April 16, 2020

Liberty Utilities Corp. (Granite State Electric) d/b/a Liberty Utilities ("Liberty Electric"), Public Service Company of New Hampshire d/b/a Eversource Energy ("Eversource"), Unitil Energy Systems, Inc. ("UES"), Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities ("Liberty Gas"), and Northern Utilities, Inc. ("Northern") (collectively, "the Joint Utilities"), submit for consideration by the stakeholders of docket number DE 19-197, comments on the four submissions in response to a request for use cases by Commission Staff.

These comments are an initial impression and relatively high-level issue spotting meant to further the discussion and development of a Statewide Multiuse Online Data Platform as outlined for exploration in SB 284. While these comments further the purpose of SB 284, no explicit comment contained within, nor any lack of comment on any portion of substantive content of the submissions in response to the use case request should be taken as an endorsement or rejection of what the form, format or content of such a Data Platform should be. The Joint Utilities do not take a position on form or substance for the Data Platform at this time. Rather, the Joint Utilities are engaged in exploring the feasibility of developing a spectrum of features and functionalities as contemplated by the stakeholders, as well as engaging in a robust discussion as to the content—including both the means and ends such content should serve.

DE 19-197 Statewide Multi-Use Online Energy Data Platform
Use Cases Proposed by Local Government Coalition (LGC) City of Lebanon, Town of Hanover, Samuel Golding, Kat McGhee, and Patricia Martin

Amro M. Farid[1], Samuel Golding[2], April Salas[3], Kat McGhee[4], Clifton Below[5], Pat Martin[6]

I. Introduction

Further to the scoping comments to the New Hampshire Public Utilities Commission as part of DE19-197 by the City of Lebanon, Town of Hanover, and Samuel Golding, this document serves to identify a number of use cases for the development of a statewide multi-use online energy data platform.

This document is organized as follows.

- Section II entitled "Preliminaries" provides some common defintions to technical terms used in this document.
- Section III entitled "Data Platform Access" discusses the need for a data platform that is accessible to wide variety of grid stakeholders. It includes Use Case 1.
- Section IV entitled "Use Cases Taxonomy" discuss the need to classify use cases so that the complete set is mutually exclusive and collectively exhaustive. Doing so greatly facilitates downstream technical implementation.
- Section V entitled "Uses-Cases – Community Power Aggregators" focuses on the use cases necessary to support the implementation and operation of community power aggregators (CPAs). The uses cases are derived directly from the RSA 53-E as amended by SB 286.
- Section VI entitled "Use Cases – Exchanged Electricity Services" focuses on the exchanged electricity services defined in Use Case 4. It identifies a number of electricity services that a NH CPA would likely implement in the near term and then derives the associated use case.
- Each of the Appendices A-Q includes one use case table for each of the use cases identified in Section III-VI.

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[1] Prof. Amro M. Farid is serving as a technical advisor to the City of Lebanon's intervention in DE 19-197. He an associate professor of engineering at the Thayer School of Engineering at Dartmouth and an adjunct associate professor of computer science at the Department of Computer Science, Dartmouth College. He is also the director of the Laboratory for Intelligent Integrated Networks of Engineering Systems (LIINES).

[2] Samuel Golding is the Presidnet of Community Choice Partners Inc and is intervening directly in DE 19-197.

[3] April Salas is the Sustainability Director of the Town of Hanover and is part of the Town of Hanover's intervention in DE 19-197. She is also the executive director of the Revers Center for Energy at the Tuck School of Business at Dartmouth.

[4] Rep. Kat McGhee is intervening as an Eversource customer in Hollis. She represents the towns of Hollis, Milford, Mont Vernon, and New Boston in the NH General Court where she serves on the House ST&E Committee.

[5] Clifton Below is the Assistant Mayor of the City of Lebanon and Chair of its Energy Committee.

[6] Patrica Martin is a public member, Chair of the Town of Rindge Energy Commission, retired electrical engineer and participated in the PUC's Grid Modernization Investigation.

- Appendix R include *__some__* potential functionalities that we expect to find a in a statewide multi-use energy data platform (as identified by Greentel).
- Appendix S provides ilustrative draft administrative rule language relating to use cases 2-4, an earlier draft of which was presented at a PUC led stakeholder meeting on CPA rules.

II. Preliminaries

Definition 1 – Meta-Data Model: A meta-data model includes 1.) a set of data fields that are populated with instantiated numerical and textual data 2.) a set of classes which serve as containers of data fields and 3.) a set of relationships between the data fields and their classes.

Definition 2 – Data Platform Implementation: The governance, development, technical implementation, change management, and versioning of the meta-data model and its instantiated data.

Definition 3 – Use Case: A written description of how users will interact with and perform tasks on an information technology system or application. It outlines, from a user's point of view, a system's behavior as it responds to a request. Each use case is represented as a sequence of simple steps, beginning with a user's goal and ending when that goal is fulfilled[7].

III. Use Cases – Data Platform Access

First, we recognize that such a statewide multi-use online energy data platform must serve all New Hampshire energy stakeholders including specifically those represented on this docket's service list. Fifteen categories of stakeholders are identified here. Such service necessarily creates interfaces between all of these stakeholders and the data platform itself as shown in Figure 1. Use Case #1 follows straightforwardly:
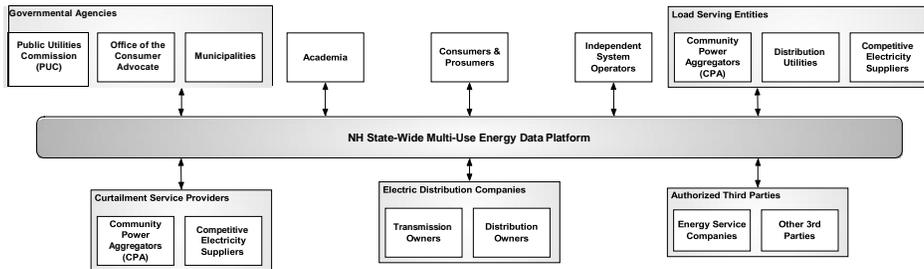

Figure 1. Interfaces between a NH State-Wide Multi-Use Energy Data Platform and NH Energy Stakeholders

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[7] Adapted from: https://www.usability.gov/how-to-and-tools/methods/use-cases.html

Use Case 1: Stakeholder Access The NH State-Wide Multi-Use Energy Data Platform shall provide stakeholder-appropriate, secure, and interoperable access for each of the stakeholder categories identified above.

Here "stakeholder-appropriate" means that each of the categories of stakeholders will have a specific "role" in the data platform that gives them read, write, append, or no-access to the platform's data.

Here "secure" means that the platform will utilize IT security mechanisms such as passwords and two-factor authentication.

Here, "interoperable" means that the data shall be provided in human-readable and machine-readable formats according to established electric power grid standards such as the Common Information Model published by the IEC. [Do IEC standards align with Green Button Connect or North American Standards Board's Energy Service Provider Interface discussed in the DE 19-197 Order of Notice? Or is a different standard / protocol?]

The associated NH PUC Use Case Table is found in Appendix A.

IV. Use Cases Taxonomy

Given the above, NH energy stakeholders can expect that the NH State-Wide Multi-Use Energy Data Platform will have to serve a wide variety of use cases beyond access. The number of use cases will likely proliferate. In order to support downstream software engineering efforts, the final set of use-cases must be mutually-exclusive and collectively exhaustive. Consequently, it is important to classify use cases by life cycle stage: operations, operations improvement, and life-cycle stage. Drawing on the uses cases identified in the scoping comments, we offer examples of each type in Figure 2.

Figure 2. A Use Case Taxonomy Classifed by Life Cycle Stage

For the remainder of this document, we focus on use cases that enable the successful operation of community power aggregators as legislated in SB 286.

V. Use Cases – Community Power Aggregators

The community power aggregator use cases are derived directly from RSA 53-E as amended by SB 286 (and other relevant statutes). The table below shows the relevant provisions and their associated use cases.

RSA 53-E & Other Statutory Provision	Asoociated Use Case
RSA 53-E:6 "Electric Aggregation Plan. – I. The governing body of a municipality or county may form an electric aggregation committee to develop a plan for an aggregation program for its citizens. . . . II. The plan shall provide universal access, reliability, and equitable treatment of all classes of customers . . . III. The plan shall detail: . . . (f) How net metered electricity exported to the distribution grid by program participants, including for group net metering, will be compensated and accounted for. (g) How the program will ensure participants who are enrolled in the Electric Assistance Program administered by the commission will receive their discount. Also: RSA 38-D ENERGY COMMISSIONS, including RSA 38-D:4 re: Duties; & RSA 674:2 Master Plan; Purpose and Description. – including III (a), (c), (g), (i), (n), and (o) re: topics to include in Master Plans.	**2. LOCAL GOVERNMENT COMMUNITY POWER PROGRAM, ENERGY, AND CLIMATE ACTION PLANNING.** 2.1 To enable planning and development of aggregation plans and other energy and climate action planning by local governments and RPCs, the data platform shall provide access to read aggregated historic (and current) monthly customer load data for each class of customer by municipality (and county) of where they take service. This data should be available to any electric aggregation committee created pursuant to RSA 53-E (as well as other governmental entities). 2.2 The data platform shall also provide access to anonymized individual customer interval load data where such data is available with a granularity of an hour or less. This data should include groupings within each customer rate class of whether the customer is on utility provided default energy service or competitive supply for each month in the history, as well as counts of customers by rate class and supply type using net metering on in the EAP. [What customer data needs to be excluded to ensure data is "anonymized"? What data is included? This question/comment applies to all of the following use cases that reference "anonymized individual customer interval load data".]
RSA 53-E:7, "Aggregation Program . . .	**3. IMPLEMENTATION OF AN OPT-OUT COMMUNITY POWER PROGRAM**

II. If the plan is adopted or once adopted is revised to include an opt-out alternative default service, the municipality or county shall mail written notification to each retail electric customer within the municipality or county. To enable such mailed notification and notwithstanding RSA 363:38, after an aggregation plan is duly approved the electric distribution utility or utilities serving an	3.1 The data platform shall be the repository of a current list of the names and mailing addresses of all electric customers taking distribution service within the municipality or county. CPAs and electric distribution utilities shall have read, write, and append access to this data. [What data do CPAs envision writing or appending? Is it envisioned that "appending access to this data" will be a feature added into the energy data platform?]

adopting municipality or county shall provide to such municipality or county a current list of the names and mailing addresses of all their electric customers taking distribution service within the municipality or county. . . .
IV. Customers who are on default service provided by an electric distribution utility shall be automatically enrolled in an aggregation provided alternative default service if they do not elect to opt out. . . . New Custumers . . . shall be given a choice of enrolling in utility provided default service or aggregation provided default service, where such exists. New customers shall be informed of pricing for each when they apply for service. Such new customers may also enroll with a competitive electricity supplier. New customers who do not make such a choice shall be enrolled in the default service of any geographically appropriate approved aggregation, or, if none exists, the utility provided default service." ot elect to opt out."

3.2 To enable such mailed notification and notwithstanding RSA 363:38, after an aggregation plan is duly approved the electric distribution utility or utilities serving an adopting municipality or county shall provide to such municipality or county a current list of the names and mailing addresses of all their electric customers taking distribution service within the municipality or county.

3.3 The data platform shall provide customer access to read the data necessary to make an informed choice between utility provided default service, community aggregation services, and competitive electricity supplier service. This data includes the pricing information on these services. It also includes customers' consumption and distributed generation data. (See Use Case 4) [Would this comparison information and distributed generation data be part of energy use data? Would this be built into the platform?]

3.4 The data platform shall provide utilities, community aggregators, and competitive suppliers access to write and update data pricing information for these services.

RSA 53-E:3 "Municipal and County Authorities. . . .	4. OPERATION OF A COMMUNITY POWER AGGREGATION PROGRAM
II "[CPAs have the authority to] provide for: (1) The supply of electric power. (2) Demand side management. (3) Conservation. (4) Meter reading. (5) Customer service. (6) Other related services. (7) The operation of energy efficiency and clean energy districts adopted by a municipality pursuant to RSA 53-F."	[Will the energy data platform be used to extract data into a third party system used by community power aggregators? Are the notes below recommending that additional data analysis, services and functionality be incorporated into the energy data platform?] 4.1 The data platform shall provide CPAs and customers the read, write, and append access to support the exchange of electric power services. [What data would CPAs and Customers envision writing or appending? How would these updates be done? Would this be feature of the energy data platform?] 4.2 The data platform shall provide CPAs and customers the read, write, and append access to support the exchange of demand side management services. [What data would CPAs and Customers envision writing or appending? How would these updates be done? Would this be a feature of the energy data platform or a separate third party system?] 4.34.1 The data platform shall provide CPAs and customers the read, write, and append access to support the exchange of conservation services. [What data would CPAs and Customers envision writing or appending? How would these updates be done? Would this be a feature of the energy data?] 4.44.2 The data platform shall provide CPAs and customers the read, write, and append access to

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	support the exchange of energy efficiency services. [What data would CPAs and Customers envision writing or appending? How would these updates be done? Would this be a feature of the energy data platform?] 4.5 The data platform shall provide CPAs and customers the read, write, and append access to support customer service activities. [What data would CPAs and Customers envision writing or appending? How would these updates be done? Would this be a feature of the energy data?] 4.6 The data platform shall provide the CPAs, and electric utilities (as owners/operators of metering systems) access to read, write and update customers' consumption and distribution generation meter data. [What data would CPAs envision writing or updating? How would the distribution generation meter data be consumed and integrated and who update this data? How would these updates be done? Would this be a feature of the energy data platform 4.74.5 The data platform shall provide customers access to read their consumption and distributed generation meter data.
RSA 53-E:4, IV "For the purpose of obtaining interval meter data for load settlement, the provision of energy services, and near real-time customer access to such data, municipal and county aggregators may contribute to the cost of electric utility provided meter upgrades, jointly own revenue grade meters with an electric utility, or provide its own revenue grade electric meter, which would be in addition to a utility provided meter, subject to commission finding in the public good and approval of the terms and conditions for such arrangements, including sharing or transfer of meter data from and to the electric distribution utility."	**5. AMI INTERVAL DATA TO SUPPORT RTP & DR** [Is this section envisioned to be a full service meter data management system? What is meant by "near real-time interval meter data"? Is it envisioned that the energy data platform would be integrated with the ISO-NE Market system? Would this be a feature of the energy data platform?] 5.1 The data platform shall support near real-time interval meter data for load settlement (between the CPA, wholesale electricity market, and the CPA's customers). [Is it envisioned that the energy data platform would be integrated with the ISO-NE Market system? Would the load settlement system be a feature of the energy data platform?]

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	5.2 The data platform shall support near real- time interval meter data for the provision of energy services (between the CPA and its customers) such as dynamic demand response. For about 20 years, energy service providers have been using Electronic Data Interchange (EDI) transactions to receive usage data for billing purposes. With customer approval (and with utility secure equipment added), some suppliers have direct, near real-time access to interval meters. How is it envisioned that this energy data platform would "provision energy services different from the EDI System or from suppliers directly accessing customer internal meters? Would this be a feature of the energy data platform?]
	5.35.2 The data platform shall support customer's read access of near real-time interval meter data. [Is it envisioned that the utilities will modify their current systems and procedures to read and verify interval meters to load this data on a near real-time basis? Would this be a feature of the energy data platform?]
RSA 53-E:3, II(b) "CPAs may exercise their new authorities on an individual basis, or may choose to standardize the provision of any and all services across multiple jurisdictions by "operating jointly pursuant to RSA 53-A".	**6. SUPPORT FOR CPA JOINT ACTION** 6.1 The data platform shall create equal access for jointly operated CPAs as for individually operated CPAs. Does this mean that in a jointly operated CPAs one town would be able to access energy use data of customers in the other town(s).
RSA 53-E: 4, VI "[CPAs are] subject to RSA 363:38 as service providers and individual customer data shall be treated as confidential private information and shall not be subject to public disclosure under RSA 91-A. An approved aggregation may use individual customer data to comply with the provisions of RSA 53-E:7, II and for research and	**7. USE AND PROTECTION OF INDIVIDUAL CUSTOMER DATA** 7.1 The data platform shall provide CPAs access to individual customer data in a confidential manner and free from public disclosure. [Is this statement intended to grant CPA's access to all customer data or only participating customer data? Will this special access need to be incorporated as a special situation in the setup of access and security rules?]

development of potential new energy services to offer to customer participants." The authority to use individual customer data for "research and development of potential new energy services" is a much broader authority, while the relevant provisions of RSA 53-E:7 more specifically relate to the notification by mail of (1) default service customers to be enrolled on an opt-out basis as well as (2) customers on competitive supply that must be offered CPA service on an opt-in basis	7.2 The data platform shall allow CPAs to use individual customer data to comply with the provisions of RSA 53-E:7. 7.3 The data platform shall allow CPAs to engage R&D entities (academia, laboratories, and consultants) that support development of new energy services to offer to customer participants. [How will customer confidential data be protected should a CPA provide this data to R&D entities?]
RSA 53-E:3-a "[CPAs are] expressly authorized to aggregate other services commonly and regularly billed to customers" [including] "combining billing for any or all utility services".	**8. EXCHANGE OF BILLING DATA** 8.1 The data platform shall provide customer access to read the pricing information in terms of its constituent components (e.g. energy, system benefit, regional access, distribution delivery, distribution demand, and service charges). [What is meant by regional access? How would these updates be done? Would this be a feature of the energy data platform?]
RSA 374-D:2 "Powers. – Municipalities may design, develop, acquire, and construct small scale power facilities at sites owned or leased by them or otherwise made available to them for a period at least equal to the term of any financing undertaken under this chapter. Municipalities may operate, or may enter into contracts for the operation of, such facilities on such terms and conditions as the governing board may determine. Power produced by such facilities may be transmitted and distributed by a municipality to any user of power or to any public utility, at such price and on such terms and conditions as may be agreed to by the governing board." Also: RSA 362-A:2-a Purchase of Output by Private Sector. RSA 374-F:1, Purpose and RSA 374-F:3, II Customer Choice.	**9. ENABLE RETAIL & INTRASTATE WHOLESALE ENERGY MARKET UNDER STATE JURISDICTION** 9.1 The data platform shall enable municipal producers of electricity to sell directly to CPAs, any retail customer, or any competitive electricity supplier that they can supply over the state jurisdictional distribution grid, without having to become a FERC jurisdictional interstate wholesale market participant. [What data fields are needed to accomplish this? How would an energy data data platform enable electricity sales? How can the energy data platform ensure jurisdictional surety? Would this be a feature of the energy data platform?]

VI. Use Cases – Exchanged Electricity Services

The use cases identified above describe the exchange of electricity services. More specifically, Use Case 4 mentions the exchange of electric power services (4.1), demand side management services (4.2), conservation services (4.3), and energy efficiency services (4.4). Each of these sub-use cases must be further detailed because they each have their respective sets of data. Rather than offer an exhaustive list of exchanged services, we offer here a list of electricity services that a New Hampshire community power aggregator is likely to deploy in the near-term.

CPA Retail Electricity Service	Associated Use Case
Default CPA Retail Electricity Service: The CPA exchanges a number of consumed kilo-watt hours (active power integrated over time) in normal operating mode at a flat market rate (cents/kWh) with self-scheduled electricity consumers over a monthly billing cycle in the jurisdiction of the CPA.	**10. Default CPA Retail Electricity Service Data** The data platform shall provide the data that enables Default CPA Retail Electricity Service. [What is meant by "Retail Electricity Service"? What data is envisioned to enable Default CPA Retail Electricity Service? Would this be a feature of the energy data platform?]
Net-Metered CPA Retail Electricity Service: The CPA exchanges a number of generated kilo-watt hours (active power integrated over time) in normal operating mode at a flat market rate (cents/kWh) with self-scheduled electricity generators over a monthly billing cycle in the jurisdiction of the CPA.	**11. Net-Metered CPA Retail Electricity Service Data** The data platform shall provide the data that enables Net-Metered CPA Retail Electricity Service. [What data is envisioned to enable Net-Metered CPA Retail Electricity Service? Would this be a feature of the energy data platform?]
Time-of-Use CPA Retail Electricity Service: The CPA exchanges a number of consumed kilo-watt hours (active power integrated over time) in normal operating mode at a market rate (cents/kWh) differentiated by the hour-block of consumption with self-scheduled electricity consumers over a monthly billing cycle in the jurisdiction of the CPA.	**12. Time-of-Use CPA Retail Electricity Service Data** The data platform shall provide the data that enables Time-of-Use CPA Retail Electricity Service. [What energy use data fields are envisioned to enable Time-of-Use CPA Retail Electricity Service? Would this be a feature of the energy data platform?]

Time-of-Use Net-Metering CPA Retail Electricity Service: The CPA exchanges a number of generated kilo-watt hours (active power integrated over time) in normal operating mode at a market rate (cents/kWh) differentiated by the hour-block of generation with self-scheduled electricity generators over a monthly billing cycle in the jurisdiction of the CPA.	**13. Time-of-Use Net-Metered CPA Retail Electricity Service Data** The data platform shall provide the data that enables Time-of-Use Net-Metered CPA Retail Electricity Service. [What energy use data fields are envisioned to enable Time-of-Use Net Metered CPA Retail Electric Service? Would this be a feature of the energy data platform?]
Wholesale Real-Time Pricing CPA Retail Electricity Service: The CPA exchanges a number of (generated or consumed) kilo-watt	**14. Wholesale Real-Time Pricing CPA Retail Electricity Service Data**

hours (active power integrated over time) in normal operating mode at the wholesale market rate (cents/kWh) of the associated ISO-New England 5-minute time block with self-scheduled electricity generators and consumers over a daily settlement period in the jurisdiction of the CPA.	The data platform shall provide the data that enables Wholesale Real-Time Pricing Time-of-Use Net-Metered CPA Retail Electricity Service. [At what frequency is real-time energy use data envisioned here? For what customer classes? What energy use data fields are envisioned to enable Wholesale Real-Time PricingTime-of-Use Net Metered CPA Retail Electricity Service? Would this be a feature of the energy data platform?]
Transactive Energy Real-Time Pricing CPA Retail Electricity Service: The CPA exchanges a number of (generated or consumed) kilo-watt hours (active power integrated over time) in normal operating mode at an optimal market rate (cents/kWh) every 5-minutes between self-scheduled electricity generators and consumers and dispatchable generators and consumers over a a daily settlement period in the jurisdiction of the CPA.	**15. Wholesale Real-Time Pricing CPA Retail Electricity Service Data** The data platform shall provide the data that enables Transactive Energy Real-TimePricing CPA Retail Electricity Service. [At what frequency is real-time energy use data envisioned here? For what customer classes?]
Yearly Coincident Peak Reduction CPA Retail Electricity Service: The CPA exchanges a reduction in consumed kilo-watt hours (active power integrated over time) in normal operating mode at the predicted time of the coincident peak at an optimal market rate (cents/kWh) with dispatchable generators and consumers in the jurisdiction of the CPA.	**16. Yearly Coincident Peak CPA Retail Electricity Service Data** The data platform shall provide the data that enables Yearly Coincident Peak Reduction CPA Retail Electricity Service. [What data fields are needed to provide this function? Is this envisioned to be done by using interval data for all customers classes, load shapes by customer class, or some combination of the two? Would this be a feature of the energy data platform?]
Monthly Coincident Peak Reduction CPA Retail Electricity Service: The CPA exchanges a reduction in consumed kilo-watt hours (active power integrated over time) in normal operating mode at the predicted time of the coincident peak at an optimal market rate (cents/kWh) with dispatchable generators and consumers in the jurisdiction of the CPA.	**17. Monthly Coincident Peak CPA Retail Electricity Service Data** The data platform shall provide the data that enables Monthly Coincident Peak Reduction CPA Retail Electricity Service. [What data fields are needed to provide this function? Is this envisioned to be done by using interval data for all customers classes, load shapes by customer class, or some combination of the two? Would this be a

	feature of the energy data platform?]

A. Use Case 1: STAKEHOLDER ACCESS

Name	STAKEHOLDER ACCESS
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	The NH State-Wide Multi-Use Energy Data Platform shall provide stakeholder-appropriate, secure, and interoperable access for each of the stakeholder categories identified above.
Step-by-step process – what happens?	1. Stakeholder signs up with data platform website or mobile app. 2. Stakeholder is prompted to authenticate themself and authorize sharing of data as define by their "role" in the data platform. The premise methods for authentication/authorization can vary depending upon architecture and user experience; but it should be simple, convenient, and require no more information than utilities require today for establishing an online account (typically account number and telephone number) [Will access and security requirements vary by stakeholder? How will vetting and enrollment be done? Will stakeholder enrollment expire, require renewal or periodic review? Will customers be responsible for providing stakeholders with access to their energy usage data?] 3. Once authorized, the data platform begins transmission of data within 60 seconds to relevant parties. [Just curious, where does the "within 60 seconds" requirement come from?] 4. Ongoing data continues to be transmitted as defined by the governance of the data platform. [Do customers have a say in the start and end dates of data sharing?]
Data fields required	This use case describes the stakeholder's initial "user experience" – and not a specific set of data.
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve privacy and cyber-security up front. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.

Project Risks	None. It is conventional cyber-security practice to establish the read, write, append, and no-access permissions of a data platform's users and roles. Given that there have been numerous, well publicized breaches of public and retail data and financial systems, wouldn't there be some risks associated with inappropriate access to customer energy usage data? This question/comment applies to all of the following use cases that reference providing access to financial data, customer protected usage data, customer personal identification data".]
Cybersecurity Issues	The purpose of this use case is to achieve cyber-security.
Assumption/Pre-Conditions	None. [Please explain.]

B. Use Case 2 LOCAL GOVERNMENT COMMUNITY POWER PROGRAM, ENERGY, AND CLIMATE ACTION PLANNING.

Name	LOCAL GOVERNMENT COMMUNITY POWER PROGRAM, ENERGY, AND CLIMATE ACTION PLANNING.
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	2.1 To enable planning and development of aggregation plans and other energy and climate action planning by local governments and RPCs, the data platfrom shall provide access to read aggregated historic (and current) monthly customer load data for each class of customer by municipality (and county) of where they take service. This data should be available to any electric aggregation committee created pursuant to RSA 53-E (as well as other governmental entities). 2.2 The data platform shall also provide access to anonymized individual customer interval load data where such data is available with a granularity of an hour or less. This data should include groupings within each customer rate class of whether the customer is on utility provided default energy service or competitive [What customer data needs to be excluded to ensure data is "anonymized"? What data fields are envisioned to be included?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: 1.) aggregated historic and current monthly customer load data for each class of customer by municipality and county where they take service. 2.) anonymized individual customer interval load data with a granularity of an hour or less grouped within each customer rate class of whether the customer is on utility provided default energy service or competitive. For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]

Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:6. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]

What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

C.   Use Case 3 IMPLEMENTATION OF AN OPT-OUT COMMUNITY POWER PROGRAM

Name	IMPLEMENTATION OF AN OPT-OUT COMMUNITY POWER PROGRAM
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	3.1 The data platform shall be the repository of a current list of the names and mailing addresses of all electric customers taking distribution service within the municipality or county. CPAs and electric distribution utilities shall have read, write, and append access to this data. 3.2 To enable such mailed notification and notwithstanding RSA 363:38, after an aggregation plan is duly approved the electric distribution utility or utilities serving an adopting municipality or county shall provide to such municipality or county a current list of the names and mailing addresses of all their electric customers taking distribution service within the municipality or county. 3.3 The data platform shall provide customer access to read the data necessary to make an informed choice between utility provided default service, community aggregation services, and competitive electricity supplier service. This data includes the pricing information on these services. It also includes customers' consumption and distributed generation data. (See Use Case 4) [Is this functionality anticipated to be built into the energy data platform? What data fields are needed to accomplish this? How would a data platform enable electricity sales? How can the data platform ensure jurisdictional surety? What specific distributed generation data fields are envisioned here?] 3.4 The data platform shall provide utilities, community aggregators, and competitive suppliers access to write and update data pricing information for these services.
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]

Data fields required	Generic description: 1.) a current list of names and mailing addresses of electric customers taking distribution service within the municipality or county. 2.) Pricing information on default service, community aggregation services, and competitive electricity supplier service. 3.) Customer consumption and distributed generation data – See Use Case 4. For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues

	significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:7. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

D. Use Case 4 OPERATION OF A COMMUNITY POWER AGGREGATION PROGRAM

Name	OPERATION OF A COMMUNITY POWER AGGREGATION PROGRAM
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	4.1 The data platform shall provide CPAs and customers the read, write, and append access to support the exchange of electric power services. [To support the exchange of electric power services by CPAs and customers, what data fields would be envisioned here? Is it envisioned that "appending access to support the exchange of electric power services" will be a feature added into the energy data platform?] 4.2 The data platform shall provide CPAs and customers the read, write, and append access to support the exchange of demand side management services. [To support the exchange of demand side management services by CPAs and customers, what data fields would be envisioned here? Is it envisioned that "append access to support the exchange of demand side management services" will be a feature added into the energy data platform?] 4.3 The data platform shall provide CPAs and customers the read, write, and append access to support the exchange of conservation services. [To support the exchange of conservation services by CPAs and customers, what data fields would be envisioned here? Is it envisioned that "append access to support the exchange of conservation services" will be a feature added into the energy data platform?] 4.24.4 4.5 The data platform shall provide CPAs and customers the read, write, and append access to support the exchange of energy efficiency services. [To support the exchange of energy efficiency services by CPAs and customers, what data fields would be envisioned here? Is it envisioned that "append access to support the exchange of energy efficiency services" will be a feature added into the energy data platform?] 4.34.6 4.44.7The data platform shall provide CPAs and customers the read, write, and append access to support customer service activities. [To support the exchange of customer service activities by CPAs and customers, what data fields would be envisioned

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<table>
<tr>
<td></td>
<td>here? Is it envisioned that "append access to support the customer service activities" will be a feature added into the energy data platform?]

4.54.8 The data platform shall provide the CPAs, and electric utilities (as owners/operators of metering systems) access to read, write and update customers' consumption and distribution generation meter data. [To support the exchange of energy efficiency services by CPAs, what consumption and distribution data fields would be envisioned here? Is it envisioned that "append access…and update customers' consumption and distribution generation meter data" will be a feature added into the energy data platform?]

4.64.9 The data platform shall provide customers access to read their consumption and distributed generation meter data.</td>
</tr>
<tr>
<td>*Step-by-step process – what happens?*</td>
<td>Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually.
[Should stakeholders access expire or be reviewed and verified periodically?]</td>
</tr>
<tr>
<td>*Data fields required*</td>
<td>Generic description:
1.) The required data fields depend on the nature of the exchanged electric power services.
2.) The required data fields depend on the nature of the exchange demand side management services
3.) The required data fields depend on the nature of the conservation services.
4.) The required data fields depend on the nature of the energy efficiency services.</td>
</tr>
</table>

	5.) The required data fields depend on the nature of the customer service activities associated with the services in 1-4. 6.) Consumption and distribution meter data has been standardized in the Common Information Model published by the IEC. 7.) Same as 6. For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

E. Use Case 5 AMI INTERVAL DATA TO SUPPORT RTP & DR

Name	AMI INTERVAL DATA TO SUPPORT RTP & DR
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	5.1 The data platform shall support near real-time interval meter data for load settlement (between the CPA and its customers). 5.2 The data platform shall support near real-time interval meter data for the provision of energy services (between the CPA and its customers) such as dynamic demand response. 5.3 The data platform shall support customer's read access of near real-time interval meter data. [Does this envision the utilities will purchase, install and implement metering equipment and systems to be able to provide "near real-time interval data"? Will "load settlement" and "provision of energy services… such as dynamic demand response" functions be built into the energy data platform?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: 1.) Near real-time load data as standardized in the Common Information Model published by the IEC. For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:4, IV. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]

What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Does access to customers "near real time interval meter data" introduce additional customer privacy concerns and/or risks?]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

F. Use Case 6 SUPPORT FOR CPA JOINT ACTION

Name	SUPPORT FOR CPA JOINT ACTION
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	6.1 The data platform shall create equal access for jointly operated CPAs as for individually operated CPAs.
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: 1.) The data fields in this use case are equivalent to those for individually operated CPAs. For an _**interoperable**_ implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3, II(b). That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

G. Use Case 7 USE AND PROTECTION OF INDIVIDUAL CUSTOMER DATA

Name	USE AND PROTECTION OF INDIVIDUAL CUSTOMER DATA
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	7.1 The data platform shall provide CPAs access to individual customer data in a confidential manner and free from public disclosure. [How will customer confidential data be protected under the NH Right-to-Know Law (RSA Chapter 91-A:1)?] 7.2 The data platform shall allow CPAs to use individual customer data to comply with the provisions of RSA 53-E:7. [Would the energy data platform "enable" a CPA to perform some of the requirements of this statute, or is "comply" the correct word? Are there other ways the utilities could work with CPAs to enable them to perform tasks detailed in this statute?] 7.3 The data platform shall allow CPAs to engage R&D entities (academia, laboratories, and consultants) that support development of new energy services to offer to customer participants. [What assurances will be in place to ensure that customer confidential data is protected by"R&D entities".]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: 1.) The data fields associated with individual customer data. For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:4, VI. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well.

	[How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

H. Use Case 8 EXCHANGE OF BILLING DATA

Name	EXCHANGE OF BILLING DATA
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	8.1 The data platform shall provide customer access to read the pricing information in terms of its constituent components (e.g. energy, system benefit, regional access, distribution delivery, distribution demand, and service charges). [Is this use case giving customers access to the lines items on their bills? Is this intended to include all other utility (or CPA or Supplier) billing items such as equipment rentals, line extension fees, on-bill financing, etc.? Will this be based on billed data, or informational to customers when selecting an energy supplier? Is it envisioned that these billing constituent components will be added into the energy data platform?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: 1.) The data fields associated with pricing information and its constitutent components. For an *__interoperable__* implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3-a. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]

Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

I. Use Case 9 ENABLE RETAIL & INTRASTATE WHOLESALE ENERGY MARKET UNDER STATE JURISDICTION

Name	ENABLE RETAIL & INTRASTATE WHOLESALE ENERGY MARKET UNDER STATE JURISDICTION
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	9.1 The data platform shall enable municipal producers of electricity to sell directly to CPAs, any retail customer, or any competitive electricity supplier that they can supply over the state jurisdictional distribution grid, without having to become a FERC jurisdictional interstate wholesale market participant. [How will the energy use data platform enable electricity producers to sell electricity? Is it envisioned that "enable municipal producers of electricity to sell directly to CPAs, any retail customer, or any competitive electricity supplier" will be a feature added into the energy data platform?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: 1.) The data fields associated with pricing and quantity of electricity generation by asset at the temporal resolution associated with the electricity service. For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 374-D:2 and RSA 362-A:2-a consistent with RSA 374-F. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]

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What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

J. Use Case 10 ENABLE DEFAULT CPA RETAIL ELECTRICITY SERVICE DATA

Name	ENABLE DEFAULT CPA RETAIL ELECTRICITY SERVICE DATA
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	10. The data platform shall provide the data that enables Default CPA Retail Electricity Service. [Is this monthly usage data? Would this duplicate the provision of data to suppliers via EDI transactions? How does the term "Default CPA Retail Electricity Service" compare with the "Default Energy Service" that only utilities are authorized to provide? How might an energy use data platform enable Default CPA Retail Electricity Service?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: See Use Case #4 For an **_interoperable_** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation. [Is there anything related or implied by "Default CPA Retail Electricity Service" that impacts rules, laws, regulations or tariffs that designate the utilities as energy provider of last resort (Default Energy Service Provider)?]
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]

Assumption/Pre-Conditions	None. [Please explain.]

K. Use Case 11 ENABLE NET-METERED CPA RETAIL ELECTRICITY SERVICE DATA

Name	ENABLE NET-METERED CPA RETAIL ELECTRICITY SERVICE DATA
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	11. The data platform shall provide the data that enables Net-Metered CPA Retail Electricity Service. [Is this monthly usage data or something else (e.g., monthly usage data less group net meter credit)? If this is monthly usage data, this data is already provided to suppliers via EDI transactions? Would this duplicate that process? What is meant by "Retail Electricity Service"? Does this conflict with RSA 53-E:4 subsection III that says that transmission and distribution service shall remain with the transmission and distribution utilities? How would this process work? Is it envisioned that "enables Net-Metered CPA Retail Electricity Service" will be a feature added into the energy data platform?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: See Use Case #4 For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3. [Subsection 3 is a permissive provision and has no compliance requirements. What type of regulatory compliance is referenced here and is being achieved by this use case?] That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]

What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

L. Use Case 12 ENABLE TIME-OF-USE CPA RETAIL ELECTRICITY SERVICE DATA

Name	ENABLE TIME-OF-USE CPA RETAIL ELECTRICITY SERVICE DATA
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	12. The data platform shall provide the data that enables Time-of-Use CPA Retail Electricity Service. [Does "Retail Electricity Service" actually refer to Energy "Supply" Service? How might an energy use data platform enable Time-of-Use CPA Retail Electricity Service? Will this require new metering? How would this process work? What role would utility metering (monthly & interval) play in this process or use case? Is it envisioned that "enables Net-Metered CPA Retail Electricity Service" will be a feature added into the energy data platform?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: See Use Case #4 For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3. [Subsection 3 is a permissive provision and has no compliance requirements. What type of regulatory compliance is referenced here and is being achieved by this use case?] That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.

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Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

M. Use Case 13 ENABLE TIME-OF-USE NET-METERED CPA RETAIL ELECTRICITY SERVICE DATA

Name	ENABLE TIME-OF-USE NET-METERED CPA RETAIL ELECTRICITY SERVICE DATA
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	13. The data platform shall provide the data that enables Time-of-Use Net-Metered CPA Retail Electricity Service. [Is this use case referring to behind-the-meter net metering or group net metering? Will this require new metering? Does "Retail Electricity Service" actually refer to Energy "Supply" Service? How might an energy use data platform enable Time-of-Use CPA Retail Electricity Service? How would this process work? Is it envisioned that "enables Time-of-Use Net-Metered CPA Retail Electricity Service" will be a feature added into the energy data platform?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: See Use Case #4 For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3. [Subsection 3 is a permissive provision and has no compliance requirements. What type of regulatory compliance is referenced here and is being achieved by this use case?] That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]

What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

N. Use Case 14 ENABLE WHOLESALE REAL-TIME PRICING CPA RETAIL ELECTRICITY SERVICE DATA

Name	ENABLE WHOLESALE REAL-TIME PRICING CPA RETAIL ELECTRICITY SERVICE DATA
Author/last updated	Document Authors: LGC Last updated 4/3/202 0
Description (1-2 sentences)	14. The data platform shall provide the data that enables Wholesale Real-Time Pricing Time-of-Use Net-Metered CPA Retail Electricity Service. [Will this require new metering? Does "Retail Electricity Service" actually refer to Energy "Supply" Service? How might an energy use data platform enable Wholesale Real-Time CPA Pricing Retail Electricity Service Data ? How would this process work? Would this transaction be done as part of the energy data platform or be done somewhere else?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: See Use Case #4 For an _**interoperable**_ implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3. [Subsection 3 is a permissive provision and has no compliance requirements. What type of regulatory compliance is referenced here and is being achieved by this use case?] That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.

Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

O.   Use Case 15 ENABLE WHOLESALE REAL-TIME PRICING CPA RETAIL ELECTRICITY SERVICE DATA

Name	ENABLE WHOLESALE REAL-TIME PRICING CPA RETAIL ELECTRICITY SERVICE DATA
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	15. The data platform shall provide the data that enables Transactive Energy Real-Time Pricing CPA Retail Electricity Service [Does "Retail Electricity Service" actually refer to Energy "Supply" Service?Will this require new metering? What real-time info is envisioned and where will it come from? How might an energy use data platform enable Transactive Wholesale Real-Time Pricing CPA Retail Electricity Service Data? What data is envisioned here? Will this energy use data platform also be used to do sub-ISO-NE load settlement processing? How would this process work? Is it envisioned that "enables Transactive Energy Real-Time Pricing CPA Retail Electricity Service" will be a feature added into the energy data platform? What vendors have developed "transactive energy real-time pricing"systems? Will integration with ISO-NE systems be required?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: 1.) The data fields associated with pricing and quantity of electricity generation by asset at the temporal resolution associated with the electricity service. For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [This seems like it is a very complex load settlement process and will need further specification to estimate costs. SB 284 mandates that we determine costs feasibility prior to implementation. How can we best determine the costs?]

Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 374-D:2 and RSA 53-E:3. [Regarding RSA 374-D:2, how would an energy data platform achieve regulatory compliance by securing financial bonds for a Municipal Small Scale Power Facility? Subsection 3 is a permissive provision and has no compliance requirements. What type of regulatory compliance is referenced here and is being achieved by this use case?] That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Would system complexity be considered a project risk?]
Cybersecurity Issues	None. [What is the scale of financial security that is needed to enable Transactive Energy Real-Time Pricing?]
Assumption/Pre-Conditions	None. [Are there published standards for transactive energy systems and processes that address financial controls, cyber security and data processing?]

P. Use Case 16 ENABLE YEARLY COINCIDENT PEAK CPA RETAIL ELECTRICITY SERVICE DATA

Name	ENABLE YEARLY COINCIDENT PEAK CPA RETAIL ELECTRICITY SERVICE DATA
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	16. The data platform shall provide the data that enables Yearly Coincident Peak Reduction CPA Retail Electricity Service. [Does "Retail Electricity Service" actually refer to Energy "Supply" Service? Will this require new metering? How might an energy use data platform enable "Yearly Coincident Peak Reduction CPA Retail Electricity Service"? What data and frequency of data is envisioned? For some customers, the utilities allocate coincident peak by load shape and customer class. Based on this use case, how is the coincident peak reduction supposed to be calculated (or estimated)? Will this require ISO-NE integration? How would this process work? Is it envisioned that "enables Yearly Coincident Peak Reduction CPA Retail Electricity Service" will be a feature added into the energy data platform?}
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: 1.) The data fields associated with pricing and quantity of electricity generation by asset at the temporal resolution associated with the electricity service. For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [SB 284 mandates that we determine costs feasibility prior to implementation. How can we best determine the costs?]

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Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well. [How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

Q   Use Case 17 ENABLE MONTHLY COINCIDENT PEAK CPA RETAIL ELECTRICITY SERVICE DATA

Name	ENABLE MONTHLY COINCIDENT PEAK CPA RETAIL ELECTRICITY SERVICE DATA
Author/last updated	Document Authors: LGC Last updated 4/3/2020
Description (1-2 sentences)	17. The data platform shall provide the data that enables Monthly Coincident Peak Reduction CPA Retail Electricity Service. [Does "Retail Electricity Service" actually refer to Energy "Supply" Service? How might an energy use data platform enable "Monthly Coincident Peak Reduction CPA Retail Electricity Service"? Will this require new metering? What data and what is the frequency of data envisioned? Based on this use case, how is the monthly coincident peak supposed to be calculated? Will this require ISO-NE integration? How would this process work? Is it envisioned that "enables Monthly Coincident Peak Reduction CPA Retail Electricity Service" will be a feature added into the energy data platform?]
Step-by-step process – what happens?	Once Use Case #1 is completed, then the data platform should make this information available to the appropriate stakeholders perpetually. [Should stakeholders access expire or be reviewed and verified periodically?]
Data fields required	Generic description: 1.) The data fields associated with pricing and quantity of electricity generation by asset at the temporal resolution associated with the electricity service. For an ***interoperable*** implementation of the specific data fields, please consult the Common Information Model standards published by the IEC. [What are the data fields envisioned here? What specific section of the Common Information Model standard is referenced?]
Estimated costs	As stated in our scoping comments, the cost of an individual use case should never be assessed individually. A given use case often accrues significant costs for "generic groundwork" that can be shared across multiple use cases. [How can we best determine the costs?]
Estimated benefits	The primary benefit of this use case is to achieve regulatory compliance with RSA 53-E:3. That said, as stated in our scoping comments, the benefits from an individual use case should never be assessed individually. The total benefits of a given use case are usually not realized until other use cases have been implemented as well.

	[How can we best determine the benefits?]
What policy changes required for benefits to be realized?	None at the legislative or regulatory level. That said, the governance of the data platform needs to be established in concert with the technical implementation.
Project Risks	None. [Please explain.]
Cybersecurity Issues	None. [Please explain.]
Assumption/Pre-Conditions	None. [Please explain.]

R. Potential Functionalities of a Statewide Multi-Use Energy Data Platform by Greentel.

In addition to the 17 use cases identified above, we include *some* of the functionalities that we can expect to find in a statewide multi-use energy data platform.

Functionalities

Data Format
Data is accessible to all platform users in API , electronic, machine readable format
Data is accessible to all platform users in downloadable machine readable format
Data Type Availability
Platform will make available **customer data upon customer consent** (see data points and elements below) [What **customer data (specifically metering and load data)** fields are envisioned?]
Platform will make available **anonymous aggregated customer data** [What **anonymous aggregated customer data** fields are envisioned here? What level(s) of anonymization is envisioned?]
Platform will make available **system dat**a (see data points and elements below). [How is this related to customer energy use data? What system data fields are envisioned here? Would system data requirements be met with hosting capacity maps?]
Platform will make available **market/financial data** (see data points and elements below) [How is this related to customer energy use data? What "**market/markets**" and **financial** data fields are envisioned here?]
Platform will make available **DER data** (see data points and elements below) [What **DER data** fields are envisioned here?]
Customers
Customers can authorize 3rd parties to access customer data via 1-click electronic authorization
Customers can access customer data via both data formats stated above (downloadable/API)
Customers can access portal (app store) to access registered 3rd parties for energy services (Makes it easier for the customer to access the market aka DERs providers, Competitive Suppliers, EE/DR Providers and Utilities) [How does customer energy use data relate to the creation of an "app store"? Will there be any system integration requirements for an application to be accessible via this platform? Is this part of the energy data platform or will the app store be a separate third party application?]
Distributed Energy Resource (DER) providers

DERs providers can access **customer data** upon customer consent
DERs providers can access **anonymous aggregated customer data**
DERs providers can access **system data**
DERs providers can access **market/financial data**
DERs providers can access **DER data**

Competitive Suppliers
Competitive suppliers can access **customer data** upon customer consent
Competitive suppliers providers can access **anonymous aggregated customer data**
Competitive suppliers providers can access **market data**
Community Choice Aggregators
CCA aggregators can access **customer data** upon customer consent
CCA aggregators can access **anonymous aggregated customer data**
CCA aggregators can access **system data**
CCA aggregators can access **market/financial data**
CCA aggregators can access **DER data**
Utilities
Utilities can provide **customer data** to customers to inform EE programs (1-stop shop platform for customers) [What **customer data** fields are envisioned here?]
Utilities can access **DER data**

S. Illustrative Draft Administrative Rule Language Relating to Use Cases 2-4.

Use Case 2 LOCAL GOVERNMENT COMMUNITY POWER PROGRAM, ENERGY, AND CLIMATE ACTION PLANNING

After notification to the PUC of the formation of an electric aggregation committee pursuant to RSA 53-E:5, I:

Puc 2203.02 <u>Request for Load Information from Utilities</u>. A committee or CPA may request load information for all electric customers located within the applicable municipality or county for each utility servicing such customers by making an email or written request for such data to each such utility with a copy to the PUC consistent with the requirements of Puc 202.06.

Puc 2203.03 <u>Provision of Load Information by Utilities.</u> Within 30 days from receipt of such request the utility shall provide the following load information for their customers taking service within the municipality or county:

(a) For customer accounts with meters that record or report only interval data between readings, typically monthly, the following:

(1) The most recent 60 months of monthly load data for each rate class, aggregated and sorted by whether they were taking competitive service or utility provided default service for each such month; and

(2) Customer counts in each rate class for each month, sorted by whether they were taking competitive service or utility provided default service for each such month.

(3) Aggregated capacity tag information by month for each rate class sorted by whether they were taking competitive service or utility provided default energy service.

(4) A count of customers participating in the Electric Assistance Program (EAP) for each month sorted by whether they were taking competitive service or utility provided default energy service.

(5) A count of customers that net meter by month for each rate class sorted by whether they were taking competitive service or utility provided default energy service.

[Not in this list are class average load shapes that are currently made available on utility websites for competitive suppliers. These seem to be only refreshed once per year and for through 2018 is available on-line. Could the data platform support monthly updates?

(b) For customer accounts with meters that routinely record or report interval data more frequently than monthly, such as hourly or by time-of-use, the following:

(1) All of the information in paragraph (a) above plus:

(2) If requested, for customers then currently on default service all interval load data available for each customer for the most recent 36 months down to a granularity of not less than hourly if such interval data is retained at hourly or more frequent intervals.

(c) Any individual customer data provided to a committee shall only be provided after information that identifies or enables the identification of any individual customer name, address, or account number is removed.

(d) A code that allows the utility to release customer identity information to a CPA after accounts become customers of the CPA may be included with the utility provided anonymized individual customer data provided pursuant to (b)(2) above.

(e) A committee or CPA may request to have such data refreshed or extended to the most recent month available not more frequently than once every 6 months after the initial request. [For data platform, this should be continuously available at any time – with data base perhaps updated daily or at least weekly as meters are read and verified for billing purposes. Monthly data probably needs a data stamp of the reading period (date of last meter read to date of most recent read). More granular interval data obviously needs date *and time* stamps.]

(f) Load data shall include consumption in kWh, and where available, kW and kVA demand, for each reported interval.

Note: To protect individual customer privacy, including compliance with RSA 363:37–38, the following features or something similar could be built into the data platform:

1. If there are only 1 or 2 customers within a rate class by supplier (on default or competitive supply) for any applicable time period, their data will be placed in with the most similar other rate class and their data presented together. For example, if a given town only had 1 or 2 G-1 (largest C&I) customers on default service, their data would be aggregated with G-2 and the two together presented as G-1 and G-2 rate class on default service. (This is relevant for both (a) and (b) above.)

2. If there are only 3 to 6 customers within a rate class (or grouping due to 1 above), then all of them would be aggregated to show total or average load for the group (with a count of number of such customers) (This is relevant for (b) above.)

3. If there are 7 or more customers within a rate class (or grouping due to 1 above), then the 3 largest customer loads will be averaged together and presented as 3 customers with identical (average) loads and for the remaining customers load data can be provided individually without identifying information. (This is relevant for (b) above.)

Use Case 3 IMPLEMENTATION OF AN OPT-OUT COMMUNITY POWER PROGRAM

Puc 2204.02 Request for Names and Addresses of Customers.

(a) Upon request, after a municipality or county files its approved electric aggregation plan with the commission, each utility serving the jurisdiction shall provide to the jurisdiction the names and mailing

addresses for every electricity customer taking service within the municipality or county including the utility account numbers for each metered load within the jurisdiction.

(b) Such data shall be in digital electronic format [not scanned images] such as a data base or spreadsheet file.

Use Case 4 OPERATION OF A COMMUNITY POWER AGGREGATION PROGRAM

PART Puc 2206 METERING, LOAD SETTLEMENT, AND BILLING

Puc 2206.01 <u>Historic Load and Billing Data</u>. Once a utility customer becomes a customer of a CPA the utility shall provide for each such customer:

(a) A minimum of three years of historic load data for each such customer, consistent with the requirements of Puc 2203.03, except for Puc 2203.03(c), which may be by means of an unlocking key to the data provided under Puc 2203.03.

(b) Individual customer data that allows the identification of that customer and association with their load data, including:

(1) Name of customer;

(2) Name of customer contact if different from customer;

(3) Mailing address;

(4) Service address; and

(5) Account number.

(6) Historic (3-5 yrs.), current [power year] and prospective [next power year] capacity tag information for each customer [when it becomes available].

(7) Current and historic status of customers regarding:

a. whether they net meter under grandfathered terms [kWh credit];

b. whether they net meter under more recent tariffs [alternative net metering monthly monetary credit for surplus kWh];

c. whether they are a group net metering host or member with on-bill crediting;

d. whether the customer is certified under the RPS as being a qualified customer-cited source of RECs and if so, for which class of RECs;

d. whether they participate in the Liberty battery pilot;

e. whether they are currently enrolled in the EAP;

f. whether they are currently in a payment plan for arrearages; and

g. rate class of the customer.

(c) At least one year's worth of billing data including monthly arrearage balances.

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Puc 2206.02 <u>Ongoing Meter Data Access</u>. Utilities shall provide CPAs with access to metering and load data for each of their customers on as near contemporaneous time frame at they themselves have access to the meter and load data. This may be done by:

(a) Providing the CPA access to meter and load data through a secure API; and

(b) Enabling the CPA to directly read the customer meter. [Pursuant to RSA 55-E:3, II(4).]

> <u>Note</u>: Going beyond utility provided meter data, the ongoing use case should incorporate the idea of the CPAs reading interval meters that they own or partially own making that data available through the platform for daily load settlement with ISO New England.
>
> To implement RSA 53–E:3 after the CPA is launched and it has actual customers for Load Settlement and Allocation of Capacity Tags, these functions need to be enabled for customers with hourly interval meters and might best be done through the data platform:

Puc 2206.05 <u>Use of Interval Load Data for Load Settlement</u>. [Use interval meter data for daily load settlement where available, including from CPA provided secondary revenue grade meter. Use negative loads (with hourly or more granular interval data), whether from customer- generators, limited producers, or municipally owned, leased, or operated small power producers under 5 MW and not registered in ISO-NE wholesale market pursuant to RSA 374-D:2, to offset hourly consumption load to determine net load for wholesale market load settlement purposes.]

Puc 2206.06 <u>Use of Interval Load Data for Capacity Tags</u>. [For allocation of capacity tags for ISO-NE FCM use hourly interval load data to figure overall capacity tags for CPA customers, netting negative loads (like Puc 2206.05 above) at annual system peak hour to offset consumption loads at that coincident peak. Give net producer meters a zero capacity tag and reduce consumption meter capacity tags pro rata across the CPA customer base by negative loads unless CPA specifies specific consumer meters to apply the negative loads to, but not less than zero.]

> <u>Note</u>: This allocation would probably best be done by the CPAs through the data platform, subject to utility verification that overall capacity tags for CPA customers and distributed generation (with none below zero) equal overall capacity tag for CPA meter group at the time annual capacity tags are assigned. (This could also be done by the software forcing it to be true.) This is an important new functionality that doesn't exist today. Negative loads at time of system peak (e.g. from net metered generation exports) are currently effectively socialized by the utilities to all customers. Distributed generation is this instance refers to generators < 5 MW that are connected behind retail meters on the distribution grid and that are not registered or participating in the FERC jusidictional wholesale market (engaged in

interstate commerce).

- end-