I.   **Description of Third Party IT Applications Implemented**

System Operations Applications

Liberty implemented the following applications – dates at which the application was implemented are shown in brackets; if the application was implemented for electric and gas then the date of implementation for gas is shown:

- Telvent ArcFM geographic information system for both electric and gas operations (July 2014)
- Telvent Designer application for electric operations only* (July 2014)
- Telvent Responder application for electric operations only (July 2014)
- Telvent OASyS SCADA system for both electric and gas operations (July 2014)
- FORTIS document management for both electric and gas operations* (September 2013)
- Gastar gas procurement application for gas operations only (April 2014)

denotes applications not included in the original scope or estimates provided in DG 11-040.

The role performed by each of these applications is summarized below:

ArcFM GIS – this application provides a geographic representation of Liberty's gas and electric distribution assets. The GIS is maintained by the Maps and Records group, who update the GIS with information relating to changes to Liberty's network as provided to them by Gas and Electric Operations. The GIS is referenced by staff performing both engineering and operations work on the network. The GIS is fundamental to the safe operation of our gas and electric distribution systems.

Telvent Designer – this application is an extension of the ArcFM GIS for electric operations. Using the depiction of the electric distribution network in the GIS as a starting point, it allows the Liberty engineering staff to design extensions and changes to the electric network in a simple and convenient way. Designer contains a library of compatible units used to build such extensions. Designer is integrated with the Quadra estimating application used by Liberty, which is in turn integrated with Liberty's work management application, Wennsoft. When the designs are complete in Designer, there is an automated process to convert the design into an estimate and ultimately a work order which can progress through Operations to construction. When the construction is complete, because the design was created within the GIS environment, the GIS can readily be updated to reflect the as-built state. This automation provides a considerable time

saving compared to performing the designs either on paper or in a separate design application not integrated with the GIS.

Telvent Responder – this application is also an extension of the ArcFM GIS for electric operations, and is Liberty's chosen outage management solution. Responder takes the depiction of the electrical distribution network from the GIS, and adds to it information from the customer information system (CIS) indicating which customer is connected to each location or service delivery point in the electrical distribution network. Contact and other customer information (e.g., critical customer status) is provided to responder from the CIS on a daily basis. Responder is integrated with the IVR, hence when customers call to report an outage, the information can be provided to Responder either directly by a customer service representative, or in a 'self service' mode via the IVR. Responder takes the information provided by customers and performs an analysis to determine the likely location of the trouble in the electrical distribution network. Dispatch can use the information provided by Responder to decide where to direct trouble crews who are attempting to restore service to customers. Dispatchers use the information that they receive from trouble crews to provide estimated restoration times (ETRs) for each outage that is recorded in Responder. Responder uses this information to provide information on outages and ETRs to customers and other stakeholders via the IVR and Liberty's public website.

Telvent OASyS SCADA – this application is used in both electric and gas control. SCADA is an abbreviation for Supervisory, Control and Data Acquisition. The SCADA application for both gas and electric operations is connected by secure telecommunications links to key devices in both the electric (e.g., transformer stations, pole-top reclosers) and gas (e.g., pumps, valves) distribution networks, and monitors the status of those devices in real time, providing information on the state of the network to operators in Liberty's control room. If they choose to do so, operators can use the SCADA system to remotely control the devices within the electric and gas distribution networks.

FORTIS electronic document management – this application is used for storing and retrieving electronic documents used in the maintenance of both the gas and electric distribution networks. In the gas network, the documents are drawings and tabular information relating to the main and secondary gas lines in Liberty's service territory. These documents can be many years old and they complement the information available in the gas GIS. The FORTIS application makes these documents available to Engineering and Operations staff both in the office and when they are in the field – via mobile computers that have been installed in vehicles used by field operations staff. For Granite State, FORTIS is used to store drawings of the transformer stations, and maps and diagrams of other elements of the electrical distribution network that assist operations and engineering staff in their work. FORTIS is also being used to store images of customer bills and

correspondence dating from prior to the cutover to Liberty systems, which needs to be available to customer service staff in the event of customer inquiries relating to the pre-cutover period.

Gastar gas procurement and supply management system for EnergyNorth- this application includes the following functions: Business Associates Module used to manage business relationships such as wholesale, gas supply, retail marketers, transportation and customer pools, transporters, operators, and any other related business partners; Contracts Module used to manage contracts for transportation, storage, physical exchange, market trading, asset management and retailer marketer pooling; Pipeline/Points Module used to access all measurement volumes, including monthly summary of volumes ; Electronic Bulletin Board (EBB) is a web-based communication tool used to manage natural gas customer activity (Marketer nominations); Nomination and Scheduling Module tracks storage balances and shadows all pipeline and storage transactions; Capacity Release Module provides support of significant capacity release programs for interstate pipelines - daily, monthly, yearly.

Customer Service Applications

Liberty implemented the following customer service applications:

- Cogsdale CSM customer information system for both electric and gas customer service (Sept 2013)
- Cisco IVR and telephony for both electric and gas operations (Sept 2013)
- Fiserv bill presentment and payment service for both electric and gas billing*(Sept 2013)
- Itron MV-90 and FCS meter reading and data management for both electric and gas operations (Sept 2013)
- Systrends EDI service for electric operations only* (July 2014)
- CGI Load Estimation and Reconciliation for electric operations only*(July 2014)
- Web customer service for both electric and gas customers. (Sept 2013)

denotes applications not included in the original scope or estimates in DG 11-040

The role performed by these applications is summarized below:

Cogsdale CSM – this application provides customer information management, bill calculation, meter reading route management (upload and download), service order management, and accounts receivable management for both electric and gas accounts.

Cisco IVR and telephony – Cisco is Liberty's core IP telephony application for all office based staff including customer service representatives. Cisco's PCCE solution is used for call routing, IVR, call management and reporting. Calabrio is the application used for call recording.

Fiserv bill presentment and payment – Fiserv's service is used by Liberty for both bill presentment and payment. For bill presentment, the bill print file is created by the Cogsdale application and sent to Fiserv for processing. Fiserv generates an electronic bill for those customers who have chosen to receive their bill electronically; otherwise Fiserv prints the bill and packages it with the appropriate bill inserts for mailing by the USPS. Fiserv also receives payments for Liberty's bill either via lockbox, designated walk-in centers in New Hampshire, and electronic payments including credit and debit card payments taken via the IVR or via the web.

Itron's MV-90 and FCS applications- these are used by Liberty for both gas and electric meter reading. MV-90 is used for the large volume gas customers and the interval-metered electric customers; FCS is used for all other meter types including Time of Use and net metering for electric customers.

Systrends EDI service - this is used by Liberty for interaction with Competitive Electric Power Suppliers (CEPS) in New Hampshire. Systrends' service takes the output from the Cogsdale CIS and generates the enrollment/ drop, usage and payment EDI transactions prescribed in the market rules. Similarly Systrends receives the transactions from CEPS that are associated with customers in Liberty's service territory and converts the transactions into a form that can be processed by Cogsdale.

CGI's Load Estimation and Reconciliation System (LERS)- this is a service used by Granite State to provide the settlement calculations and reports required by ISO-New England. LERS takes information from the Cogsdale CIS for each service delivery point and uses load profiles and metered/unmetered usage information to provide a profile of the hourly usage for each service delivery point. LERS then computes the load associated with each CEPS that is active in Liberty's service territory, in order to facilitate the wholesale settlement between the ISO New England and other market participants.

Web-based customer service – for both electric and gas customers, Liberty's website has been extended to provide information and services for New Hampshire customers including account information, billing and payment options.

Financial and Maintenance Management Systems

Liberty implemented the following financial and maintenance management systems applications:

- Microsoft Great Plains financial accounting for both electric and gas operations (July 2012)
- Wennsoft service orders and scheduling for both electric and gas operations (Sept 2013)

- MobileTEC for service order management on mobile devices for electric and gas operations (Sept 2013)
- Quadra for work estimating for electric operations only* (July 2014)

*denotes applications not included in the original scope or estimates in DG 11-040.

The role performed by these applications is summarized below:

Microsoft Great Plains – this application provides general ledger, accounts payable, accounts receivable, fixed assets, inventory management and sales order processing for both the electric and gas utilities.

Wennsoft – this application provides service order management, job costing for capital work, equipment management, time tracking, scheduling and work assignment, for both the electric and gas utility work.

MobileTEC – this application allows Wennsoft service orders to move between the Wennsoft application and the mobile devices which are installed in the vehicles used by field operations staff for both gas and electric operations. When the field staff complete the service order on the mobile device, the information entered by the technician on the mobile device is uploaded back into the Wennsoft application and then to Cogsdale, if necessary.

Quadra – this application is used by engineering and planning staff of Granite State to create estimates for construction work. It contains information on 'compatible units' (i.e., the quantities and price of materials and labor necessary to complete all standard construction work). It is integrated into both Designer (where electrical construction work is designed) and Wennsoft, to automate the purchasing of materials and the creation of work orders associated with electric utility construction work.

IT Infrastructure

Liberty implemented the following IT infrastructure:

- Primary and back up data center in New Jersey and Toronto – provided by Savvis
- Application & database servers for all applications
- Storage systems
- Monitoring systems*
- Redundant network connections*
- Intrusion detection systems*
- Desktop, laptop and mobile PCs

- Meter reading infrastructure for both MV-90 metered customers and other meter types.

denotes applications not included in the original scope or estimates in DG 11-040

Details of this infrastructure are provided below:

Two Application Data Centers and Networks were established during 2012 and 2013: a primary in New Jersey and a back-up in Toronto, Ontario. Each data center has redundancy plus one for electrical supply, back up electricity generation and environmental controls.   Physical security is state of the art with complete visitor tracking and multi-level access authentication including hand scanners.

Data Centers

The Data Centers were designed to support critical Customer / ERP, metering and Work Management application. Application and access servers are available in both data centers utilizing EMC VmWare high availability mode virtual server environment. The high availability exists at both New Jersey and Toronto data centers and allows for handling of failure host events. Any server on a failed node is automatically brought up on another node. The virtual server environment allows for load balancing between nodes and assurance of available capacity in event of a host failure.

In addition, the database systems are setup in a dedicated clustered server nodes within the New Jersey data center. The servers are monitored 24 by 7 through Savvis database and server operations center.   The New Jersey databases are replicated to the Toronto Data Center, so that maximum data loss is 15 minutes and data restoration and connection to application and service is restored in 24 hours.

IVR and Call Center Technology is designed with high availability servers with no single point of failure as well as automated recovery capabilities between the New Jersey and Toronto Data Centers as well as 24 by 7 monitoring.

The SCADA environment has been design to continuously operate by automatically failover between 3 sites. The primary is in New Jersey, back-up in Toronto with a second back-up in Londonderry Operations and Dispatch data room. Within each SCADA environment a redundant hardware exists for each component critical to the availability. The SCADA system utilizes Liberty standard EMC VMware, Dell Virtual servers, Equal logics storage systems, Cisco Network equipment and firewalls.

These data centers have 24 by 7 monitoring for intrusion detection prevention. The IDS (Intrusion Detection System) is a Source Fire product at both New Jersey and Toronto data centers. The IDS monitors data traffic across Liberty networks and data center internet connections. Source Fire system has advanced methods of analysis for network intrusion events to notify Sentry Metrics Network Operations Center of security event alerts. Sentry will act upon any malicious activity and put a block to prevent activity with approval from Liberty.

Data and Voice Networks

Two networks have been established: a Corporate network, and a SCADA network. These networks have been designed to be completely isolated from one another for security reasons. Redundancy in network connections have been established into and between the data centers as well as critical New Hampshire sites that host customer care, control room and dispatch.

The New Jersey data center has a primary Century Link MPLS Fiber circuit with a backup Verizon copper MPLS circuit. The Toronto data center has a Century Link/Bell MPLS circuit and between the data centers there is a Liberty private circuit provided by Century Link Technology. The Londonderry Control Room and Call Center has two MPLS network connections available for redundant WAN communications. The hardware is redundant for firewall, network switches and router equipment.

The SCADA Network Operations Center is separate and setup with dedicated MPLS with redundancy for all local network, workstations and LAN hardware. The backup facility for SCADA operations is set up in Nashua.

II.   Vendor Costs

Liberty incurred license costs from the vendors of the IT applications as well as implementation costs charged by the vendors to provide the IT solution for EnergyNorth and Granite State in the various business functions described above.

For application software, the vendor generally provided a combination of application software licenses and implementation services. For infrastructure components, the vendor provided a combination of setup/implementation services and in some cases provided the infrastructure components.

These services were provided through statements of work and change orders where applicable.

The following reflects the costs from vendors for each of the applications described above, and the allocable share of those costs to EnergyNorth:

New Hampshire IT Vendor Costs

			EnergyNorth	Granite State	Total as of 3/31/2014	EnergyNorth	Granite State	Total from 4-1-14 to 12-31-14	EnergyNorth	Granite State	Total to Dec 2014
Systems Operations	Systems Operations										
		ARC-EAST	$ -	$ 38,763	$ 38,763	$ -	$ 210,572	$ 210,572	$ -	$ 249,335	$ 249,335
		GIS-EAST	$ 276,011	$ 118,290	$ 394,301	$ 306,815	$ 131,492	$ 438,307	$ 582,826	$ 249,783	$ 832,609
		RES-EAST	$ -	$ 193,147	$ 193,147	$ -	$ 238,298	$ 238,298	$ -	$ 431,445	$ 431,445
		OSI-EAST	$ 158,990	$ 68,138	$ 227,128	$ 412,806	$ 176,917	$ 589,723	$ 571,796	$ 245,055	$ 816,851
		GAS-EAST	$ 248,551	$ -	$ 248,551	$ 153,418	$ -	$ 153,418	$ 401,968	$ -	$ 401,968
		E&O-EAST	$ 106,517	$ 45,650	$ 152,167	$ 17,484	$ 7,493	$ 24,977	$ 124,001	$ 53,143	$ 177,145
Systems Operations			$ 790,068	$ 463,990	$1,254,058	$ 890,523	$ 764,772	$ 1,655,295	$ 1,680,591	$ 1,228,761	$ 2,909,353
Customer Service	Front Office Systems										
		COGS-EAST	$ 1,211,261	$ 519,112	$1,730,373	$ 907,376	$ 388,875	$ 1,296,251	$ 2,118,637	$ 907,987	$ 3,026,624
		IVR-EAST	$ 88,533	$ 37,943	$ 126,476	$ 30,570	$ 13,101	$ 43,671	$ 119,103	$ 51,044	$ 170,147
		Tel-EAST	$ 81,414	$ 34,892	$ 116,306	$ -	$ -	$ -	$ 81,414	$ 34,892	$ 116,306
		SER-EAST	$ 16,052	$ 6,879	$ 22,931	$ 40,974	$ 17,560	$ 58,534	$ 57,026	$ 24,440	$ 81,466
	Meter Data Management Systems										
		ITR-EAST	$ 8,474	$ 3,632	$ 12,106	$ -	$ -	$ -	$ 8,474	$ 3,632	$ 12,106
		LOAD-EAST	$ -	$ -	$ -	$ -	$ 273,023	$ 273,023	$ -	$ 273,023	$ 273,023
		EDI-EAST	$ -	$ 49,960	$ 49,960	$ -	$ 93,885	$ 93,885	$ -	$ 143,844	$ 143,844
	Web-Site										
		WEB-EAST	$ 63,527	$ 27,226	$ 90,753	$ 383	$ 164	$ 547	$ 63,910	$ 27,390	$ 91,300
Customer Care			$ 1,469,261	$ 679,643	$2,148,904	$ 979,303	$ 786,609	$ 1,765,912	$ 2,448,564	$ 1,466,252	$ 3,914,816
Financial and Maintenance	Financial and Maintenance Management Systems										
		PH1-East	$ 646,214	$ 276,949	$ 923,163	$ -	$ -	$ -	$ 646,214	$ 276,949	$ 923,163
		PH2-EAST	$ 348,832	$ 149,500	$ 498,332	$ 119,074	$ 51,032	$ 170,105	$ 467,906	$ 200,531	$ 668,437
		Quadra-EAST	$ -	$ 27,473	$ 27,473	$ -	$ 47,129	$ 47,129	$ -	$ 74,602	$ 74,602
Financial and Maintenance Management Systems			$ 995,046	$ 453,922	$1,448,968	$ 119,074	$ 98,160	$ 217,234	$ 1,114,120	$ 552,082	$ 1,666,202
IT Infrastructure											
		INF-EAST	$ 320,541	$ 137,375	$ 457,915	$ 4,426	$ 1,897	$ 6,322	$ 324,966	$ 139,271	$ 464,237
IT Infrastructure			$ 320,541	$ 137,375	$ 457,915	$ 4,426	$ 1,897	$ 6,322	$ 324,966	$ 139,271	$ 464,237
Total Capital Expenditure			$ 3,574,917	$ 1,734,929	$5,309,846	$ 1,993,325	$ 1,651,437	$ 3,644,763	$ 5,568,242	$ 3,386,366	$ 8,954,608

0246

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NATIONAL GRID/LIBERTY ENERGY
DG 11-040

JOINT PETITIONERS' RESPONSES TO
STAFF'S DATA REQUESTS – SET 1

Supplemental Response

Date Request Received: 04/04/11   Date of Supplemental Response: 09/02/11
Request No. Staff 1-72   Witness: Gerald Tremblay

Request:

    Reference Tremblay/Bronicheski testimony, Bates 165, lines 13-16. Referring to the capital expenditures that will need to be invested to replace existing National Grid systems that belong to the service companies, rather than Granite State and EnergyNorth, please detail the expenditures for Granite State and EnergyNorth.

Response:

    An initial estimate of capital expenditure required to replace National Grid systems is being prepared by the team leader for each functional area. Once complete, Liberty Energy will provide the details of the capital expenditures.
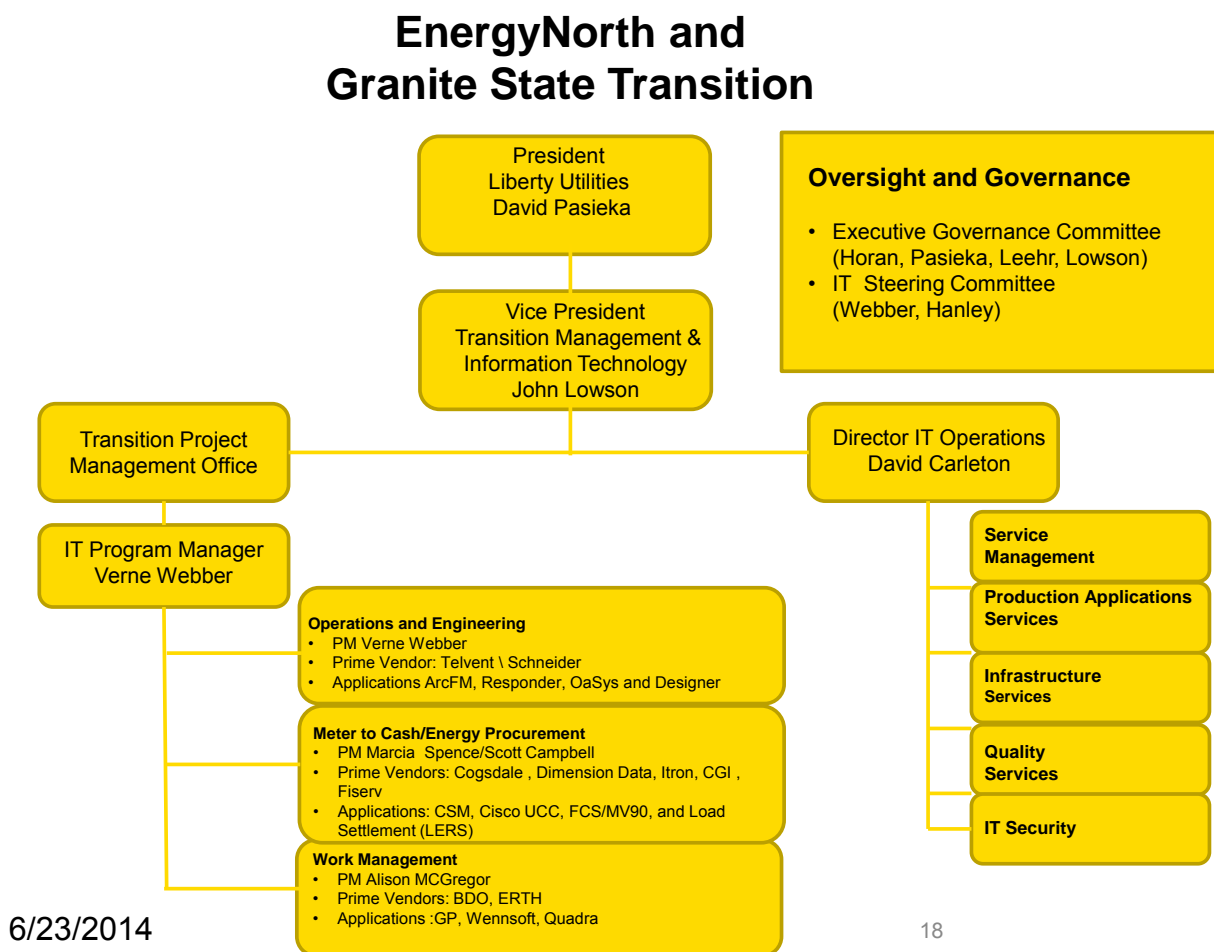
SUPPLEMENTAL RESPONSE:

    Please see Supplemental Attachment Staff 1-72 for a preliminary estimate of costs to replace National Grid systems.

Supplemental Attachment Staff 1-72
National Grid/Liberty Energy
DG 11-040
Page 1 of 1

System		Note	System Cost	Implementation Cost	Total	Granite State	Energy North	Total
System Operations								
	ArcFM Solution	per quote	130	1,360	1,490	497	993	1,490
	ESRI GIS	Internal estimate	150	130	280	140	140	280
	Responder Software & OASys	per quote assumed 7	275		275	125	150	275
	Allegro	estimate	125	125	250	83	167	250
	Contingency	20%		409	409	152	257	409
System Operations			680	2,024	2,704	997	1,707	2,704
Customer Service								
Front Office Systems	CIS-Cogsdale	per quote	252	520	772	257	515	772
	IVR-Vocantix		50	50	100	50	50	100
	Phones-CISCO	IT Dept	150		150	50	100	150
Meter Data Management System					-			
	MV90- Interval	estimate	100	50	150	50	100	150
	MVRS-Customer non interval	estimate	80	25	105	35	70	105
	Load Calculation system	estimate	200	50	250	83	167	250
Web Site			50	50	100	50	50	100
	Contingency	20%		325	325	115	210	325
Customer Care			882	1,070	1,952	691	1,262	1,952
Financial and Maintenance Financial and Maintenance Management Systems								
	GP/Wennsoft-day 1	per quote	116	495	612	204	408	612
	GP/Wennsoft-day n	Estimate		250	250	83	167	250
	Contingency	20%		122	122	41	82	122
Financial and Maintenance Management Systems			116	868	984	328	656	984
Security Systems								
IT Infrastructure	Cameras/Gate Controls etc		100	-	100	33	67	100
Microsoft Servers	Licensing/Local Servers/Exchange Cals/C	1374	206		206	69	137	206
Systems, Servers and Storage	PC including vehicle solutions		75		75	25	50	75
	Mobile Devices		15		15	5	10	15
Network	Branch office Telecom Connections		14		14	5	9	14
	Network Equipment (firewalls, switches, routers)		80		80	27	53	80
	Radio and Telecommunications		100	50	150	50	100	150
	Contingency	20%		108	108	36	72	108
IT Infrastructure			490	158	648	216	432	648
Total Capital Expenditure			2,268	4,120	6,389	2,266	4,123	6,389

0249

Non-Vendor Costs

Non-vendor costs associated with the IT systems are primarily the cost of Liberty's labor and labor-related costs (travel, accommodation, etc.) associated with managing the implementation of the IT applications and infrastructure.

Each aspect of the implementation was led by a project manager at Liberty. The project manager was responsible for all aspects of the implementation of that project, including the management of the applicable vendors. The project was organized as shown the following diagram:

EnergyNorth and Granite State Transition

President
Liberty Utilities
David Pasieka

Vice President
Transition Management &
Information Technology
John Lowson

Oversight and Governance

- Executive Governance Committee (Horan, Pasieka, Leehr, Lowson)
- IT Steering Committee (Webber, Hanley)

Transition Project Management Office

Director IT Operations
David Carleton

IT Program Manager
Verne Webber

Operations and Engineering
- PM Verne Webber
- Prime Vendor: Telvent \ Schneider
- Applications ArcFM, Responder, OaSys and Designer

Meter to Cash/Energy Procurement
- PM Marcia Spence/Scott Campbell
- Prime Vendors: Cogsdale, Dimension Data, Itron, CGI, Fiserv
- Applications: CSM, Cisco UCC, FCS/MV90, and Load Settlement (LERS)

Work Management
- PM Alison MCGregor
- Prime Vendors: BDO, ERTH
- Applications :GP, Wennsoft, Quadra

Service Management

Production Applications Services

Infrastructure Services

Quality Services

IT Security

6/23/2014   18

The project manager was typically supported by:

- Other PMs where necessary, if the scope and complexity warranted additional project management. For example, the telephony implementation, metering implementation and Fiserv implementations each had their own dedicated PM

- a business analyst assigned to the transition team from within Liberty
- the vendor staff.

The role of the business analyst was to work with the New Hampshire Liberty staff and the vendor to ensure that both the standard Liberty solution and the specifics of the New Hampshire requirements were sufficiently well understood that a workable solution for New Hampshire was implemented.

In some areas, the requirements of New Hampshire were new to Liberty and there was therefore no pre-existing solution. This was the case for EDI transport, electric settlements, electronic document management, and for the conversion of electric GIS data. For EDI and electric settlement, a market scan was performed, vendors were shortlisted and proposals obtained for a solution to meet Liberty's requirements. A final selection was made based on defined selection criteria, and Systrends and CGI were selected. For electronic document management, the pre-existing Grid solution used for gas drawings (FORTIS from Westbrook) was selected since it was clear that to explore an alternative would be significantly more complex, risky and costly. Similarly, to convert the electric GIS data from Grid's Smallworld system to ESRI/ArcFM, a company (SBS) was identified that specializes in this type of data conversion and that was able to perform the work at reasonable rates within the required timeframe.

The application implementation work was organized according to the typical stages of the software development lifecycle:

- Requirements analysis
- Design
- Build/configuration
- Test

Since in most cases Liberty had a pre-defined solution for the requirements of each business area, the requirements analysis typically took the form of a 'fit assessment' between the Liberty solution and the business requirements of EnergyNorth and Granite State. The fit assessment was conducted by the vendor with the assistance of the business analyst and the involvement of the relevant business team in New Hampshire.

The vendor would then develop design/solution documents articulating how their solution would be configured or modified to meet the business requirements. These documents would be reviewed and signed off by the relevant staff within the transition team.

In parallel with the requirements and design work, for most applications, there was a data migration effort to extract, transform and load the Liberty-related data from National Grid's systems to the relevant Liberty system. This work was significant in the areas of CIS and GIS, and to a lesser extent in outage management, work management and SCADA. This work was undertaken by the vendors and overseen by Liberty's functional and technical staff.

The next stage in the implementation project was testing. Liberty created a Quality Assurance team within the IT department dedicated to testing the applications provided by vendors prior to implementation. For the core Cogsdale and related meter to cash applications, there were four cycles of testing, each preceded by a mock data conversion that provided the basis for the application to be tested with "real" data. A key part of these test cycles was testing the integration between applications that was required. Responsibility for testing the integration fell to the Liberty QA team overseen by the relevant project manager. The testing phase included user acceptance testing during which the users in New Hampshire were given the opportunity to test the system. Sign off of the satisfactory completion of testing was required before the application was promoted into production.

In parallel with user acceptance testing, users were trained. Training was typically undertaken by a combination of Liberty business analysts with a strong knowledge of the Liberty standard solution and processes, Liberty training staff, and vendor subject matter experts.

The cutover to the new systems was carefully planned by each project manager. In the case of the CIS conversion, the later mock data conversions also served as 'dress rehearsals' of the cutover itself, during which the core data extract transform and load, data reconciliation and validation were practiced and timed. These exercises were geared to ensuring that the real cutover weekend went as smoothly as possible and fit within the allotted time window.

After the cutover, the post go-live support arrangements were adopted. The project managers would each arrange for a combination of Liberty IT and vendor resources to be available for a period of approximately 60 days after the cutover to troubleshoot and support the users, and to ensure any application defects were addressed quickly. During this period there was daily reporting of both operational and system performance, as well as issue and defect tracking. Once the business was comfortable that the support arrangements could return to 'business as usual', the onsite support was withdrawn and typical IT support arrangements were followed (i.e., using the Liberty IT helpdesk and creating tickets).

New Hampshire IT Non-Vendor Costs

				EnergyNorth	Granite State	Total as of 3/31/2014	EnergyNorth	Granite State	Total from 4-1-14 to 12-31-14 **	EnergyNorth	Granite State	Total to Dec 2014
Systems Operations												
		ARC-EAST	Designer (Telvent) - Other	$ 44,195	$ 13,104	$ 57,298	$ (44,195)	$ 295,932	$ 251,737	$ -	$ 309,036	$ 309,036
		GIS-EAST	GIS - Other	$ 217,492	$ 94,730	$ 312,221	$ 170,835	$ 119,752	$ 290,587	$ 388,327	$ 214,481	$ 602,808
		RES-EAST	Responder / Outage Management - Other	$ 306,431	$ (43,965)	$ 262,466	$ (306,431)	$ 505,757	$ 199,327	$ -	$ 461,792	$ 461,792
		OSI-EAST	SCADA - Other	$ 387,470	$ 145,257	$ 532,727	$ 314,532	$ 176,216	$ 490,748	$ 702,002	$ 321,473	$ 1,023,475
		GAS-EAST	Gas Procurement - Other	$ 506,033	$ -	$ 506,033	$ 21,618	$ -	$ 21,618	$ 527,651	$ -	$ 527,651
		E&O-EAST	Engineering and Operations (Fortis)	$ 68,779	$ 30,384	$ 99,162	$ 69,288	$ 30,874	$ 100,162	$ 138,067	$ 61,258	$ 199,325
Systems Operations				$ 1,530,399	$ 239,509	$ 1,769,908	$ 225,647	$ 1,128,531	$ 1,354,179	$ 1,756,046	$ 1,368,040	$ 3,124,086
Customer Service	Front Office Systems											
		COGS-EAST	CIS - Other	$ 2,169,832	$ 521,185	$ 2,691,017	$ 593,314	$ 310,878	$ 904,193	$ 2,763,146	$ 832,063	$ 3,595,209
		IVR-EAST	IVR - Other	$ 57,362	$ 22,505	$ 79,866	$ 44,944	$ 17,543	$ 62,487	$ 102,305	$ 40,047	$ 142,353
		TEL-EAST	Telephone - Other	$ 44,963	$ 19,651	$ 64,614	$ -	$ -	$ -	$ 44,963	$ 19,651	$ 64,614
		SER-EAST	Bill Presentment - Other	$ 63,829	$ 24,905	$ 88,734	$ 26,597	$ (7,225)	$ 19,372	$ 90,426	$ 17,680	$ 108,106
	Meter Data Management Systems	ITR-EAST	Metering - Other	$ 156,174	$ 21,210	$ 177,384	$ 39,725	$ 51,156	$ 90,881	$ 195,899	$ 72,367	$ 268,265
		LOAD-EAST	Load Research & Settlement -Other	$ -	$ 106,007	$ 106,007	$ -	$ 78,644	$ 78,644	$ -	$ 184,651	$ 184,651
		EDI-EAST	EDI - Other	$ 53,525	$ (27,001)	$ 26,524	$ (53,525)	$ 278,215	$ 224,690	$ -	$ 251,214	$ 251,214
	Web-Site	WEB-EAST	Website - Other	$ 2,267	$ 5,124	$ 7,391	$ 3,710	$ 1,714	$ 5,424	$ 5,976	$ 6,838	$ 12,815
Customer Care				$ 2,547,951	$ 693,586	$ 3,241,537	$ 654,765	$ 730,926	$ 1,385,691	$ 3,202,717	$ 1,424,511	$ 4,627,228
Financial and Maintenance Management Systems												
		PH1-East	ERP Phase 1 (GP/Payroll) - Other	$ (360,983)	$ (157,894)	$ (518,877)	$ 667,063	$ 285,884	$ 952,947	$ 306,080	$ 127,990	$ 434,070
		PH2-EAST	ERP Phase 2 (WennSoft) - Other	$ 1,532,371	$ 693,757	$ 2,226,128	$ (616,803)	$ (256,254)	$ (873,056)	$ 915,568	$ 437,504	$ 1,353,072
		Quadra-EAST	Quadra - Other	$ -	$ 21,577	$ 21,577	$ -	$ 620	$ 620	$ -	$ 22,196	$ 22,196
Financial and Maintenance Management Systems				$ 1,171,387	$ 557,440	$ 1,728,827	$ 50,260	$ 30,250	$ 80,511	$ 1,221,648	$ 587,690	$ 1,809,338
IT Infrastructure												
		INF-EAST	Infrastructure - Other	$ 323,182	$ 165,308	$ 488,489	$ 189,217	$ 81,093	$ 270,311	$ 512,399	$ 246,401	$ 758,800
IT Infrastructure				$ 323,182	$ 165,308	$ 488,489	$ 189,217	$ 81,093	$ 270,311	$ 512,399	$ 246,401	$ 758,800
Other Systems												
		COL-EAST	Collections - Other	$ 40	$ 17	$ 57	$ 1	$ 0	$ 1	$ 41	$ 17	$ 58
		MET-EAST	Metering - Other	$ 6,267	$ 2,688	$ 8,955	$ 672	$ 236	$ 908	$ 6,939	$ 2,924	$ 9,863
		DSM-EAST	DSM AB Implementation - Other	$ 432	$ 185	$ 617	$ 66	$ 27	$ 94	$ 498	$ 213	$ 711
		ELE-EAST	ELECTRIC DISPATCH NH - Other	$ -	$ 271	$ 271	$ -	$ 9,055	$ 9,055	$ -	$ 9,325	$ 9,325
		VENTYX	VENTYX GAS FORCAST SOFTWARE - Other	$ 80,413	$ -	$ 80,413	$ -	$ -	$ -	$ 80,413	$ -	$ 80,413
Other Systems				$ 87,152	$ 3,162	$ 90,313	$ 739	$ 9,318	$ 10,057	$ 87,891	$ 12,480	$ 100,371
				$ 5,660,071	$ 1,659,004	$ 7,319,075	$ 1,120,630	$ 1,980,118	$ 3,100,748	$ 6,780,700	$ 3,639,122	$ 10,419,823

**NOTE The totals in this column include the forecast plus adjustments to the books made subsequent to June 30, 2014.

0253