects in other cases. Defects that change only a few transactions can produce significant changes in metric values if there are relatively few transactions reported in a given month for an affected sub-metric. Some defects may have had no effect or a limited effect on the reported metric values during 2011, but may have had a large effect during different time periods or may do so in the future, if not corrected.

Determining the effect of metric calculation defects is complicated by the complex nature of the PAP mechanism for determining bill credits. In most cases, bill credits depend on contributions from multiple metrics. Isolating the impact of individual metric calculation errors is very difficult and can only be achieved cleanly in certain cases.

The impact of some calculation errors may be substantial, but Liberty did not obtain or was not able to obtain the data necessary to determine the size of the impact in most cases. Conclusion #2 notes that FairPoint only retained the original metric data used in the CAMP automated metric calculations beginning in August 2011. Liberty therefore could not assess the impact of CAMP calculation defects prior to August; we also followed the approved Work Plan to restrict the analysis of the automated metrics to two months, August and December. A few of the defects Liberty observed originate in the source data and would be difficult or impossible to correct even with the improved CAMP data retention FairPoint implemented in August 2011.

Liberty was able to estimate the impact of two defects that were relatively straightforward to address. These defects illustrate that some defects are likely to increase bill credits while others are likely to decrease them:

- In Defect #102, Liberty noted that FairPoint's manual calculation logic for NP-1 incorrectly excludes blocked trunk groups from inclusion in NP-1-03 (two month's blocking) if they are also counted in NP-1-04 (three month's blocking). This caused NP-1-03 to be misreported in January 2011. Liberty calculated that

⁵⁰⁹ Response to Data Request #470.

this error made the MOE Trunk payment too low by \$3,511 in January 2011, which was confirmed by FairPoint.⁵¹⁰

- In Defect #115, Liberty found that FairPoint incorrectly implemented the PAP requirements for measures with percentage, parity comparisons. FairPoint’s calculated Resale MOE bill credit in December 2011 was \$19,218 too high because of the impact of this error on PR-4-04-2100 and MR-5-01-2100.

6. FairPoint’s process for reviewing and revising metric reports focuses only on wholesale metrics that fail to meet the standard. (Recommendation #4)

FairPoint investigates wholesale records of CAMP-calculated metrics whose reported values do not meet the standards and often manually adjusts these values if FairPoint determines the investigation justifies the adjustment. These adjustments sometimes change the status of the metric from failing the standard to meeting it. The following table shows the manual changes FairPoint made to the reported values of in-scope OR, PR, MR sub-metrics in August and December 2011.⁵¹¹ The table shows that 5 of these 17 metric value corrections (29 percent) also change the status of the metric from “fail” to “pass.” The table does not show whether the MR sub-metrics passed or failed because Liberty does not have the necessary data to test for this. The MR adjustments were minor, however, and were very unlikely to have changed the metric status.

**Table VI-1
Examples of FairPoint Metric Value Adjustments**

Sub-Metric (Month)	CAMP-calculated Values			Manually Recalculated Values		
	Num.	Denom.	Metric Value	Num.	Denom.	Metric Value
OR-1-06-2320 (Aug.)	6	9	66.66% (fail)	5	5	100% (pass)
OR-1-13-5000 (Dec.)	0	2	0.0% (fail)	1	2	50.0% (fail)
OR-5-03-2000 (Aug.)	227	246	92.28% (fail)	227	243	93.42% (fail)
OR-5-03-2000 (Dec.)	175	209	83.73% (fail)	186	202	92.08% (fail)
OR-5-03-3112 (Dec.)	242	258	93.80% (fail)	255	258	98.84% (pass)
OR-5-03-3121 (Aug.)	186	204	91.18% (fail)	186	200	93.0% (fail)
OR-5-03-3121 (Dec.)	190	209	90.91% (fail)	201	208	96.63% (pass)
PR-4-04-3113 (Aug.)	9	51	17.65% (pass)	3	50	6.0% (pass)
PR-4-04-2100 (Dec.)	7	16	43.75% (fail)	5	16	31.25% (fail)
PR-4-05-2100 (Aug.)	6	71	8.45% (fail)	5	71	7.04% (fail)
PR-4-14-3342 (Aug.)	45	50	90.0% (fail)	47	50	94.0% (fail)

⁵¹⁰ Clarification to Data Request #486.

⁵¹¹ Liberty only has information for the two months, which were used in our analysis of the automated metric calculations.

PR-5-01-3112 (Aug.)	1	52	1.92% (fail)	0	51	0.0% (pass)
PR-6-01-2100 (Aug.)	7	41	17.07% (fail)	0	41	0.0% (pass)
PR-6-01-2100 (Dec.)	8	43	18.60% (fail)	7	43	16.28% (fail)
MR-4-01-3217 (Dec.)	1646.68	125	13.173	1656.261	126	13.145
MR-4-03-2100 (Dec.)	672.453	90	7.472	675.4485	90	7.505
MR-5-01-3200 (Dec.)	23	143	16.08%	23	144	15.97%

FairPoint does not appear to conduct any similar investigations of wholesale records used to calculate metrics that clearly meet the standard or of retail records used to calculate the retail analog standards (Defect #2). It should be noted that the original CAMP-calculated value of PR-4-04-3113 in August appears to be worse than the reported retail value of 15.44 percent, which likely prompted FairPoint’s investigation of this sub-metric; however, the statistical tests do not show that the difference is significant, so that the sub-metric would have “passed” based on the original CAMP calculation.

FairPoint’s explanation for only reviewing failing wholesale metrics is to assess the root cause of poor wholesale performance; however, FairPoint has not explained why these are the only metrics whose values are adjusted. Selective reviews and revisions only of failing values of wholesale metrics can lead to biased assessments of FairPoint’s overall compliance with the metric standards and hence can affect the correct determination of PAP bill credits. FairPoint should also ensure that there is appropriate segregation of duties in the metric processing, eliminating the potential for employees in organizations whose processes are measured by the metrics to influence the calculated metric values.

7. FairPoint’s metric and PAP calculation systems and processes lack sufficient quality controls. (Recommendation #5)

Most of the defects Liberty identified during this audit could have been detected and corrected by FairPoint if it had implemented appropriate internal audit and quality control processes. Examples of issues that could have been readily identified through such processes include:

- Misclassification of the interface for most pre-order and order transactions as EDI
- Including number port orders in the Resale OR sub-metrics
- Excluding of all directory listing records from the monthly downloads to CAMP
- Errors in the product USOC look-up tables
- Inappropriately including hot cut orders in OR sub-metrics not related to hot cuts.
- Inclusion of records in the numerator that did not meet the performance standard.
- Using business days rather than calendar days for interval calculations.
- Identifying response times that are earlier than the request times.
- Incorrect implementation of fault code exclusions of troubles.

Many of these errors could have been avoided if FairPoint had performed sufficient internal reviews and tests of the CAMP code and logic used for creating derived data fields and calculating metrics. Others could have been identified through regular, rigorous quality reviews of the calculated metric values before reporting them, including such techniques as trend analyses and outlier identification and analysis.

Liberty also noted that employees of FairPoint organizations whose processes are measured by the metrics, such as the Network and Wholesale departments, often perform portions of the manual metric calculations. This is a poor control practice that could lead to biased calculations.

8. FairPoint uses manual processes for many metrics that are error-prone and produce inaccurate metric calculations. (Recommendation #6)

FairPoint calculates 20 of the in-scope sub-metrics using manual processes instead of an automated calculation process such as CAMP. As described in the Findings section of this report Liberty found numerous errors in these sub-metrics that resulted from mistakes in the manual processes, including mistakes in manually transferring data between spreadsheets, spreadsheet logic errors, incorrect selection of transactions, errors in identifying times for interval calculations, lack of quality controls on the process, and manual adjustment of data. In some cases, key parts of the manual metric processing are performed by FairPoint employees in organizations whose processes the metrics measure.

These errors can sometimes significantly affect the metric values and bill credits. For example (Defect #102), FairPoint's manual calculation logic for NP-1 incorrectly excludes blocked trunk groups from inclusion in NP-1-03 (two month's blocking) if they are also counted in NP-1-04 (three month's blocking). This caused NP-1-03 to be misreported in January 2011. Liberty calculated that this correcting this error would increase the MOE Trunk bill credit by \$3,511 from \$39,500 to \$43,011. FairPoint confirmed the \$3,511 increase and noted, "Potential impacts to bill credits will be addressed in total at the completion of the New Hampshire PAP audit."⁵¹² Liberty found a number of other flaws in FairPoint's manual calculation of NP-1-03 and NP-1-04 that appear to have had limited impact on 2011 reported values but could affect the values in some circumstances. These include (Defects #100 and #101):

- Excluding trunk groups of some CLECs (those with the '228' identifier) from the calculations
- Using corrupted data that produced unphysical overflow percentages
- Incorrectly applying filters on the network performance data.

Liberty found the following process deficiencies in the calculation of BI-1-02:

- FairPoint excluded from the denominator DUF records that were created but not transmitted to the CLECs (Defect #105).

⁵¹² Response to Data Request #486 clarification.

- FairPoint did not investigate the causes of significant month-to-month variances in DUF volumes. Liberty noted in particular a significant drop in the typical monthly DUF volumes in December 2011 that FairPoint failed to investigate (Defect #104).

Liberty also found numerous defects in FairPoint's calculation of BI-3-04 and BI-3-05 that may have affected 2011 reported values, including:

- Inclusion of billing claims for interexchange carriers, internet service providers, and wireless carriers (Defect #111)
- No exclusion of out-of-date billing claims prior to October 2011 (Defect #112)
- Inaccurate receipt dates for some billing claims (Defect #108)
- Incomplete and inaccurate inclusion of legitimate billing claims (Defect #107)
- Reporting of billing claims in the wrong state (Defect #109).

9. FairPoint correctly implements most of the New Hampshire PAP bill-credit calculation requirements, but some implementation errors need correction.
(Recommendation #7)

Based on an analysis of the August and December 2011 PAP calculations, Liberty found that FairPoint:

- Generally follows the PAP requirements for calculating statistical comparisons. FairPoint did not, however, properly calculate the statistical results for measures with percentage, parity comparisons (Defect #115). For these measures, FairPoint's calculations can sometimes produce higher bill credits than required by the PAP.
- Complies with the PAP requirements for MOE, Special Provision, and CCAP calculations with the exception noted above for measures with percentage, parity comparisons.
- Generally complies with the PAP requirements for Critical Measure calculations. However, FairPoint did not correctly follow the PAP for Critical Measures with 95 percent standards (Defect #114). For these measures, FairPoint calculates a larger bill credit than necessary when the performance is exactly 90.5 percent, 91 percent, 91.5 percent, 92 percent, 92.5 percent, 93 percent, 93.5 percent, 94 percent, or 94.5 percent.⁵¹³ The previously noted error for measures with percentage, parity comparisons also applies to Critical Measures.

This conclusion addresses only the implementation of the PAP calculation mechanisms. The overall accuracy of the bill credit calculations is also affected by the inaccuracies in the metric calculations noted in the other conclusions of this chapter.

⁵¹³ As noted in the response to Data Request #515 second clarification and the December 7, 2012 response to the Liberty's Draft Audit Report, FairPoint stated that it corrected this error beginning with July 2012 data month

10. FairPoint issues bill credits that are the same as those reported in the PAP reports. These bill credits are issued in a timely manner.

Liberty found that the bill credits in CLEC-specific PAP reports, the CLEC-specific bills provided by FairPoint, and the bill credits received by volunteering CLECs matched. Liberty also found that these same bill credits were provided on the next available bill cycle after the issuance of the CLEC-specific PAP Reports.

11. FairPoint's process for identifying products in calculating the OR, PR, and MR metrics caused some service orders and troubles to be assigned to the wrong metric product sub-codes and some service orders to be double counted in calculating OR metrics. (Recommendation #8)

Liberty compared FairPoint's total list of USOCs to the USOC-to-product code look-up table FairPoint uses for metric calculations. This comparison revealed approximately 140 USOC misclassifications in the product identification look-up table that can cause incorrect assignment of product codes in the calculation of the metrics measuring service orders, trouble reports, and lines in service. The omission of valid USOCs from the same table also can cause improper exclusion of records from metric calculation. Liberty also noted in the OR, PR, and MR Findings sections above other FairPoint data processing errors that can cause misclassification of products in metrics calculations (Defects #3 - #16).

FairPoint incorrectly included service orders for number ports and hot cuts in Resale calculations. FairPoint also double counted the same service orders between multiple metric product sub-codes. Specifically, Resale products that should be counted in the 2341 sub-code were also included in the 2320 sub-code results, and products that should be included in the 3341 or 3342 sub-codes are also being included in the 3331 sub-code results.

The following table shows Liberty's recalculation of the December values of those OR sub-metrics affected by the FairPoint's product misclassifications and the double counting of service requests. The recalculations required three types of changes noted in the table:

1. Removal of hot cut service requests and number port service requests from metric product sub-codes 2000 and 2320.
2. Removal of products that should be reported in the 2341 product sub-code from the 2320 product sub-code.
3. Removal of service requests that were reported in the metric product sub-codes 3341 or 3342 from the 3331 product sub-code.

Table VI-2
Impact of Product Misclassifications on OR Metric Values

Sub-Metric	FairPoint's Reported Values			Recalculated Values			Type of Change
	Num.	Denom.	Metric Value	Num.	Denom.	Metric Value	
OR-1-02-2320	178	186	95.70% (pass)	10	12	83.33% (fail)	1&2
OR-1-04-2320	402	409	98.29% (pass)	2	3	66.67% (fail)	1&2
OR-1-06-2320	2	2	100.00% (pass)	2	2	100.00% (pass)	1&2
OR-2-02-2320	74	75	98.67% (pass)	7	7	100.00% (pass)	1&2
OR-2-04-2320	126	128	98.44% (pass)	0	0	NA	1&2
OR-5-03-2000	186	202	92.08% (fail)	10	12	83.33% (fail)	1
OR-1-02-3331	876	910	96.26% (pass)	816	850	96.00% (pass)	3
OR-1-04-3331	824	836	98.56% (pass)	777	789	98.48% (pass)	3
OR-2-02-3331	29	29	100.00% (pass)	24	24	100.00% (pass)	3
OR-2-04-3331	12	12	100.00% (pass)	6	6	100.00% (pass)	3

The table shows that the status of two of these ten sub-metrics changed from pass to fail after Liberty's recalculation. In both cases, however, the resulting number of transactions was small, which can cause the metric value to be highly influenced by FairPoint's performance on single transactions.

12. FairPoint's download of the source data to CAMP did not include all the data needed for accurate metric calculations. (Recommendation #9)

To implement the general exclusion of administrative orders specified in the C2C Guidelines, FairPoint excludes all administrative orders, such as retail orders to suspend or restore for non-payment, when it downloads data from M6 into CAMP. FairPoint identifies such orders through the provisioning plan associated with each service order. All orders that contain a provisioning plan number identified as an administrative order are not included in the download to CAMP for metric calculations. FairPoint, however, incorrectly classified all provisioning plans involving directory listings as administrative orders, making the source data for these orders unavailable to CAMP for inclusion in the calculations for the OR-4 and OR-5 metrics (Defect #41). Liberty observed that directory listing orders account for approximately 30 percent of all CLEC LSRs.

Flaws in the Wisor-to-CAMP download process causes some CLEC service requests to be missing in CAMP. FairPoint uses a secondary data source when this occurs to add the missing service requests to CAMP. This secondary source, however, does not contain all of the data fields needed for calculating the OR metrics (Defect #37).

Another flaw in the M6-to-CAMP download process caused some service order records that are needed for proper calculation of the PR metrics to be excluded in the download to CAMP (Defect #61).

13. Inconsistencies with the C2C Guidelines or ambiguities in the C2C Guidelines have affected some of FairPoint's metric calculations.
(Recommendation #10)

Liberty identified a number of instances where FairPoint's interpretation did not appear to conform to the metric definition as stated in the C2C Guidelines. In some cases these interpretation defects affected numerous sub-metrics within a metric family, while in other cases they affected a single sub-metric. FairPoint agreed with some but not all of these defects or indicated that it believes the issue would be corrected in the proposed SMP.⁵¹⁴ The FairPoint responses to the specific defects are noted in Table B-1 of Appendix B.

For example, the C2C Guidelines:

- Do not authorize adjustments of the PO-8 interval calculation for records missing from FairPoint's Master Street Address Guide (MSAG). FairPoint, however, adjusts the received time of the loop qualification request for those requests with service addresses missing from the MSAG (Defect #22).⁵¹⁵
- Specify that, for the calculation of OR-4-16, PCN timeliness is calculated based on the elapsed time between the provisioning work completion of the last service order associated with a specific PON and the transmission of the PCN to the CLEC. FairPoint, however, indicated that for multi-service order PONs, it counts any of the PCNs sent within one business day as meeting the standard for that PON (Defect #45).
- Specify that the calculation of OR-1 should be based on the time stamp of the last confirmation sent in cases of orders receiving multiple confirmations if the reason for the resend was with FairPoint's systems. When calculating the OR-1 metrics, however, FairPoint always uses the timestamp of the first confirmation it sent and ignores subsequent confirmations (Defect #24).
- Specify that when a CLEC designates related PONs (RPONs), the start time of the OR-1 and OR-2 calculations should be based on the date and time FairPoint receives the last RPON. FairPoint, however, treats each PON separately and uses the individual PON receipt time and response time to calculate OR-1 and OR-2 (Defect #27).
- Specify that "[o]rders that have passed the committed completion date, or whose completion has been delayed, due to CLEC or end user delay" should be excluded from the PR-8 calculation. According to FairPoint, however, this exclusion

⁵¹⁴ December 7, 2012 response to Liberty's Draft Audit Report.

⁵¹⁵ December 7, 2012 response to Liberty's Draft Audit Report.

applies to only the numerator and not the denominator of the calculation (Defect #79).

- Defines a rejected order as: “An order is rejected when there are omissions or errors in required information. Rejects also include queries where notification is provided to a CLEC for clarification on submitted orders.” FairPoint, however, includes jeopardy notices issued after the order has been confirmed when calculating OR-2-12 (Defect #40).
- Do not authorize an exclusion for PR-4-07 for a miss that was the result of CLEC activity. FairPoint, however, manually examines all orders that CAMP identified as missing the PR-4-07 standard to determine whether the miss was the result of a CLEC activity and manually excludes all orders identified as a CLEC-caused miss from the calculation (Defect #68).

Liberty also noted that FairPoint’s PR metric calculations use an order completion date different from, and often prior to, the completion of all provisioning steps. The C2C Guidelines specify that the denominator for the in-scope provisioning metrics is based on the number of “orders completed” for the product group. The Guidelines do not provide a clear definition of order completion. FairPoint calculates the PR metrics using the date service was physically provisioned as the order completion date. However, a service order continues processing until all components necessary to provide full service to the customer are complete, including billing system and other database updates. As a result, the service order completion date can be more than a day later than the date the physical work, such as wiring in the central office, is complete. Furthermore, some key aspects of a customer’s service, such as full E911 capability, can still be missing after the physical provisioning completion date.

The following table illustrates the effect of using the service order completion date (Recalculated Values) instead of the physical completion date (FairPoint’s Reported Values) to calculate three PR-4 sub-metrics in December 2011. In this calculation, Liberty has taken the completion date of the service order’s last M6 task to be the service order completion date.

**Table VI-3
Impact of Completion Date Definition on PR-4 Values**

Sub-Metric	FairPoint’s Reported Values (Based on Provisioning Completion Date)			Recalculated Values Using Service Order Completion Date		
	Num.	Denom.	Metric Value	Num.	Denom.	Metric Value
PR-4-01-3211 (wholesale)	4	24	16.67%	4	24	16.67%
PR-4-01-3211 (retail)	2	13	15.38%	5	13	38.46%
PR-4-04-3113 (wholesale)	3	53	5.66%	51	53	96.23%
PR-4-04-3113 (retail)	112	824	13.59%	222	824	26.94%
PR-4-05-2100 (wholesale)	3	46	6.52%	20	46	43.48%
PR-4-05-2100 (retail)	208	4327	4.81%	1121	4327	25.91%

These calculations demonstrate that the choice of order completion date can significantly affect the metric values, including the relative retail and wholesale values, which can affect whether FairPoint's performance met the metric standards.

14. FairPoint's documentation of the New Hampshire PAP is incomplete, inconsistent, and sometimes inaccurate. (Recommendation #11)

Many of Liberty's data requests resulted from FairPoint's inability to supply adequate technical and metric calculation process documentation. Although FairPoint has developed and maintains documentation of its New Hampshire PAP, Liberty found much of this documentation to be inaccurate, incomplete and inconsistent (Defect #1).

A primary component of any service quality measurement plan is documentation that is complete, accurate, and easy to use. Without such documentation, internal calculations are subject to error. The lack of clear and complete documentation also makes the task of performing audits, both internal and external, more difficult and time consuming.

VII. Recommendations

1. **Correct the system problems and metric calculation logic errors that Liberty has identified.** *(Conclusion #3)*

Liberty's analysis identified many systems, CAMP coding logic, and manual calculation errors that undermined the quality of FairPoint's reported C2C metric results across all the metric families. FairPoint acknowledged most of these problems in responses to Liberty's data request, indicating that the problem has been fixed during 2012, the problem will be fixed in a future release, or FairPoint is investigating the root cause of the problem to determine how to fix it. FairPoint's reaction to these problems is commendable and it should proceed with haste to fix as many of these problems as quickly as possible. As noted in Recommendation #3, FairPoint should also perform regression testing of the coding changes it makes to ensure they accomplished what was intended by the code change and that the code change did not adversely affect something else.

2. **Enhance data retention policy by retaining some additional data that can help in researching past months' reported metrics.** *(Conclusion #4)*

FairPoint's new data retention policy is a major step forward in enhancing the ability to review and audit reported metric values from past months. FairPoint can enhance these capabilities by retaining:

- A copy in the CAMP Data Warehouse of the specific records selected for calculating all metric numerators and denominators in each report month.
- The monthly MARCH data used for the OR-4-07 calculation. FairPoint indicated that this was corrected in April 2012 beginning with the March 2012 data month.⁵¹⁶

3. **Determine the net impact of the calculation errors on metric reports and bill credits during 2011.** *(Conclusion #5)*

Many of the flaws Liberty found in FairPoint's metric calculations have the potential to significantly affect the metric values and hence the PAP bill credits. Liberty has noted that some of these errors tend to make wholesale metric values appear better relative to the standard than it actually was, while others have the opposite effect. The net impact of all these effects is difficult to estimate without detailed calculations. Some of the effects may cancel; others may affect the reported metric values without affecting the bill credits. The complexity of the PAP, which requires most bill credits to depend on the values of multiple sub-metrics, requires all the effects to be taken into account before any net impact on bill credits can be determined. It is not even clear, based on the current evidence, whether the net impact would increase or decrease bill credits for 2011 performance. The impacts could also vary significantly by CLEC.

⁵¹⁶ December 7, 2012 response to Liberty's Draft Audit Report.

Liberty recommends that FairPoint recalculate the metrics and bill credits during 2011 when the data is available to do so. This would require FairPoint to first fix all the calculation defects Liberty identified and then recalculate the metrics for each month. Although data is generally available to do this for the manual metrics throughout 2011, it may be more difficult to accomplish for the automated metrics before the August 2011 data month, when FairPoint introduced a change in the data retention policy. One approach might be to restrict the recalculations to the August through December 2011 period. FairPoint should also calculate potential impacts on 2012 report months prior to FairPoint's introduction of the calculation corrections.

4. Use a more complete and balanced process for reviewing and adjusting metric values. (Conclusion #6)

Manual reviews of the CAMP calculated metric values comprise a useful component of a quality improvement process to identify and fix coding and logic errors in CAMP. However, FairPoint's current manual review and adjustment process focuses on wholesale records that failed to meet the standard and subsequently modifying the CAMP-calculated values based on the outcome of these reviews. FairPoint does not conduct comparable reviews of wholesale metric values that CAMP determines have met the standard or of any of the CAMP-calculated retail values. Additionally, Liberty found that FairPoint sometimes makes errors in its review process, incorrectly changing records from missing the standard to meeting the standard. FairPoint should continue to conduct manual reviews of the CAMP-calculated metric values but should broaden the reviews to include a balanced examination of all metric values, focusing on improving the quality of the wholesale and retail analog results reported by CAMP.

FairPoint indicated that it is investigating the possibility of implementing a process to review all metric values using statistically valid samples.⁵¹⁷

5. Implement a quality control process for all aspects of its PAP reporting. (Conclusion #7)

FairPoint might have identified and corrected many of the systems errors, CAMP code logic flaws, manual calculation errors, and the resulting reporting errors Liberty identified if it had implemented more thorough quality control processes. FairPoint should implement a process that entails periodic internal audits of the following:

- The source data extract process used to populate CAMP
- The logic and data used for creating derived data fields
- The logic, data and the quality of the look-up tables used for product identification

⁵¹⁷ December 7, 2012 response to Liberty's Draft Audit Report.

- The logic used for selecting transactions for results calculation
- The logic used to identify exclusions
- The logic used to calculate metric values
- Thorough review of manual calculations
- The quality of the reported values (*e.g.*, month-to-month volume trend analysis, reported volumes are in concert with expectations such as reported Resale order volumes not exceeding actual volume of Resale orders)

FairPoint should also perform regression testing of changes made to the source system data, CAMP code, and manual calculation processes to ensure the changes have been correctly implemented.

6. Minimize the use of manual calculation processes. (Conclusion #8)

Manual calculation processes are much more subject to error than correctly implemented automated processes. Liberty found a number of manual process errors during this audit. While it may not be cost effective or practical to mechanize all of the C2C metrics that FairPoint is required to report (*e.g.*, metrics with low volumes of activity or metrics that are sourced from manual records such as the collocation metrics) there are metrics that FairPoint continues to report manually that can, and should, be mechanized as quickly as possible. FairPoint mechanized the OR-6-03 calculation effective with the December 2011 data month. FairPoint also indicated that it is working on mechanizing the OR-6-04 sub-metric.⁵¹⁸ These are steps in the right direction and FairPoint should continue these efforts to minimize manual processes as much as possible.

7. Correct the flaws in the PAP statistical and bill credit calculations Liberty has identified. (Conclusion #9)

FairPoint should implement the mean, parity comparisons calculations required by the PAP Appendix D. For mean, parity comparisons involving hypergeometric tests, FairPoint should calculate the p-value based on the probability of observing “x” or more elements that have the attribute of interest (“x” or fewer if smaller indicates worse performance) instead of the probability of observing more than “x” elements that have the attribute of interest (or fewer than “x” if smaller indicates worse performance).

FairPoint should also change the increments used for Critical Measures with 95 percent Standards used when the performance is exactly 90.5 percent, 91 percent, 91.5 percent, 92 percent, 92.5 percent, 93 percent, 93.5 percent , 94 percent, or 94.5 percent. This will better

⁵¹⁸ Interview #11, March 6, 2012.

comply with Appendix F Table F-1-2 of the PAP documentation. FairPoint indicated that it corrected this defect beginning with the July 2012 data month.⁵¹⁹

8. Review and modify the process for identifying products and assigning internal product codes. (Conclusions #11)

FairPoint should completely review its product-code-to-USOC look-up table to ensure that all USOCs FairPoint uses for C2C calculations are accurately populated in the look-up table. FairPoint should also correct the misclassification and double counting of products when calculating the OP, PR and MR metrics. Because of the complexity of the product-code assignment process and the difficulty of researching potential errors in it, Liberty recommends that FairPoint modify the CAMP code to store the product codes of each transaction identified by its look-up process. FairPoint indicated that has corrected many of the product classification errors and is in the process of correcting the remaining ones.⁵²⁰

9. Implement controls that ensure that all source system records needed for metric calculation are included in the daily and monthly updates to CAMP. (Conclusion #12)

Liberty found several cases where FairPoint did not properly download the relevant source system records into CAMP, causing improper exclusion of some service orders. FairPoint should fix these errors and implement controls to ensure that all data records and data fields required for monthly calculations are correctly downloaded into CAMP. FairPoint indicated that it is in the process of correcting these defects.⁵²¹

10. Review the metric guidelines and metric calculation business rules to ensure that the reported values provide the intended measurement of the wholesale processes. (Conclusions #13)

Liberty noted in Conclusion #13 several cases where the FairPoint's implementation of the metric calculation appears to be inconsistent with the C2C Guidelines. FairPoint has agreed and corrected some of these issues, but has disagreed with others.⁵²² FairPoint should discuss the C2C Guidelines interpretations with the Commission Staff and the CLECs so that there is a consensus on the appropriate interpretation of the metrics.

Conclusion #13 also pointed out that the C2C Guidelines do not provide clear guidance as to which time should be used as the end point of the provisioning intervals measured in the

⁵¹⁹ December 7, 2012 response to Liberty's Draft Audit Report.

⁵²⁰ December 7, 2012 response to Liberty's Draft Audit Report.

⁵²¹ December 7, 2012 response to Liberty's Draft Audit Report.

⁵²² December 7, 2012 response to Liberty's Draft Audit Report.

provisioning metrics. Liberty has noted that there can be a significant time difference between FairPoint's completion of physical provisioning work to complete a service order and the update of all the databases necessary to fully provision service for the customer. The table in Conclusion #13 shows that there can be a substantial difference in the relationship between wholesale and retail performance depending on which date is used to determine the end of the provisioning interval. Liberty therefore recommends that FairPoint meet with Commission Staff and the CLECs to clarify which interval should be used to calculate provisioning intervals.

Liberty recognizes that some of the metrics involved may not be continued or may be substantially modified in a revised PAP. We therefore believe it appropriate that the recommended discussions among FairPoint, Staff, and the CLECs be confined to those issues that are likely to significant in a revised PAP. FairPoint indicated that it believes some of the issues Liberty has noted would be resolved in the SMP proposal.⁵²³

11. Review the current business rules, system and process documentation to correct all errors and make the documentation complete and consistent with the calculation processes. (Conclusion #14)

FairPoint needs to review its current documentation to correct all errors, omission and ambiguities, and make the documentation complete and consistent with its calculation processes. FairPoint indicated that it is in the process of reviewing and updating metric documentation.⁵²⁴

⁵²³ December 7, 2012 response to Liberty's Draft Audit Report

⁵²⁴ December 7, 2012 response to Liberty's Draft Audit Report.

VIII. Considerations in Revising the New Hampshire PAP

A. Introduction

Liberty is aware that the participants in the Tri-State FairPoint PAP Collaborative have spent much time and effort considering PAP revision proposals since the time of the Commission's request in the PAP Audit RFP that the auditor "provide recommendations on how the current PAP may be revised." Liberty believes that use of such collaborative forums is generally the best approach to work out the details of PAP changes, because the parties involved are closest to the requirements specific to the local competitive marketplace. We do not want to impede or subvert the accomplishments of this collaborative. Liberty has therefore limited our recommendations to statements of general principles and lists of other issues for the industry parties to consider in reaching their final proposal. Specific suggestions we provide are meant mainly to illustrate these general principles.

As part of our analysis, we compared the New Hampshire PAP to performance assurance plans in other jurisdictions, many of which we have audited:⁵²⁵

- Verizon PAPs in other jurisdictions (New Jersey, Virginia, Maryland, West Virginia, and the District of Columbia)
- The Qwest (Century Link) Performance Assurance Plans (QPAPs), which are effective in 13 of the 14 states in the Qwest operating territory (Arizona, Iowa, Idaho, Minnesota, Montana, Nebraska, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming) and vary in only minor ways from state to state.
- The Qwest (Century Link) Colorado Performance Assurance Plan (CPAP), which is similar to the QPAPs but with some additional features.⁵²⁶
- The BellSouth (AT&T) Self-Effectuating Enforcement Mechanisms (SEEM) in Georgia and Florida.
- The Performance Incentives Plan (PIP) in California for Pacific Telephone (AT&T) and Verizon.
- The Ameritech (AT&T) Performance Assurance and Remedy Plan (PARP) in Indiana.

⁵²⁵ Liberty has audited the Verizon PAPs in New Jersey, Virginia, Maryland, West Virginia, and the District of Columbia; the QPAPs and CPAP in all 14 Qwest states; and the Florida SEEM.

⁵²⁶ The CPAP and QPAPs are incorporated as Exhibit K of the Qwest SGATs.

B. Objectives for an Improved PAP

In its Bell Atlantic New York Section 271 Order (BANY Order),⁵²⁷ which discussed the performance assurance plan that formed the basis for the current New Hampshire PAP, the FCC listed five important characteristics of a performance assurance plan:

- Potential liability that provides a meaningful and significant incentive to comply with the designated performance standards
- Clearly-articulated, pre-determined measures and standards, which encompass a comprehensive range of carrier-to-carrier performance
- A reasonable structure that is designed to detect and sanction poor performance when it occurs
- A self-executing mechanism that does not leave the door open unreasonably to litigation and appeal
- Reasonable assurances that the reported data is accurate.

The FCC noted that a plan can achieve these characteristics through a number of different mechanisms. Experience has shown, however, that some of the features of the original performance assurance plans introduced across the country at the time of the RBOC Section 271 applications were unnecessarily complex and non-transparent. Liberty concurs with the objectives of PAP-simplification initiatives in various jurisdictions, which have recognized the importance of reducing complex and non-transparent features, while maintaining the incentives to achieve good performance. Accordingly, we believe that the PAP mechanism should meet some additional objectives in addition to those the FCC has stated. Specifically, the PAP should:

- Be simple and straightforward
- Be transparent and easy to understand by all parties
- Minimize the burden on the Company (FairPoint) in calculating and reporting the metric results and bill credits
- Minimize the burden on the CLECs and Commission in tracking and validating the results and bill credits reported by the Company
- Avoid complex calculations and data analysis and transformations that may generate erroneous results that are difficult to detect
- Allow the accuracy of reported results and payments to be easily auditable.

The following section outlines some matters Liberty believes should be addressed in attempting to meet these objectives.

⁵²⁷ *Application by Bell Atlantic New York for Authorization Under Section 271 of the Communications Act To Provide In-Region, InterLATA Service in the State of New York*, FCC CC Docket No. 99-295, December 22, 1999.

C. PAP Issues to Address

1. Simplification of the PAP Mechanism

The current New Hampshire PAP contains a number of complex structural features and mechanisms for calculating bill credits. Liberty's experience with PAPs in other jurisdictions indicates that the Verizon-originated PAPs, such as the New Hampshire PAP, contain some of the most complex penalty calculation mechanisms. These mechanisms contribute to making the New Hampshire PAP unnecessarily complex and non-transparent. Among the features that should be considered for elimination or modification are:⁵²⁸

1. Division of the PAP into segments (MOE, Critical Measures, Special Provisions, and Change Control). All PAPs Liberty reviewed besides the Verizon-based PAPs rely on the results of individual metrics and minimize the grouping of metrics into separate categories for special treatment. The MOE segment process is a particularly complex mechanism, since it calculates penalties based on metric values across multiple metrics and also includes complicated weighting and "look-back" mechanisms. Basing the bill credits on individual metric values provides a much more straightforward and transparent approach to assessing penalties.
2. Weighting of metrics for calculating bill credits. In the Verizon-based PAPs, weighting is a feature both of the MOE and Critical Measures segments. Such weighting is necessarily subjective and arbitrary, and contributes to the lack of transparency in the PAP. If the parties agree that a metric is contributing to PAP penalties out of proportion to the true importance of the underlying process it measures, there are other alternatives to weighting that should be considered. For example, the metric definition could be adjusted, the standard could be changed, or the metric could be dropped from the PAP entirely. In addition, the dollars at risk could be targeted to individual metrics, with those judged to be more important having a larger amount of dollars at risk than those judged to be less important. The Florida and Georgia SEEM plans, the California PIP, the Indiana PARP, and QPAPs and CPAP use the latter approach, classifying metrics into different categories, with some receiving higher penalties than others based on their importance in the competitive local service market.
3. "Look-back" mechanisms. These are mechanisms that modify the scoring of results for determining payments in a given month based on results in past or future months. This approach is often introduced to take into account the effect of continued performance failures over multiple months. Although there are look-back mechanisms in other performance assurance plans, none is as complex as the Verizon-originated mechanism, with its scoring of 0, -1, and -2, based on a

⁵²⁸ Liberty notes that states in the Verizon eastern operating territory have adopted new PAPs since the version represented by the northern New England PAPs. These new Verizon PAPs have eliminated some, but not all, of these complex features. See, for example, New York Public Service Commission, *Petition Filed by Bell Atlantic-New York for Approval of a Performance Assurance Plan and Change Control Assurance Plan, filed in C97-C0271, Order Amending Performance Assurance Plan, Case No. 99-C-0949* (September 25, 2006).

statistical measure of the significance of the failures (Z-score) and the modification of -1 scores based on previous months' results. This mechanism is not only complex and confusing but also introduces the overhead of "preliminary" and "final" PAP reporting. It has the additional effect of removing penalties rather than increasing them if failure continues over several months. Furthermore, this mechanism fails to penalize poor performance extending across many months. A better approach to capturing the impact of performance failures continuing over time is to include an escalation in the penalty amounts. The QPAPs, CPAP, California PIP, and Indiana PARP, for example, have mechanisms that increase the penalty (subject to a cap) for each consecutive month a metric misses the standard.

4. Bill credit amounts based on the magnitude of the Z-score. As noted, the MOE segment uses the magnitude of the Z-score to determine discrete scores (0, -1, and -2) used to calculate bill credits. The Critical Measures segment takes this a step further by increasing bill credit amounts based on a sliding scale of Z-score magnitudes. The Z-score is a measure of the statistical significance of the deviation between the measured performance and the standard. As such, it is appropriate for use in testing hypotheses as to whether the Company's actual performance has met the performance standards. The standard approach is to use a 95 percent confidence threshold (Z-score less than -1.645) for this purpose. However, the Z-score is intended as a measure of the significance of the deviation from standard, not as a measure of the size of the difference. Once it is determined that the difference is more than random error through the statistical significance test, the penalty can be based on the magnitude of the difference from standard, but that magnitude should not be measured by the Z-score. The QPAPs, CPAP, California PIP, and Indiana PARP, for example, use the Z-score calculations only as a test of significance, not to determine the size of the penalty.

2. Targeting of Penalties

Liberty believes that PAPs work most effectively when the penalties are targeted specifically to individual measurements and to individual carriers experiencing poor performance. Some mechanisms in the New Hampshire PAP (particularly in the MOE segment) base bill credits on results aggregated (sometimes with weights) across metrics, products, and/or CLECs. Such aggregation, particularly the aggregation across metrics measuring very different processes, is confusing and subverts the value of targeting the individual sources of poor performance. For example, if there is poor provisioning performance but good performance for the other wholesale processes (pre-ordering, ordering, maintenance and repair, billing, *etc.*), the poor provisioning performance can be outweighed by the good performance on the other processes, thereby eliminating a penalty for the poor provisioning performance and reducing the incentive to correct it. Similar considerations apply for product-specific and CLEC-specific poor performance.

There is, however, a practical limit to applying statistical tests to finer and finer subdivisions of metrics, products, and carriers. As noted below, when the number of transactions involved

become so low, the statistical testing can lead to biases. There are also certain metrics, such as those measuring interface availability, that are intrinsically measured at the aggregate CLEC level. As a result, there are circumstances where aggregation across products and CLECs may be advisable, but such aggregation should only be used where the nature of the metric or low volume of transactions require it. A balance needs to be achieved between over-aggregation and under-aggregation of metric results for determining penalties.

Liberty is not familiar with any current performance assurance plans that address this issue ideally. The non-Verizon-originated plans we reviewed avoid the mixing across metrics, products, and CLECs that characterizes the Verizon/FairPoint plans. The Florida and Georgia SEEMs, on the other hand, go to the other extreme, using a particularly complex mechanism of statistical testing in small “cells” based on various transaction characteristics, including product and intrastate geography. The need for this complexity is questionable and, in any case, better suited to higher volume competitive local service markets than that in New Hampshire. Some of the California PIP metrics are reported at a regional rather than state-wide level, but such detailed disaggregations require the higher volumes of larger markets like California to be meaningful.

3. Dollars at Risk

The dollars at risk for missing the metric standards comprise a key incentive for the incumbent to provide good performance in wholesale processes. The magnitude of penalties for poor performance should be sufficiently large to incent better performance but not so large as to be unnecessarily punitive. The FCC’s BANY Order concluded that the potential liability of a performance assurance plan should provide “a meaningful and significant incentive to comply with the designated performance standards.” Ideally, these penalties should be directly related to the competitive harm caused by the performance failure. Quantifying such harm is very difficult, however, particularly at the individual metric level.

Performance assurance plans, including the New Hampshire PAP, generally specify both the penalty amount per metric failure and an overall cap on penalties. The FCC noted in its BANY order that the New York PAP’s cap represented 36 percent of the net return, and this appears to have formed the basis for caps used in other performance assurance plans, which have typically been in the 35 to 40 percent range.⁵²⁹ Unlike the caps, the penalty amounts per metric failure have generally been fairly arbitrary, although at least one commission, the California Public Utilities Commission, did establish a quantitative relationship between the individual penalty amounts and the overall cap when it originally established these amounts.⁵³⁰ Nevertheless, this approach was developed for RBOCs, which are financially robust companies. Using net return as a measure of dollars at risk is not likely to apply well to a company like FairPoint, which has only recently emerged from bankruptcy.

⁵²⁹ See, for example, the California Public Utilities Commission order approving the PIP: Decision 02-03-023, March 6, 2002, which references caps in other jurisdictions.

⁵³⁰ California Public Utilities Commission Decision 02-03-023, March 6, 2002.

Liberty recommends instead that the cap and individual metric penalties of the New Hampshire PAP be based on those originally adopted for the PAP but adjusted to recognize the changed status of the current competitive telecommunications market from that when the PAP was originally adopted. Using a financial measure, such as the change in net return, not only may not be well suited to the current incumbent but also confounds the effect of the changed marketplace with the different financial structures resulting from the change in ownership between Verizon and FairPoint during this period. Liberty recommends using the change in the number of lines as a more neutral, alternative measure of the market change. These lines must include both those used by the incumbent to serve its own customers and those either resold or leased to CLECs. That is, the lines lost by the incumbent should only include lines lost to fully facilities-based carriers like cable and wireless companies. Otherwise, the penalties would not be reflective of the size of the wholesale market. Liberty recognizes that some PAP metrics measure services provided to fully facilities-based carriers, such as those that measure number porting. These metrics, however, represent a small percentage of the overall PAP metrics.

To use hypothetical numbers as an example of this approach, assume that when the New Hampshire PAP was originally approved, Verizon owned 700,000 New Hampshire access lines and access-line equivalents used both to serve Verizon's retail customers and leased to CLECs through Resale or UNEs. Assume that now the number of lines meeting this description is 420,000 (60 percent of 700,000). Then, the current annual cap of \$42.8 million would be adjusted to 60 percent of that value, or \$25.7 million. Similarly, each potential bill credit amount should also be adjusted downward to account for the 40 percent reduction in lines. Each discrete bill credit liability cannot be reduced by 40 percent, however, without parallel consideration of the need for structural changes. In fact, we believe, as already noted, that significant structural PAP changes should be made. Therefore, the individual metric penalties in the new PAP should be adjusted so that if the current PAP mechanism produces \$500,000 in bill credits annually in this hypothetical example, the same average level of performance would produce \$300,000 in bill credits.

4. Assessing Penalties

Performance incentives should be focused on the most critical performance areas. One way to achieve this is to make the dollars at risk depend on the perceived importance of the processes and products measured by each metric. For example, if the parties were to agree that late provisioning has more impact on CLEC operations than a late firm order confirmation, it would be appropriate to assess a higher penalty for failure to meet the late provisioning standard than for failure to meet the late firm order confirmation standard. Performance assurance plans in other jurisdictions frequently make such distinctions. The QPAPs, for example, classify the metrics into low-payment, medium-payment, and high-payment categories. The revised California PIP designated a few metrics as "primary" metrics, which receive double the penalties used for the other metrics for missing the standard

It is generally appropriate to base penalties on the number of failures and their deviation from the standard, once the appropriate statistical test to determine whether the failure rate is statistically significant has been satisfied. The current New Hampshire PAP, like all Verizon-originated PAPs, bases penalties on the magnitude of the failures to some degree. However, the practice in the Verizon PAPs of using Z-scores to measure the magnitude of a failure is inappropriate. An alternative approach is illustrated by the CPAP, QPAPs, and Indiana PARP. In these plans, metrics are divided between those for which the penalties are assessed on a “per occurrence” basis and those for which the penalties are assessed on a “per measurement” basis. For the “per measurement” metrics, a fixed penalty is assessed if the statistical test has met the specified significance threshold. For the “per occurrence” metrics, which comprise most of the metrics, the penalties depend on the extent of the deviation from the standard once the statistical significance threshold has been met. The measurement of the extent of the deviation depends on whether the standard is a benchmark or parity and the nature of the measured quantity (mean, proportion, or percentage), but the deviation is measured in absolute terms rather than in Z-score “units.”

The length of time poor performance has continued provides another important element to use in assessing penalties. The Verizon PAPs use the “look back” mechanism as a partial means of addressing this, but problems with this approach have already been noted. An alternative approach is for penalties to escalate if poor performance for a metric continues in consecutive months, with penalties gradually lowering again once good performance is sustained for consecutive months. The CPAP, QPAPs, California PIP, Indiana PARP, and Florida and Georgia SEEMs use variants of this approach.

5. Low Transaction Volumes

The New Hampshire PAP, like most PAPs, contains special procedures to use for statistical testing when the sample sizes are small. Nevertheless, statistical tests on small sample sizes can lead to biased results, even after applying special statistical techniques to minimize such biases. These biases also have no intrinsic “direction.” Depending on the circumstances, they can sometimes bias the results against the Company (Type I errors) and sometimes against the CLECs (Type II errors), but the most common bias is a Type II error. PAPs generally have been designed under the assumption that such small-sample-size procedures would be used in exceptional circumstances, rather than as the norm. Liberty has noted that a significant number of the metric disaggregations in the current New Hampshire PAP reported 10 or fewer CLEC-aggregate transactions per month during 2011. Several others reported results only occasionally above 10 transactions in a month. Of course, this means that the reported sample sizes per CLEC are even smaller. Hence, a large fraction of the determination of bill credits is based on small-sample-size testing. Liberty believes that changes to the PAP should be considered that minimize the significant impact of the biases inherent in small sample sizes on the calculation of bill credits.

There are a number of methods that can be used to address the low-volume issue:

1. Eliminate some metrics, sub-metrics, or product disaggregations from the PAP that measure quantities that are not a significant or meaningful component of the

New Hampshire competitive local exchange market.⁵³¹ Such metrics, sub-metrics, or disaggregations could be monitored after removal, with the possibility for reinstatement in the PAP if they show evidence of increased activity or backsliding in performance. The CPAP and Florida SEEMs have used variants of this approach

2. Collapse some product disaggregations. The New Hampshire C2C Guidelines and PAP contain a number of metrics that disaggregate reported results into a very large number of product types, particularly for ordering, provisioning, and maintenance and repair metrics. Many of these could be combined together without losing significant discrimination in assessing the results, particularly in view of the biases that are likely to occur in low-sample-size statistical tests. Good candidates for collapsing product disaggregations are products with similar characteristics and the same or similar standards (retail analogs or benchmarks). Liberty has noted the following examples in reviewing the reported results:
 - a. Combine business and residence Resale POTS as a single disaggregation. Residence Resale POTS is a low-volume product. Many of the C2C Metrics already report combined business and residence Resale POTS.
 - b. Combine UNE and Resale special services along with Resale 2-Wire Digital as a single disaggregation. These are low-volume products and the retail analogs for UNE and Resale special services at each level (DS0, DS1, DS3, and other) are the same. Although there are some significant differences in provisioning and maintenance process by special services level, with the higher levels being significantly more complex to provision and maintain, the small sample sizes can distort and bias the comparisons with retail, thereby undermining the ability to properly measure any distinctions by level.
 - c. Combine all UNE 2-Wire Digital services (2-Wire Digital Loops and 2-Wire xDSL Loops) as a single disaggregation. These products have the same retail analogue for many metrics.
3. Aggregate results across CLECs. To ensure appropriate targeting for penalties, this technique should be restricted to cases where the transaction volumes for individual CLECs for an individual month are too low (*e.g.*, less than 10). If this technique is used, bill credits would be determined at the CLEC aggregate level and allocated to the individual CLECs based on the percentage of non-conforming transactions associated with each CLEC.
4. Aggregate results across time. When the number of transactions in a month is too low for a metric even after aggregating across CLECs, months could be combined together. For example, the results could be analyzed by quarter or even annually, if the number of transactions is very low.

⁵³¹ An alternative approach to aggregating across results from different measurements is illustrated by the BellSouth PAP, which uses statistical testing at a “cell” level and then aggregates the results to determine an overall penalty. This approach has the disadvantage of being fairly complex and lacking transparency in identifying the sources of the penalties, since they are buried in the details of the statistical calculations.

5. Combine some sub-metrics. This applies to sub-metric distinctions that may no longer be relevant or useful. Examples might include collapsing the distinction between central office and loop troubles and eliminating many of the different time periods for the MR-4 out-of-service metrics.
6. Adjust the parameters used to test for compliance with the standard. Some performance assurance plans, notably the California PIP and CPAP, originally incorporated procedures to adjust the conditions for testing whether the observed metric values meet the retail analog or benchmark standards. Such adjustments help to reduce the Type II errors by adjusting the Z-Score thresholds for retail analog comparisons and “permitted misses” for benchmarks. These adjustments, however, also increase the Type I errors. They are confusing and non-transparent features. We note that many of these features have been dropped in subsequent modifications of the California PIP and CPAP.

Liberty is not familiar with any existing PAPs that satisfactorily address the potential low-volume distortions. These PAPs were generally adopted at a time during which there were much larger overall competitive local service transaction volumes and were typically initially introduced in jurisdictions with intrinsically larger competitive local markets. The PAP designers therefore believed low-volume conditions would be rare. As the local service market has evolved, however, the frequency of low-volume statistical testing has escalated. The PAPs mechanisms have largely remained fixed perhaps because few PAP stakeholders, whether incumbents or CLECs, are fully aware of the extent of the problem.

6. Simplified Metrics

Liberty observed mistakes in calculating the metrics comprised the largest source of error in FairPoint’s New Hampshire PAP implementation. FairPoint’s calculation of bill credits, once the metric values had been calculated, had significantly fewer errors. Liberty also observed that metric calculation errors often resulted from the large number of metric disaggregations and the complexity of the metric definitions, requiring measurements and exclusions of transactions that are often difficult to implement. We recommend, therefore, that the C2C Metrics used in the New Hampshire should be reduced in number and simplified. Some examples of complexities that should be addressed are:

- Elimination of complicated and unnecessary segmentations of products into different categories, which are difficult to implement and prone to error. Examples of this include distinguishing pre-qualified complex services from complex services that are not pre-qualified for both Resale and for UNEs; disaggregation of Business and Residence Resale POTS; and disaggregation of 2-wire digital, ISDB-BRI, and 2-wire xDSL. This suggestion complements the proposals regarding treatment of low volumes, since many fine distinctions among product categories result in low transaction volumes.
- Avoidance of sub-metric disaggregations, transaction exclusions, and business rules that are difficult to implement, particularly those affecting only a small

number of transactions. Examples of this include the exclusion for incorrect notifiers for a reject, confirmation sent on the same order and the disaggregation of sub-metrics based on line counts, and exclusion of “translation and switch” troubles from the MR retail analogs.

- Reduce the number of metrics and sub-metric disaggregations to only those that are critical indicators of FairPoint’s performance to allow for better focus on these metrics.

The advisability of using fewer metrics has been recognized in other performance-plan simplification initiatives. The 2008 modification of the California PIP, for example, eliminated or modified approximately half of the original performance metrics used in the plan.

7. “Diagnostic” Metrics⁵³²

Liberty believes that metrics that simply monitor processes without affecting bill credits are of limited utility. It is best to keep these metrics to a minimum, limiting them to special situations that help explain other metrics that are part of the PAP calculations. However, it is appropriate to maintain some metrics solely for monitoring purposes because they illuminate the results of metrics that are part of the PAP calculations. Examples of this include:

- OR-5-01 (% Flow-through – Total). This metric measures the percentage of all CLEC orders received by FairPoint that flow-through to FairPoint’s back-end systems without requiring human intervention. It is helpful in evaluating OR-5-03, which measures the percentage flowing through of only those orders that are considered “flow-through eligible.” OR-5-01 can provide a useful indication of whether FairPoint’s systems and process need to be enhanced to increase types of orders that are flow-through eligible.
- MR-2 (Trouble Report Rate). This metric can help with interpreting the results of other MR metrics. As noted below, this metric should also be considered for inclusion in the PAP.
- NP-1-01 (% Final Trunk Groups Exceeding Blocking Standard) and NP-1-02 (% Final Trunk Groups Exceeding Blocking Standard (No Exclusions)). These metrics measure the trunk group blocking in one month, while the two additional NP-1 metrics, NP-1-03 and NP-1-04, which are used for bill credit calculations, measure the blocking for two and three months, respectively. NP-1-01 and NP-1-02 provide a helpful way of evaluating the NP-1-03 and NP-1-04 results, by showing the effect of moving the metric measurement period from one month to two and three months and the impact of the exclusions. As noted below, NP-1-01 should also be considered for inclusion in the PAP.

⁵³² This term has different meanings in different contexts. Here the term “diagnostic metric” is meant to include all metrics that are reported but are not used in calculating penalties, whether or not they have standards defined.

8. New Metrics

It is worth considering adding a few targeted metrics to the PAP in cases where important processes are currently insufficiently monitored. The following New Hampshire metrics that are in the C2C Guidelines but do not contribute to the PAP bill-credit calculations are possible examples of this:

- PO-1-09 Average Response Time – Parsed CSR
- PO-3-02 Contact Center Availability: % Answered within 30 Seconds – Ordering
- PO-3-04 Contact Center Availability: % Answered within 30 Seconds – Repair

Some of the current New Hampshire C2C metrics that do not currently contribute to PAP payments should be considered for inclusion in the PAP. Two examples of this, both of which are similar to metrics that are often used in other performance assurance plans are:

- MR-2 (Trouble Report Rate). This metric can help with interpreting the results of other MR metrics. Trouble Report Rate metrics are included, for example, in the CPAP, the QPAPs, the California PIP, the Indiana PARP, and the Florida and Georgia SEEMs. The California PIP not only uses a Trouble Report Rate metric but includes it among the few designated as “primary” metrics that receive double penalty amounts.
- NP-1-01 (% Final Trunk Groups Exceeding Blocking Standard). Metrics similar to this are used in the California PIP, Georgia and Florida SEEMs, and the QPAPs.

Other metrics not currently among the New Hampshire C2C Metrics might also be worth adding, particularly those measuring processes that CLECs have indicated are problematic. As noted above, it is best to keep metrics that simply monitor processes without affecting bill credits to a minimum. Therefore, most additional metrics should either be implemented into the PAP bill credit calculations or, if that is considered premature, a process should be established where the metrics are monitored for a limited period of time (*e.g.*, one year), after which a decision is made to either incorporate them into the PAP calculations or drop them from reporting. The following are a few examples of metrics that should be considered either for addition to the PAP or for review during a short monitoring to determine if they should be incorporated into the PAP:

- Metrics that measure the timeliness and accuracy of updating the directory assistance databases. Such metrics are part of the Qwest PAP, for example, specifically DB-1 (Time to Update Databases) and DB-2 (Accurate Database Updates).
- Metrics that measure the timeliness and accuracy of provisioning directory listings. Liberty notes that Verizon has used a metric in Pennsylvania that measures directory listing provisioning: GE-6 (Timely and Accurate Provisioning of White Pages Directory Listings). The sub-metric GE-6-01 measures the timeliness and the sub-metric GE-6-02 measures the accuracy. Although not currently applicable to New Hampshire, this metric is defined in the New Hampshire C2C Guidelines.

When considering the adoption of new metrics, Liberty suggests that the industry parties consider Recommendation #10 of this audit report, which recommends review of the current C2C Metric definitions and FairPoint's interpretation of them. Of particular note is the impact of the definition of the provisioning interval.

9. Audits

As an auditor, Liberty does not believe it appropriate to make specific recommendations about any required auditing of a revised PAP. We note, however, that when wholesale PAPs in other jurisdictions had newly been introduced, the general practice was for an audit to be performed, usually annually, by an independent auditor chosen by the regulatory staff, and the ILEC was responsible for audit costs, regardless of the audit findings. Now that these PAPs have been in operation for a number of years, the current practice in most jurisdictions is for any audits to be optional. The Verizon PAPs, for example, have provision for CLECs to challenge the accuracy of the metric reports, which can trigger an audit by an independent auditor chosen by Verizon. If the auditor finds no material errors, the CLEC is responsible for paying the audit costs.

D. Summary

Liberty believes that an industry collaborative process is the best approach to determining the details of a revised PAP. However, experience from other jurisdictions can provide helpful guidance in this process. Based on experience with PAPs in other jurisdictions, Liberty suggests that the parties to the northern New England PAP collaborative considering the following recommendations:

1. Avoid complex and non-transparent mechanisms by:
 - a. Not dividing metrics into PAP segments
 - b. Not combining metric results with weights to determine bill credits
 - c. Not using "look-back" mechanisms
 - d. Not using Z-scores to measure the "magnitude" of failures, rather than simply as a test for the statistical significance of the failures.
2. Target penalties as much as possible to individual measurements and to individual carriers experiencing poor performance.
3. Adjust the dollars at risk from the current PAP values based on the change in the incumbent-owned lines, including both the incumbent's retail and leased lines.
4. Base penalty amounts on:
 - a. The importance of the process measured by each metric
 - b. The "magnitude" of the failures, but not using Z-score "units"
 - c. How long the failures have continued for a metric.
5. Avoid having penalties based mainly on low-volume statistical testing by:

- a. Eliminating metrics, sub-metrics, or product disaggregations that measure quantities that are not a significant or meaningful component of the New Hampshire competitive local exchange market
 - b. Collapsing product disaggregations
 - c. Aggregating results across CLECs
 - d. Aggregating results across time
 - e. Combining sub-metrics.
6. Avoid metric definitions requiring complex calculations and complicated data analysis
 7. Minimize the use of diagnostic metrics.
 8. Add new metrics when important processes are currently insufficiently monitored, but include them in the PAP as much as possible rather than making them diagnostic.

Appendix A. Metric Data Sources and Analysis Months

The following table shows the origin of the data used for each of the in-scope sub-metrics:⁵³³

Table A-1
In-Scope Sub-Metric Data Sources and Analysis Months

Sub-Metric	Sub-Metric Name	Calculation Method	Data Source	Data Availability	Liberty Analysis Months
PO-1	Response Time OSS Pre-Ordering Interface	Automated	Wisor	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
PO-2	OSS Interface Availability	Manual	Wholesale Help Desk Outage Reports	Full audit period (Jan. – Dec. 2011)	Jan. – Dec. 2011
PO-4	Timeliness of Change Management Notice	Manual	Spreadsheet	Full audit period (Jan. – Dec. 2011)	Jan. – Dec. 2011
PO-6	Software Validation	Manual	Validator	N/A – not reported during 2011	N/A – not reported during 2011
PO-8	Manual Loop Qualification	Manual	Loop Qualification Request and Response e-mails	Full audit period (new calculation process used only for Sept. – Dec. 2011)	Sept. – Dec. 2011
OR-1 (except OR-1-12)	Order Confirmation Timeliness	Automated	Wisor, M6	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
OR-1-12	% On Time FOC	Automated	Wisor	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
OR-2	Reject Timeliness	Automated	Wisor	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
OR-4	Timeliness of Completion Notification	Automated	Wisor, M6	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
OR-5	Percent Flow-Through	Automated	Wisor, M6	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
OR-6-03	Order Accuracy: % Accuracy - LSRC	Manual/ Automated ⁵³⁴	Wisor, M6 (Wisor data from CAMP before Dec.)	Full audit period (automated process used only in Dec. 2011)	Dec. 2011

⁵³³ Response to Data Request #7 supplemental and Interviews #1, #4, #5, #6, #8, and #9, November 8 and 9, 2011.

⁵³⁴ Beginning with the December 2011 data month, FairPoint began automated calculation of the OR-6-03 sub-metric. Responses to Data Requests #234 and #234 clarification.

Sub-Metric	Sub-Metric Name	Calculation Method	Data Source	Data Availability	Liberty Analysis Months
OR-6-04	Order Accuracy: % Accuracy – Directory Listing	Manual	Wisor (data from CAMP)	Manual spreadsheets – full audit period; source data used in spreadsheets – Sept. – Nov. 2011; new process – Aug. – Dec. 2011	Aug. – Dec. 2011
PR-4 (except PR-4-07)	Missed Appointments	Automated	M6	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
PR-4-07	% On Time Performance – LNP Only	Automated	M6, MARCH	CAMP Staging and ODS beginning Aug. 2011 (except MARCH system data)	Aug. and Dec. 2011
PR-5	Facility Missed Orders	Automated	M6	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
PR-6	Installation Quality	Automated	M6, Remedy	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
PR-8	Percent Orders in Hold Status	Automated	M6	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
PR-9-01	% On Time Performance – Hot Cut	Manual	Manual review of data from Wisor and M6	Full audit period (Jan. – Dec. 2011)	Some analysis Jan. – Dec. 2011; full analysis Aug. and Dec. 2011
PR-9-08	Average Duration of Hot Cut Troubles	Automated	Siebel, Remedy, M6, and Wisor ⁵³⁵	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
MR-2	Trouble Report Rate	Automated	Siebel, Remedy	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
MR-3	Missed Repair Appointments	Automated	Siebel, Remedy	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
MR-4	Trouble Duration Intervals	Automated	Siebel, Remedy	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
MR-5	Repeat Trouble Reports	Automated	Siebel, Remedy	CAMP Staging and ODS beginning Aug. 2011	Aug. and Dec. 2011
NP-1	Percent Final Trunk Group Blockage	Manual	Previsor	Full Audit Period (Jan. – Dec. 2011)	Jan. – Dec. 2011

⁵³⁵ Responses to Data Requests #7 and #77.

Sub-Metric	Sub-Metric Name	Calculation Method	Data Source	Data Availability	Liberty Analysis Months
NP-2	Collocation Performance	Manual	Spreadsheets	Full audit period (Jan. – Dec. 2011)	Jan. – Dec. 2011
BI-1	Timeliness of Daily Usage Feed	Manual	Kenan DM	Full audit period (Jan. – Dec. 2011)	Jan. – Dec. 2011
BI-3	Billing Accuracy & Claims Processing	Manual	Claims Desktop	Full audit period (Jan. – Dec. 2011)	Some analysis Jan. – Dec. 2011; full analysis Aug. and Dec. 2011

Appendix B. Summary and Status of Defect Findings

The following table summarizes and provides the current status of the audit findings that indicate defects in the C2C metric or PAP calculations.

The column labeled “Potential Impact” represents Liberty’s judgment, when sufficient information is available to make one, of the potential impact of the defects on the metric calculations. The impact designations are defined as follows:

- “High” indicates a defect that is likely to consistently and significantly affect one or more sub-metrics
- “Medium” indicates a defect that is likely to consistently and significantly affect only one or a few metric product sub-codes, may sometimes affect many sub-metrics and product sub-codes, or had a temporary significant effect on one or more sub-metrics
- “Low” indicates a defect that is likely to sometimes affect only a few sub-metrics and product sub-codes.

Depending on circumstances, findings that Liberty has judged to have a high impact could significantly affect the number of and quantities associated with many transactions in the metric calculations but have limited overall impact on the final calculated metric values because of cancelling effects. Similarly, findings judged to have a medium or low impact overall might significantly affect metric values under certain circumstances, particularly when there are relatively few transactions included in a sub-metric calculation for a given month or when multiple medium- or low-impact defects affect a metric. Furthermore, even a significant change in a metric value may not affect the bill credits, given the PAP rules for calculating the bill credits. Thus, the actual impact of these findings requires detailed recalculation of the metrics and PAP bill credits after all corrections have been implemented (See Recommendation #3).

The column labeled “Metrics Affected” only list those sub-metrics which were in scope for this audit. It is likely that other metrics that were not in-scope are also affected by many of these defects.

The column labeled “FairPoint Response” provides Liberty’s understanding of FairPoint’s responses to or actions taken to resolve the defects. A blank in this column indicates that Liberty does not know FairPoint’s response to the finding. Most actions FairPoint has taken to correct the defects have occurred in 2012 on a going-forward basis. Because the analysis of 2012 data is outside the scope of this audit, Liberty has not assessed the effectiveness of any corrections made during 2012.

Table B-1
Audit Defect Findings Summary and Status

ID	Defect Finding	Metrics Affected	FairPoint Response	Potential Impact	Report Refs.	Audit Refs.
1	Metric documentation is incomplete and contains many inconsistencies and inaccuracies	All	Partially corrected, reviewing and updating documentation	Medium	V.A.2	Int. #16 DRs #165, #166, #167, #185, #187, #188, #192, #195, #196, #211, #221, #222 clar., #225, #226, #240, #261, #263, #279, #311, #312, #313 3 rd clar., #319, #337, #341, #342, #355, #357, #366, #368, #369, #370, #375 clar., #388, #397, #456, #480, #489, #491, #554, dr. rpt. rsp.
2	The metric review and adjustment process only includes wholesale metric values that do not meet the standard	All automated OR, PR, and MR sub-metrics	New process under investigation	High	V.A.3	DRs #287, #288, #298, #302, #302 clar., #309, #310, #379, #380, #381, #382, #383, #389, #393, dr. rpt. rsp.
3	Service requests for number ports are included in the wrong sub-metrics	OR-1-02, OR-1-04, OR-2-02, OR-2-04, OR-5-03	Corrected 7/30/12	High	V.A.4	DRs #287, #412, #426, #427, #429, #437, #438, #439, dr. rpt. rsp.
4	Hot cut service requests are included in Resale product sub-codes	OR-1-02, OR-1-04, OR-2-02, OR-2-04, OR-5-03	Corrected 7/30/12	Medium	V.A.4	DRs #287, #427, #438, dr. rpt. rsp.

ID	Defect Finding	Metrics Affected	FairPoint Response	Potential Impact	Report Refs.	Audit Refs.
5	Service requests for digital products are incorrectly included in metric product sub-code 3331, sometimes also causing duplication between that product sub-code and sub-codes 3341 and 3342	OR-1-02, OR-1-04, OR-1-06, OR-2-02, OR-2-04, OR-2-06, OR-6-03	SMP proposal would resolve issue	Medium	V.A.4	DRs #199, #429, dr. rpt. rsp.
6	Service requests are duplicated between metric product sub-codes 2320 and 2341	OR-1-02, OR-1-04, OR-1-06, OR-2-04, OR-2-06	SMP proposal would resolve issue	Medium,	V.A.4	DR #491, dr. rpt. rsp.
7	Logic errors and missing data in a look-up table can cause wrong product assignments for service requests	OR-1-02, OR-1-04, OR-1-06, OR-2-02, OR-2-04, OR-2-06, OR-5-03, OR-6-03	Correction planned	Low	V.A.4	DR #153, #240, #241, #242, #243, #511
8	Reciprocal interconnection trunks are not included	All automated OR, PR, and MR sub-metrics with trunk sub-codes	Corrected 7/30/12	Low	V.A.4	DR #159, #159 clar., dr. rpt. rsp.
9	Wholesale Package DSL orders are included	All automated OR, PR, and MR sub-metrics with 3331 and 3342 sub-codes	Correction planned	Low	V.A.4	DR #431 2 nd and 3 rd clar.
10	Errors in the USOC-to-product-code mapping tables cause wrong assignments to metric product sub-codes	All automated OR, PR, and MR sub-metrics	Corrected 10/29/12	Medium	V.A.4	DRs #440, #441, #445, #452, #453, #454, #455, #457, #468, #460, #461, #463, #463, #467, #553, dr. rpt. rsp.

ID	Defect Finding	Metrics Affected	FairPoint Response	Potential Impact	Report Refs.	Audit Refs.
11	Line sharing is incorrectly included in in product sub-code 3342	OR-1-04, OR-1-06, OR-2-04, OR-2-06, PR-4-02, PR-4-14, PR-6-01, PR-8-01, MR-2-03, MR-3-01, MR-3-02, MR-4-02, MR-4-03, MR-4-07, MR-4-08, MR-5-01	Corrected 2/27/12	Medium	V.A.4	DR #293, #293 clar., #317, dr. rpt. rsp.
12	EELs and interoffice trunks are incorrectly classified as UNE Specials	PR-4-01, PR-6-01, PR-8-01, MR-4-01, MR-4-06, MR-4-08, MR-5-01	Correction planned	Medium	V.A.4	DR #358
13	Number port orders are included in inappropriate provisioning metric product sub-codes	PR-4-05, PR-4-07, PR-5-02, PR-6-01, PR-6-02	Corrected 8/29/12	Medium	V.A.4	DR #333, dr. rpt. rsp.
14	An arbitrary process, based on the most recent service orders, is used to associate troubles with products when POTS and DSL are provided on the same line	PR-6-01, PR-6-02, PR-9-08, MR2-03, MR-3-01, MR-3-02, MR-4-02, MR-4-03, MR-4-07, MR-4-08, MR-5-01	Correction planned	High	V.A.4	DRs #339, #351
15	Some valid troubles are excluded when lines are disconnected or added during the report month	PR-6-01, PR-6-02, PR-9-08, all MR metrics	Correction planned	Medium	V.A.4	DRs #353 2 nd clar., #477 clar.
16	The line-to-trouble matching scheme has some logic errors	PR-6-01, PR-6-02, PR-9-08, all MR metrics	Correction planned	Low	V.A.4	DR #477 clar., dr. rpt. rsp.

ID	Defect Finding	Metrics Affected	FairPoint Response	Potential Impact	Report Refs.	Audit Refs.
17	The metric implementation makes it impossible determine whether transactions fail to meet the standard	PO-1-01, PO-1-06	SMP proposal would resolve issue	High	V.B.1	Int. #4, dr. rpt. rsp.
18	Pre-ordering transactions are dropped due to invalid timestamps	PO-1-01, PO-1-06	Resolved, continuing to monitor	Medium	V.B.1	DRs #272, #409, #416, #474, #500, dr. rpt. rsp.
19	Most GUI transactions are misclassified as EDI	PO-1-01, PO-1-06, OR-4-16, OR-4-17	Corrected in Wisor 3/2012, & in CAMP beginning with 5/2012 (PO-1) & 9/2012 (OR-4) data months	High	V.B.1	DRs #124, #125, #260, dr. rpt. rsp.
20	Only the most recent transaction is included when pre-orders have the same transaction number and type	PO-1-01, PO-1-06	Corrected 11/29/12	Low	V.B.1	DR #481 clar., dr. rpt. rsp.
21	Incorrect manual loop qualification timestamps were used prior to September 2011	PO-8-01	New process 10/2011 for 9/2011 data month	Medium	V.B.5	Int. #4, DR #2, dr. rpt. rsp.
22	The MSAG update time is excluded in calculating loop qualification timeliness for loops with addresses not populated in the MSAG	PO-8-01	SMP proposal would resolve issue	Low	V.B.5	DRs #119, #476, dr. rpt. rsp.
23	Incorrect notifiers are not excluded in LSR confirmation and reject timeliness calculations	OR-1-02, OR-1-04, OR-1-06, OR-1-12, OR-2-02, OR-2-04, OR-2-06, OR-2-12	Under investigation	Low	V.C.1	DR #488, dr. rpt. rsp.
24	Only the first LSR confirmation sent is counted in the confirmation timeliness calculation	OR-1-02, OR-1-04, OR-1-06, OR-1-12	Under investigation	Low	V.C.1	Int. #5, DRs #40, #184, #221, dr. rpt. rsp.
25	Orders that actually flowed through are not accurately identified	OR-1-02, OR-1-04, OR-1-06, OR-2-02, OR-2-04, OR-2-06, OR-5-03, OR-6-03, OR-6-04	Correcting in phases: some during 2011; on 3/28/12, 7/30/12, and 11/29/12; others continuing in 2013	High	V.C.1	DRs #212, #235, #256, #267, #343, #344, #385, #390, #391, #428, #430, #435, #450, dr. rpt. rsp.

ID	Defect Finding	Metrics Affected	FairPoint Response	Potential Impact	Report Refs.	Audit Refs.
26	Designed flow-through is inappropriately used as a criterion in determining LSRC timelines	OR-1-02, OR-1-04, OR-1-06, OR-2-02, OR-2-04, OR-2-06	Corrected for 3/2012 data month	High	V.C.1	DRs #385, #430, #516, dr. rpt. rsp.
27	Related PONs are counted as separate transactions in LSR confirmation and reject timeliness calculations	OR-1-02, OR-1-04, OR-1-06, OR-1-12, OR-2-02, OR-2-04, OR-2-06, OR-2-12	SMP proposal would resolve issue	Low	V.C.1	DR #39, #81, dr. rpt. rsp.
28	Confirmations of customer-requested service request cancellations are excluded	OR-1-02, OR-1-04, OR-1-06	Corrected 2/27/12	Medium	V.C.1	DR #182, dr. rpt. rsp.
29	Some late LSRCs are incorrectly identified as on time	OR-1-02	Corrected 9/28/12	Medium	V.C.1	DR #414, dr. rpt. rsp.
30	Service requests for exactly 5 lines are excluded when applying facility check requirements for LSRC timeliness reporting	OR-1-04	Corrected 5/29/12	Low	V.C.1	DR #187, dr. rpt.rsp.
31	The latest DLR due date is not used	OR-1-13	Correction planned	Medium	V.C.1	DR #389, dr. rpt. rsp.
32	DLRs are included before the completion date beginning in November 2011	OR-1-13	Correction planned	Medium	V.C.1	DR #533
33	Service requests with blanks in two data fields are excluded	OR-1-04	Corrected 9/28/12	Low	V.C.1	DR #535, dr. rpt. rsp.
34	A secondary method for determining the number of lines in LSR confirmation and reject timeliness calculations is inaccurate	OR-1-02, OR-1-04, OR-1-06, OR-1-12, OR-2-02, OR-2-04, OR-2-06, OR-2-12	Corrected 8/29/12	Low	V.C.1	DR #332, dr. rpt. rsp.
35	A few retail company codes are classified as wholesale in ordering metrics	All automated OR sub-metrics	Corrected 10/29/12	Low	V.C.1	DR #528, dr. rpt. rsp.
36	Some wholesale service requests may be excluded through the logic used to exclude internal orders	All automated OR and PR sub-metrics	Under investigation	Low	V.C.1	DR #368, #370, dr. rpt. rsp.
37	A secondary source of service request data does not contain all necessary data fields	All automated OR sub-metrics	Corrected 2/27/12 & 6/30/12	Low	V.C.1	DR #534, #546, dr. rpt. rsp.

ID	Defect Finding	Metrics Affected	FairPoint Response	Potential Impact	Report Refs.	Audit Refs.
38	The flow-through indicator for LSR reject timelines is not reliable	OR-2-02, OR-2-04, OR-2-06	Partial correction 3/28/12, other corrections planned	High	V.C.2	DRs #198, #516 clar., dr. rpt. rsp.
39	Invalid rejects are used in calculating LSR reject timeliness	OR-2-02, OR-2-04, OR-2-06, OR-2-12	Corrections 8/2012, 9/2012 & 12/2012; source system update also needed	Medium	V.C.2	DRs #200, #200 clar., dr. rpt. rsp.
40	Jeopardy notices sent after the ASR confirmation are included in calculating reject timeliness	OR-2-12	Correction planned	Low	V.C.2	DRs #202, #203, dr. rpt. rsp.
41	All directory listing orders are excluded in calculating completion notifier timeliness and percentage flow-through	OR-4-17, OR-5-03	Corrected 3/28/12 (OR-5) & 5/29/12 (OR-4)	High	V.C.3	DRs #7, #22, #102, #124, #125, #204 3 rd clar., #232 clar., dr. rpt. rsp.
42	Transactions in calculating completion notifier timeliness are excluded based on an irrelevant status in the provisioning work queues	OR-4-16, OR-4-17	Corrected 5/29/12	Low	V.C.3	DR #205, dr. rpt. rsp.
43	Premature completion notifiers are included in the notifier timeliness calculation	OR-4-16, OR-4-17	Corrected 7/30/12	Low	V.C.3	DR #207, #207 clar., #283, dr. rpt. rsp.
44	Some service orders are counted in the wrong month in calculating completion notifier timeliness	OR-4-16, OR-4-17	Corrected 5/29/12	Low	V.C.3	DR #270, #271, dr. rpt. rsp.
45	Any PCN sent within one business day, rather than only the PNC of the last completed service order, is used in calculating PCN timeliness for service requests requiring multiple service orders	OR-4-16	Corrected 3/28/12	Low	V.C.3	DR #83, dr. rpt. rsp.
46	FairPoint's BCNs are not reliable indicators that the billing records have been updated	OR-4-17	Correction planned	High	V.C.3	DR #42, #82, dr. rpt. rsp.
47	The PCN completion date rather than the BCN completion date is used for calculating BCN timeliness beginning in November 2011	OR-4-17	Corrected 5/29/12	Medium	V.C.3	DR #553, #553 clar., #556, dr. rpt. rsp.

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48	Orders that were designed to flow through are not accurately identified	OR-1-02, OR-1-04, OR-1-06, OR-2-02, OR-2-04, OR-2-06, OR-5-03	Correcting in phases: some on 7/30/12, and 11/29/12; others continuing in 2013	High	V.C.4	DRs #385, #516, #516 clar., #545, #547, #550, dr. rpt. rsp.
49	Some orders that fall out because of CLEC errors are not excluded from the percent flow-through calculations	OR-5-03	Under investigation	Low	V.C.4	Int. #5, dr. rpt. rsp.
50	The automated calculation of LSRC accuracy includes most orders in the wrong report month	OR-6-03	Corrected 2/27/12	Medium	V.C.5	Int. #22, DRs #234 clar., #308 clar., dr. rpt, rsp.
51	Expedited order confirmations are double counted in the LSRC accuracy denominator	OR-6-03	System change planned	Low	V.C.5	Int. #22, DRs #541
52	Confirmations of CLEC cancellations are excluded from the LSRC accuracy calculation	OR-6-03	Corrected 2/27/12, but added flow-through orders to the denominator, which will be corrected in a future release	Medium	V.C.5	Int. #22, DRs #540, dr. rpt. rsp.
53	The directory listing accuracy calculation is not in compliance with the C2C Guidelines prior to August 2011	OR-6-04	New process began in 8/2011	Medium (no bill credit impact – not a PAP metric)	V.C.5	Ints. #5, #11 DRs #49, #50
54	Disconnect orders are incorrectly included in directory listing accuracy calculations	OR-6-04	Disagrees	High (no bill credit impact – not a PAP metric)	V.C.5	Int. #11, DR #100 supp., dr. rpt. rsp.
55	The manual directory listing accuracy calculation excluded most directory listing orders in August 2011	OR-6-04	Insufficient time to review all orders using newly implemented process; corrected 9/2011	Medium (no bill credit impact – not a PAP metric)	V.C.5	Int. #11, dr. rpt. rsp.

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56	The manual directory listing accuracy calculation is incomplete and incorrectly reported in November 2011	OR-6-04	Corrected 12/2011	Low (no bill credit impact – not a PAP metric)	V.C.5	DRs #137, #138, dr. rpt. rsp.
57	Retail provisioning records are excluded because of flaws in the retail identification codes	All automated PR sub-metrics	Corrected 11/1/11 & 10/29/12	Medium	V.D.1	DRs #55 Errata, #292, #292 clar., #558, dr. rpt. rsp.
58	DS1 special access provisioning records are excluded from retail calculations because of null company code values	PR-4-01, PR-6-01, PR-8-01	Correction planned	Low	V.D.1	DR #396, dr. rpt. rsp.
59	Some service orders are reported in the wrong or multiple states	All automated PR sub-metrics, OR-4-16, OR-4-17	Correction planned	Medium	V.D.1	DRs #335 clar., #395 clar.
60	Some provisioning records are incorrectly excluded based on change activity indicator and disconnect activity code	All automated PR sub-metrics	Partial correction 6/30/12; additional changes planned	Medium	V.D.1	DRs #2, #158, #294, #295, #296 #305, #330 clar., #335 clar., dr. rpt. rsp.
61	Not all source provisioning records are downloaded when informational and new service records accompany the same service order	All automated PR sub-metrics	Correction planned	Medium	V.D.1	Int. #22 DR #522
62	Some valid trunk records are excluded from provisioning metrics	PR-4-15, PR-5-02, PR-6-01, PR-8-01	Corrected 2/27/12	Low	V.D.1	DRs #395 Errata, #395 clar., dr.rpt. rsp.
63	Provisioning records with multiple jeopardy codes are sometimes incorrectly excluded	All automated PR sub-metrics	Disagrees	Low	V.D.1	DRs #400, #465
64	Some provisioning records with jeopardies resolved before the provisioning due date are excluded	PR-4-14	Correction planned	Low	V.D.1	DRs #386
65	Some retail provisioning records are excluded because of a flaw in populating the billing completion date in the service order	PR-4-01, PR-4-02, PR-4-04, PR-4-05, PR-5-02, PR-6-01, PR-8-01	Correction planned	Low	V.D.1	DRs #471 2 nd clar., dr. rpt. rsp.

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66	Customer Not Ready orders are excluded from Percent On Time Provisioning - Trunks	PR-4-15	Corrected 5/29/12	Low	V.D.1	DRs #273, #375 clar., dr. rpt. rsp.
67	A MARCH data snapshot is not retained	PR-4-07	Corrected beginning 3/2012 data month	Low	V.D.1	DR #216
68	Customer-caused misses are excluded from the calculation of % On Time Performance – LNP Only	PR-4-07	SMP proposal would resolve issue	Low	V.D.1	DRs #217, #218
69	Canceled orders are included in the denominator but not the numerator of % On Time Performance – LNP Only	PR-4-07	Correction planned	Low	V.D.1	DRs #470
70	Orders are excluded from the numerator of % On Time Performance – LNP Only due to multiple logic errors	PR-4-07	Correction planned	Low	V.D.1	DRs #470, #471 clar.
71	Held order times are calculated based on business rather than calendar days	PR-5-02	Corrected 9/28/12	Low	V.D.2	DR #162, dr. rpt. rsp.
72	Some facility missed orders are improperly excluded from provisioning missed appointments metrics	PR-5-02	Partial correction 5/29/12; future correction planned	Low	V.D.2	DRs #236, #236 clar., dr. rpt. rsp.
73	Valid installation troubles are excluded by matching troubles with order completion dates only in the report month	PR-6-01, PR-6-02	Corrected 5/29/12	High	V.D.3	DR #387, dr. rpt. rsp.
74	Valid installation troubles are excluded because of a flaw in matching troubles with lines	PR-6-01	Corrected 10/29/12	High	V.D.3	DR #394, #554, dr. rpt. rsp.
75	Troubles with fault codes 0331 and 0332 are not excluded in calculating % Installation Troubles	PR-6-01	Corrected 7/29/12	Low	V.D.3	DRs #246, #301, #301 clar., #301 2 nd clar., #301 3 rd clar., dr. rpt. rsp.
76	The service order with the earliest completion date is used when there are multiple service orders in calculating % Installation Troubles	PR-6-01, PR-6-02	Correction planned	Low	V.D.3	DRs #449
77	Installation troubles are misclassified as repeat troubles by not checking whether there was installation activity between reported troubles	PR-6-01, MR-5-01	Correction planned	Medium	V.D.3, V.E.4	DRs #555, #555 clar.

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78	Percent Orders in Hold Status is calculated using a 29-day rather than 30-day threshold	PR-8-01	Corrected 2/27/12	Low	V.D.4	DRs #172, #395 clar., dr. rpt. rsp.
79	CLEC- or end-user-caused delays are incorrectly excluded only from the numerator of Percent Orders in Hold Status	PR-8-01	Disagrees	Low	V.D.4	DRs #171, #278, dr. rpt. rsp.
80	Records are excluded from the numerator of Percent Orders in Hold Status when PON field not populated	PR-8-01	Corrected 10/30/12	Medium	V.D.4	DRs #396 clar., #396 2 nd clar., dr. rpt. rsp.
81	Some fault codes are incorrectly identified as CPE troubles to be excluded	PR-9-08, MR-3-01, MR-4-01, MR-4-02, MR-4-06, MR-4-07, MR-4-08, MR-5-01	Corrected 7/29/12	Low	V.D.5, V.E.1	DRs #246, #301, #301 clar., #301 2 nd clar., #301 3 rd clar., dr. rpt. rsp.
82	Valid records excluded due to a logic error in calculating the service disruption interval	PR-9-08	Corrected 11/29/12	Low	V.D.5	DRs #477, dr. rpt. rsp.
83	Trouble reports on change order activity are included in calculating Average Duration of Service Disruption	PR-9-08	Correction planned	Low	V.D.5	DRs #478
84	Average Duration of Service Disruption was misreported in May 2011	PR-9-08	Corrected 8/11/11	Medium	V.D.5	DRs #277, dr. rpt. rsp.
85	Records for technician-reported troubles that are not also customer-reported are incorrectly excluded in calculating Average Duration of Service Disruption	PR-9-08	Disagrees	Low	V.D.5	DRs #174, dr. rpt. rsp.
86	Average Duration of Service Disruption was calculated using troubles within 6 rather than 7 days prior to July 2011	PR-9-08	Corrected 7/1/11	Low	V.D.5	DRs #173, dr. rpt. rsp.
87	Feature-change order troubles are included in calculating Average Duration of Service Disruption	PR-9-08	Correction planned	Low	V.D.5	DRs #519, #519 clar.
88	Translation and switch troubles for exclusion in the retail analogs of maintenance and repair metrics with product sub-codes 3312 and 3342 are incorrectly identified	MR-2-03, MR-3-02, MR-4-03, MR-4-07, MR-4-08	Corrected 8/29/12	Medium	V.E.1	DRs #336, #336 clar., #336 2 nd clar., #419, #419 clar., dr. rpt. rsp.

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89	The trouble report rate is not divided by 100 in reporting the trouble report rate metric	MR-2-03	Corrected 8/29/12	Low (no bill credit impact – not a PAP metric)	V.E.1	DR #423 clar., dr. rpt. rsp
90	Installation troubles are not excluded in calculating trouble report rate	MR-2-03	Correction planned	Low (no bill credit impact – not a PAP metric)	V.E.1	Int. #7, dr. rpt. rsp.
91	Translation and switch troubles are incorrectly excluded from wholesale Percent Missed Repair Appointments sub-metrics with product sub-codes 3312 and 3342	MR-3-02	Corrected 8/29/12	Medium	V.E.2	DRs #424, #424 clar., dr. rpt. rsp.
92	The process used for determining out-of-service troubles is inaccurate	MR-4-06, MR-4-07, MR-4-08	Partial CAMP correction implemented 1/30/12; more complete source system changes planned	High	V.E.3	DR #63, dr. rpt. rsp.
93	The resolution times of troubles for lines with a previous trouble within 30 days are double counted	MR-4-01, MR-4-02, MR-4-03	Corrected 5/29/12	Medium	V.E.3	DR #436, dr. rpt. rsp.
94	The trunk identification process does not capture all trunks for metric product sub-code 5000 of maintenance and repair metrics	MR-4-06, MR-4-08, MR-5-01	Correction planned	Low	V.E.3	DR #448
95	All previous troubles are not accurately identified in calculating Percent Repeat Trouble Reports	MR-5-01	Substantially corrected 5/29/12; remaining corrections planned	Medium	V.E.4	DR #557, dr. rpt. rsp.
96	Exclusion of no-access and misdirected troubles is incorrectly applied to all products rather than only loop products in calculating Percent Repeat Trouble Reports	MR-5-01	Disagrees, but applied some corrections	Low	V.E.4	DR #357, #357 clar., dr. rpt. rsp.
97	Some valid troubles are improperly excluded from the numerator but not the Percent Repeat Trouble Reports denominator	MR-5-01	Corrected 8/29/12	Medium	V.E.4	DR #446, #446 clar., dr. rpt. rsp.
98	A retail company identifier is incorrectly coded	MR-5-01	Corrected 11/2/11 for the Oct. 2011 data month	Low	V.E.4	DR #447. dr. rpt. rsp.

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99	Final trunk blocking is calculated by filtering out trunks with "maintenance issues" without clear justification in the C2C Guidelines	NP-1-03, NP-1-04	Disagrees	Low	V.F.1	DR #497, #497 2 nd clar.
100	The company-code filter sometimes incorrectly excludes CLEC trunk groups in calculating CLEC-aggregate final trunk blocking	NP-1-03, NP-1-04	Corrected 7/2012	Low	V.F.1	DR #487. dr. rpt. rsp.
101	Some errors were made in the manual spreadsheet process during 2011 in calculating final trunk blocking	NP-1-03, NP-1-04	Corrected 7/2012	Low	V.F.1	DR #483 clar., #483 2 nd clar., #487, #538 clar., dr. rpt. rsp.
102	The spreadsheet logic incorrectly sets two-month final trunk blocking to zero whenever three-month final trunk blocking is non-zero	NP-1-03	Corrected 6/2012	High	V.F.1	DR #486, dr. rpt. rsp.
103	Some errors in the manual spreadsheet process were made during 2011 in calculating collocation metrics	NP-2-01, NP-2-01/2, NP-2-05, NP-2-05/6	Agrees, monitoring going forward	Low	V.F.2	DRs #501, #502, #506, #506 clar., #507, #507 clar., #508, #508 clar., #543, dr. rpt. rsp.
104	DUF volumes were significantly underreported in December 2011 because of a systems configuration change	BI-1-02	Source system corrected beginning 1/2012 data month	Medium	V.G.1	DRs #303, #359, dr. rpt. rsp.
105	DUF records created but not transmitted are not included in calculating DUF timeliness	BI-1-02	Source system corrected beginning 1/2012 data month	Low	V.G.1	DR #359, dr. rpt. rsp.
106	DUF volumes were incorrectly reported in June 2011 because of a manual error	BI-1-02	Corrected 7/2011	Low	V.G.1	DR #249, dr. rpt. rsp.
107	The process for calculating billing claims metrics excludes some legitimate billing claims	BI-3-04, BI-3-05	Corrected 7/2012	Medium	V;G;2	DRs #250 clar, #250 2 nd clar., dr. rpt. rsp.
108	The process for calculating billing claims metrics can assign wrong receipt date to billing claims	BI-3-04	Under investigation	Low	V.G.2	DR #527, dr. rpt. rsp.

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109	The process for calculating billing claims metrics can assign billing claims to the wrong state	BI-3-04, BI-3-05	Corrected 7/2012	Low	V.G.2	DR #251 clar.
110	The process for calculating billing claims metrics can assign billing claims to the wrong CLEC	BI-3-04, BI-3-05	Corrected 7/2012	Low	V.G.2	DR #526 , dr. rpt. rsp.
111	Billing claims from interexchange carriers, internet service providers, and wireless carriers were included	BI-3-04, BI-3-05	Corrected 7/2012	High	V.G.2	DRs #523, #526, #526 clar., dr. rpt. rsp.
112	Billing claims made 60 calendar days after the bill date were not excluded prior to October 2011	BI-3-04, BI-3-05	Corrected 10/2011	Medium	V.G.2	DR #524, #524 Errata, dr. rpt. rsp.
113	Some errors in the manual spreadsheet process were made during 2011 in calculating billing claims metrics	BI-3-04, BI-3-05	Manual review process implemented in 2012	Low	V.G.2	DRs #250, #530, dr. rpt. rsp.
114	Incorrect implementation of the PAP requirements for Critical Measures with 95 percent standards can produce a larger than required bill credit in some cases	PAP Critical Measures with 95 % Standards	Corrected beginning with 7/2012 data month	Low	V.H.1	DR #515 2 nd clar., dr. rpt. rsp.
115	Incorrect implementation of the PAP requirements for measures with percentage, parity comparisons can produce a larger than required bill credit in some cases	PAP metrics with percentage, parity comparison	Correction planned	High	V.H.1	dr. rpt. rsp.