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March 11, 2020

Ms. Debra A. Howland
Executive Director
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, New Hampshire 03301

Re: Docket No. DE 19-197
Electric and Natural Gas Utilities
Development of a Statewide, Multi-Use Online Energy Data Platform
Scoping Comments

Dear Ms. Howland:

Pursuant to the procedural schedule approved by the Commission in the above-referenced docket on February 14, 2020, the Office of the Consumer Advocate (OCA) is submitting this letter as its written comments on the scope of this proceeding. Commission Staff filed a memorandum on February 10, 2020 with specific scoping questions, which we endeavor to answer below. We are also including certain additional observations and suggestions, arising out of our conviction that the subject of this docket – the development of a statewide platform for the sharing of energy data – is critical to the interests of the residential utility customers we are tasked with representing.

I. Background and Context

The OCA has been working actively on utility data sharing since March 2017, when we entered into a settlement agreement with Unitil Energy Systems (in connection with an electric distribution rate case, Docket No. DE 16-384) that provided for a collaborative effort among the utility, Commission Staff, and the OCA to create a data sharing plan. See Order No. 26,007 (April 4, 2017) (approving settlement). Building on the insights acquired via that successful process, in 2019 we drafted and asked the General Court to consider the legislation on this subject (SB 284) that became Chapter 286 of the 2019 New Hampshire Laws, codified as RSA 378:50 through :54.

In Chapter 286, the General Court found that accomplishing the purposes of electric utility restructuring under RSA 374-F, to implement the state's energy policy as defined by RSA 378:37, and to make the state's energy systems "more distributed, responsive, dynamic, and consumer-focused," it is necessary to provide both consumers and stakeholders with "safe, secure access" to energy usage data. 2019 N.H. Laws Ch. 286:1. The General Court described

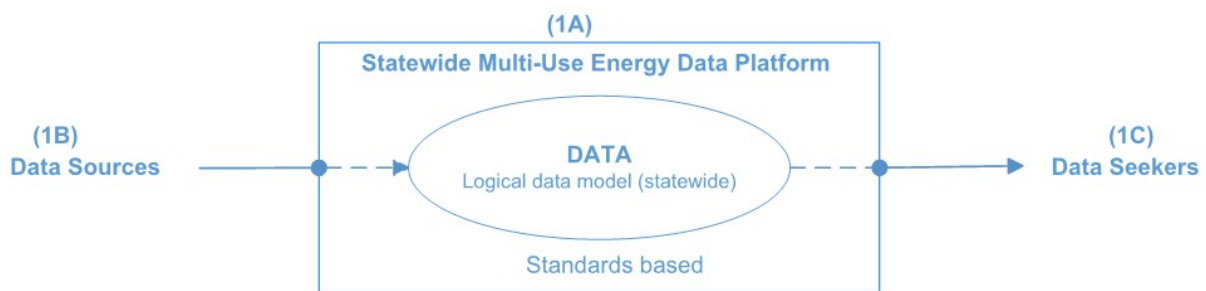
this as a “foundational element for moving New Hampshire’s electric and natural gas systems to a more efficient paradigm in which empowering consumers is a critical element.” Id. If anything, these findings under-state the extent to which sharing and making meaningful use of utility data have transformative potential for consumers and industry participants alike.

The General Court specifically referenced the Commission’s recent and ongoing proceedings concerning grid modernization (IR 15-296), net metering (DE 16-576), and the energy efficiency resource standard (DE 15-136 and DE 17-136) as ones that have brought to light areas in which data sharing can advance the public interest. Id. To that list, we would add the Commission’s recently opened docket on electric vehicle (EV) rate design (IR 20-004) and the work the Commission has recently begun to implement Community Power (i.e., opt-out community choice aggregation) as contemplated by SB 286 from the 2019 legislative session, enacted as Chapter 316 of the 2019 New Hampshire Laws (codified as RSA 53-E:3-b to :7).

Based on our analysis in New Hampshire and nationally, the chief impediment to achieving our energy goals is the lack of data access for customers, regulators, third parties, and modern smart grid applications. Solving the data access problem is not a “nice to have” but a “need to have.” This proceeding is New Hampshire’s opportunity to build on efforts of other states to understand what has and has not worked in order to initiate the creation of a next generation data platform that will transform our grid and our economy.

Figure 1 is a simple diagram of the platform contemplated by SB 284. It depicts the platform as a bridge connecting data sources – principally but not necessarily exclusively public utilities – and data seekers, which consist not just of consumers but also, critically, non-regulated entities that provide innovative services to consumers, municipalities and other government entities, and those who are studying and improving our energy networks locally, regionally, and nationally. Given its bridging role, the critical characteristic of the platform is its reliance on a uniform, standards-based logical data model.

Figure 1



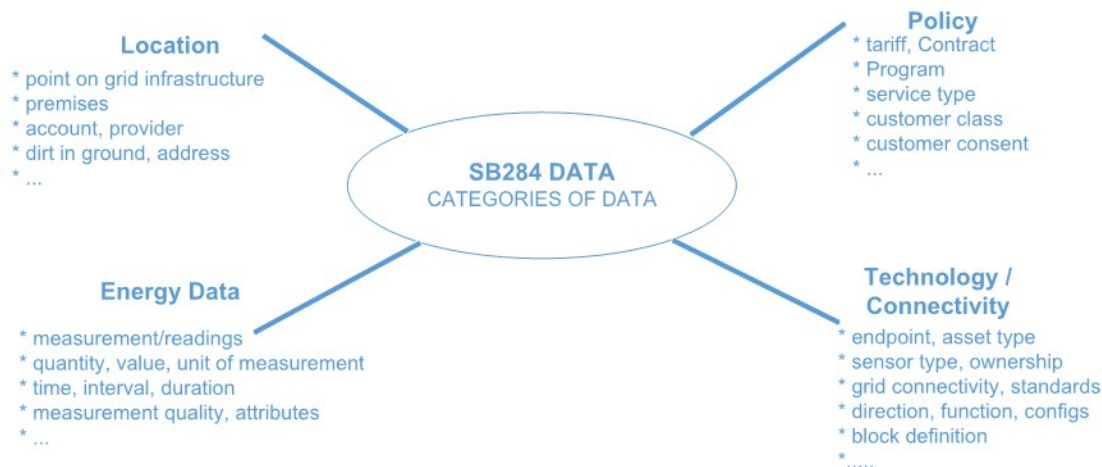
New Hampshire Office of Consumer Advocate

We believe that key to the success of the instant docket will be making effective use of the insights acquired via the DE 16-384 working group during its 18 months of work. A five person team with expertise in utility engineering and operations, utility software and utility data systems, enterprise data modeling and system architecture, utility regulation, and project

management developed an initial data model, conceptual platform architecture, and road map to deploying a system by 2022. The “Road Map” developed as part of this process is appended to this letter as Appendix B.

Figure 2 below shows the high-level organizational structure of the data model that we shared with the Legislature as it considered SB284.

Figure 2: High level Data Model DE 16-384



After SB 284 attained initial passage in the Senate and moved to the House, the House Committee on Science, Technology and Energy (ST&E) appointed a subcommittee (chaired by Representative McGhee, an intervenor in this docket) which in collaboration with the OCA, utilities, and other stakeholders to refine the legislation and clarify its purposes and expected outcomes. At the final meeting of this group, these consensus items on the benefits of the SB284 were documented on a white board in round table fashion:

- better energy decision-making,
- adoption of a national data standard,
- the ability to manage distributed energy resources and deployments,
- greater energy-efficiency,
- empowering customers with energy options,
- implementing time-of-use rate savings,
- helping municipalities to aggregate by seeing their energy data,
- benchmarking buildings,
- optimizing distributed energy resources,
- supporting energy research,
- promoting energy innovation,
- optimizing storage,
- enabling demand response and reliability,

- reducing risk,
- quantifying opportunity costs,
- improving customer behavior and communication,
- supporting grid modernization and other restructuring efforts, and
- the potential to strengthen the energy grid as it becomes more distributed.

All of these benefits have the potential to help NH lower energy costs and manage energy consumption. Further insight into the benefits envisioned by the General Court can be gleaned by reviewing Appendix C to this letter, which consists of the majority report of ST&E on the bill as it appears on page 12 of the May 3, 2019 edition of the House Calendar.

Keeping these benefits as envisioned by the General Court in mind will help ground stakeholders during the scoping phase of the docket. It will also be useful to maintain clarity about what the SB 284 data platform is not intended to accomplish.

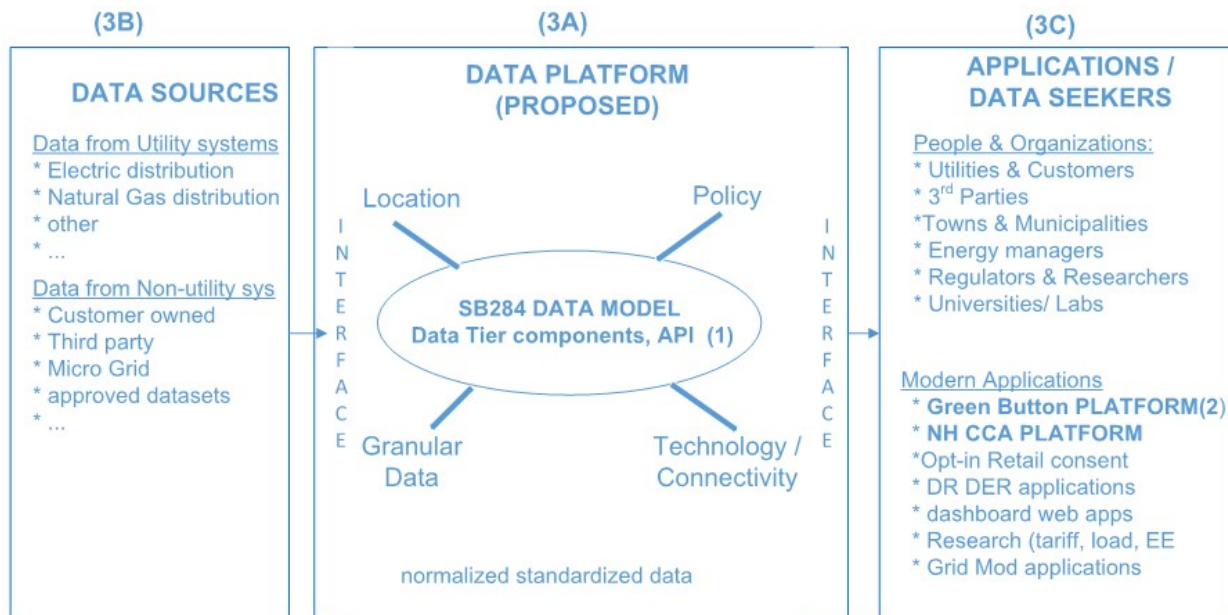
The data platform as discussed during the legislative process would not change, create, or reengineer the data contained in any utility back office systems (identified as “Data Sources” in Figure 3 area 3B, below). The platform would not require changes to the existing utility systems (e.g., CIS, MDM, or GIS)¹. Likewise, the data platform would not design or create any of applications or use cases, which is the role of third parties in the market (identified as “Applications/Data Seekers in Figure 3 area 3C). Instead, the data platform would represent a new piece of infrastructure (the center box in Figure 3 area 3A).

In other words, as illustrated in Figure 3, the proposed platform would interface with many disparate sources of data on the left (utility and non-utility data sources) and the emerging new energy market on the right. It is this new energy market that interacts with a myriad of customer types to provide the uses and opportunities from this standardized, safely accessible data. The data platform should provide easy, reliable access to normalized granular or aggregated data across NH’s grid regardless of types of service (electric, gas, water), regardless of franchise territory, and regardless of asset (grid, DER, premises) ownership.

The organizational vision of SB 284 is threefold: (1) to organize existing but siloed data across all grid end points regardless of what utility or utilities serve that location, (2) to standardize the data shared, and (3) to incorporate increasing time and location granularity as the grid modernizes. Without hindering current utility operations, the SB284 data platform should eliminate existing utility data silos that cause a lack of interoperability and block transparency and innovation. The data shared by the SB284 data platform should enable the development of innovative energy products and services for Granite Staters more quickly and less expensively than would otherwise occur.

¹ The integration process may include connecting to and exchanging data with existing utility (or non-utility) systems for operational purposes such as updating data in the SB284 data platform. Depending on implementation decisions, on a utility-by-utility basis, this integration process may include the installation of agreed software and or hardware component(s) to automate and streamline processes.

Figure 3: Software applications and 3rd parties enabled by SB 284 Data Platform



Note: 1. Versioned New Hampshire logical data model is an SB284 requirement
2. Support of OpenESPI (Green Button) is an SB 284 requirement (data sharing format)

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Since the Legislature concluded its work on SB 284 to the present, we have continued to conduct analysis and outreach in preparation for this docket. Specifically, we have been conducting technical outreach at the state and national levels with data seekers, state regulators, utilities, solar and other distributed energy vendors and providers, consultants with systems and data sharing expertise, third party vendors, universities, standards organizations, national labs and think tanks. The purposes of this outreach are:

- To validate and advance the 18 month work effort in DE 16-384,
- To investigate the data sharing strategies of other states, including consideration of what has and has not been successful,
- To identify over 30 transformative use cases through meetings and input from customers, businesses, state agencies, research and educational organizations located in New Hampshire.

Drawing on these outreach efforts, and in light of the principles and purposes discussed above, we are pleased to provide the following responses to the specific scoping queries posed by Commission Staff.

II. Functionalities

1. What functionalities should a statewide multi-use energy data platform offer to customers, Distributed Energy Resource (DER) providers, Competitive Suppliers, and other users, including any applications and business uses?

At a high level, the primary function of the statewide platform is to provide safe, secure, easy access to standardized data. The platform will generate datasets that will be used by external third party (including utility) applications and systems. External applications may create high functionality, high value information, products, and services for customers, distributed energy resources, competitive suppliers, etc. In summary, the statewide platform will have the following core functionalities:

- a. Maintaining and organizing New Hampshire’s electric and natural gas energy and energy related data, including utility and non-utility data sources, following an agreed statewide data standard.
- b. Dynamically generating data into defined dataset categories that:
 - Strictly conform to New Hampshire’s privacy policy and data access policy,
 - Meet a defined data need (use case) of a third party, product, service, or platform that is supported by the proposed data platform, and
- c. Provide a secure single point of access for data functions including data sharing, authentication and program registrations

The data platform’s core function is to provide access to standardized data required to create new products, services, markets, and platforms that bring value to customers, utilities and all of New Hampshire. The OCA has created a list of Transformational Use Cases (Appendix A to this letter) that we developed in connection with the research and outreach we have been conducting for the past year. Refining and supplementing this list will be critical, as will adding additional use cases that may develop in future years, to ensure that the platform structure and organization is “future-proofed” as much as is foreseeable.

2. What level of energy data granularity appropriately balances costs of collecting, storing, and transmitting energy data with the incremental benefits of increased granularity?

The data platform should be designed to share highly granular data – even granular data that is not uniformly available across utilities today. Designing the data platform with the capacity to maintain and share granular data provides future-proofing and risk mitigation. As both grid

modernization efforts and distributed energy resource (DER) penetration levels increase in New Hampshire over the next five years, new use cases will emerge that take advantage of the exponential growth of granular data generated by advanced electric distribution systems, and increasing penetration of DERs owned by customers. Failing to design the data platform to meet the future realities of the grid will dramatically reduce its usefulness, create risks and added costs to modify or create new data sharing systems, and overall increase the risk of technology obsolesce.

3. How often should the data be updated?

The frequency of data updates should depend on both the data inputs available and the data set outputs required for the use cases and business requirements being supported. For example, meter reading updates will differ in frequency for meters configured for monthly register reads versus meters that track interval data. The frequency of data updates depends on the functionality and limitations of the data source supplying the data, communication infrastructure, the data model and the agreed requirements of use cases the data platform will support.

4. Should the customer data platform focus only on energy usage data as measured at the meter, or include other data and/or data sources? If other data sources, how should those sources be included and at what cost?

Other data, e.g., tariff information or meter configuration information or program information, is frequently necessary if the goal is to add higher value to energy usage data. Costs of adding other data should be weighed against the additional use cases the data platform can support. The cost of maintaining other data from different sources must be weighed against benefits achieved by a data platform that can support more transformational use cases that add higher value to customers, the utility, and the state.

5. Is the energy data platform under consideration in this docket the appropriate mechanism to provide information on energy system data? Why or why not?

The data platform should be designed to share connectivity data about circuits and grid assets, across all sensors and meters, even if this is left in whole or in part to later phases. In the next five to seven years New Hampshire's grid will increasingly develop three new traits associated with grid modernization: two-way power flows, two-way communication flows, and a shift to decentralized/distributed generation. Robust data sharing will accelerate development of DERs and the envisioned "grid operations" and "grid services/markets" stages discussed in the white paper filed last year by Commission Staff in the grid modernization docket. See "Staff Recommendation on Grid Modernization" (Jan. 31, 2019) filed in IR 15-296 at 25 (describing these as the second and third stages of an envisioned three-stage "grid evolution").

III. Existing Opportunities for Energy Data Access

1. What are the capabilities of the current platforms through which customers can access their energy data? (Unitil and Eversource both currently offer Green Button Download My Data for their electric customers, and Eversource offers further services to customer through its customer engagement platform)

The OCA does not currently have information sufficient to answer this question and, to the best of our knowledge, neither do Staff or the other non-utility parties. The inquiry, however, is a critical one. Therefore, we propose that this inquiry be rephrased and submitted to the utilities in particular for their response in the near future. Such a request for responses should not, however, be limited to the utilities and should include a request that any responses include the name and brief description of any IT (information technology) systems that are germane to the response:

- What data is currently shared by the utility (including all data elements, all customer classes)?
 - What is the granularity of this shared data?
 - At what frequency is the data updated?
 - How is the data shared (including the technology employed, communication protocols used, security and authentication protocols relied upon, automation systems used)?
 - What are the key standards (including the Green Button standard) that are employed and their purpose?
 - For each system, what is the number of data sharing requests received and fulfilled during 2019, customer class, and by data type (i.e., customer facing, system facing)?
 - To what extent are the capabilities of any currently used platforms a function of existing metering/billing infrastructure? To the extent necessary to provide a complete answer, please describe that infrastructure.
 - What data systems are currently being modified, updated, replaced, or added?
- 2. Is it possible for existing energy data offerings overlap with, but not be duplicative of, a statewide energy data platform? If so, please explain how.**

Currently in New Hampshire, energy data offerings across utilities are not integrated, utilize different data models and levels of granularity, do not relate customer and system data in useful ways if at all, and incorporate different levels of data access, data privacy and security authentication. If a current offering is redesigned to use the proposed data platform as its source of standardized data, this would add a level of consistency and possible value. Some integration opportunities have already been identified in preliminary transformative use cases. For example, the NHSaves web site could be redesigned to use the proposed data platform as its data source. In our opinion, based on work and analysis to date, and excluding traditional utility back office systems, there is no existing platform providing the level of data sharing outlined in or response to the question about functionalities above. In fact, a primary value of the proposed data platform is reduced duplication of data across different systems using different standards, different access methodologies, and different data models. This duplication is a basic problem being solved in this project.

3. Please describe the approximate customer participation in existing platforms and any marketing strategies are employed to maximize customer participation.

The OCA assumes this is a question best answered by the utilities.

IV. Database Structure and Management

1. Please describe any preferred approaches to governance, development, implementation, change management, and versioning of the platform.

The relevant language from SB 284 – codified as RSA 378:51, I – states that the Commission “shall require electric and natural gas utilities to establish and jointly operate” the data platform. However, it is clear that the General Court did not consider this directive to be a definitive resolution of the governance question, since the Legislature explicitly listed “governance” as among the specific questions to be resolved by the Commission in this very proceeding. See *id.* at :51, II(a).

To the extent that “governance” requires the Commission to consider who will make decisions about the development and operation of the platform, who will oversee those decision makers, and what rules and principles will apply to that decision-making, the OCA’s direct participation in the development of SB 284 yields some key insights. Throughout the legislative process, a key guidepost was the need to assure accountability, oversight, and meaningful stakeholder participation. The General Court did *not* intend the statewide database simply to become a joint project of the state’s electric and natural gas utilities, to be developed and operated as they see fit according to their business objectives (which, of necessity, place their shareholders front and center), subject only to after-the-fact review according to the traditional standards of utility regulation (prudence, used-and-usefulness, etc.).

Rather, the General Court is expecting the Commission to develop a governance paradigm that will guide and in some sense constrain the utilities. The Commission must authorize the creation of an independent body, consisting of both utility and non-utility stakeholders, that will have the right to determine how the platform will be developed and operated, subject to Commission approval as necessary. This could be accomplished via the creation of an independent entity (e.g., a nonprofit corporation) that would own and operate the platform, or it could be accomplished in a manner somewhat like the “enhanced stakeholder board” concept the Energy Efficiency and Sustainable Energy Board uses to participate in the oversight of ratepayer-funded energy efficiency programs subject to Commission approval. Although the former approach is not specifically contemplated by SB 284, we believe it is both implicitly authorized and worthy of serious consideration.²

² If the Commission concludes that the creation of an independent nonprofit entity is not authorized by SB 284, there is ample time for the adoption of remedial legislation. We note that SB 284 is silent on the question of cost recovery *except* that RSA 378:54 explicitly authorizes the utilities to “recover costs from customers in a timely manner as approved by the Commission.” Therefore, if the platform were to be owned and operated by an independent entity, it could bill its costs to the utilities according to a Commission-approved formula and the utilities, in turn, could obtain Commission approval of a suitable cost recover mechanism.

Regardless of what legal form the governance of the platform takes, adoption of the right governance concepts and principles will be critical to the project's success. The platform should be governed and managed like a traditional IT project including project planning, project management, and oversight of a documented System Development Life Cycle (SDLC), an approach that has enjoyed widespread acceptance in systems engineering since the 1960s. In general, there are six stages to the SDLC; four of the five terms listed in the Staff's question (development, implementation, change management, and versioning, all quoted directly from RSA 378:51, II(a)) map directly to the six stages:

- Requirement analysis,
- Design,
- Development and testing,
- Implementation (includes change management and versioning),
- Documentation, and
- Evaluation

In our view, the sooner the SDLC process can begin – informed in significant part by the work already undertaken among the OCA, Staff, and Unutil in the wake of DE 16-384 – the better.

2. Please describe any preferred standards for data accuracy, retention, availability, privacy, and security.

Depending on the particular system being discussed, and depending on the business requirements of that particular system, the answers to this question may vary. In general, stakeholders and the Commission confront the threshold question of whether a standard should be used in the first place. In our opinion, the use of well known, well-vetted, tested, and widely accepted standards (if available) is strongly recommended. Specifically,

- Standards for data accuracy can and should be defined in the “requirements” phase of the SDLC.
- Standards for data retention, which should be defined in the “requirements” phase of the SDLC, will vary depending on the system. A data retention policy can be included in a privacy policy, discussed below.
- Standards for data availability, which should be defined in the “requirements” phase of the SDLC, will vary depending on specific business process and/or business application in question. A data availability metric should be established for each use case.
- Standards and frameworks developed through the U.S. Department of Energy (DataGuard, NIST, etc.) should be evaluated for new systems that may be designed and created in this project, as well as all downstream third party applications, vendors and platforms that are integrated into the New Hampshire data sharing process.

- 3. Please describe any preferred approaches to utility design and operation of the platform, including but not limited to a common landing page connecting to the data and/or relevant web pages of individual utilities, or alternatively, a single jointly designed and operated database.**

With respect to the question of a common landing page, as discussed in our response to the question about functionalities above, the platform should provide a secure single point of access for data functions including data sharing, authentication, and program registrations. ” Regarding the design of the data platform, we support the use of this proceeding as a forum for the development of a single data standard. Regarding how the data platform is deployed and operated (singly vs. jointly) the preferred approach may differ by platform component. Deployment and operational decisions should be based on analysis of business requirements as well as consideration of many technical issues and challenges that are beyond the scope of this response.

- 4. Please comment on the definitions of the terms “common base of energy data,” and “user-friendly interface,” and describe how they relate to preferred database structure and management approaches.**

Regarding the definition of “common base of energy data” as discussed in our response above about functionalities, the data platform should organize and share New Hampshire’s electric and natural gas energy and energy related data, including utility and non-utility data sources, following an agreed-upon and Commission-approved statewide data standard.

Regarding the definition of “user-friendly interface,” as noted in our discussion of functionalities above, the data platform should provide a secure single point of access for data functions including data sharing, authentication and program registrations. Third-party applications and platforms that connect to the data platform will often have business requirements for user-friendly interfaces (which we assume is a reference to a web page, viewed in a browser, designed to provide usability and easy access to information in a consistent, efficient manner).

Regarding the definition of “preferred database structure,” to the extent that the data platform itself is implicated, the underlying data structure should be informed by an agreed-upon statewide data standard designed to meet the business requirements of third parties and applications using the system.

V. Community Level Data

- 1. What is the current process and costs associated with accessing community-level data, how long does the process generally take, and who pays the costs?**

The current manual process is based on non-secure communication channels (e-mail, phone calls) and sharing data in non-standardized formats using excel spreadsheets or word processing documents or Adobe PDF files. Other current process involve outdated non-secure practices, e.g., sharing authentication credentials to enable screen scraping data capture.

The current manual process takes roughly six months based on statements made at the prehearing conference and technical session held on February 20. This is in contrast to a duration of several seconds to several hours, depending on dataset size, that would apply to the SB 284 data platform once an authorized data request is received.

2. What type of data is necessary for a community seeking community choice aggregation to competitive suppliers?

We will rely on other stakeholders to provide most of the information relevant to this question. Based on our analysis, a significant portion of the data necessary for community choice aggregation is the same data (subject to aggregation of granular data) that is required by many other use cases identified in our business analysis and outreach conducted the past two years (see our list of use cases in Appendix A).

VI. Costs and Benefits

1. What are the likely incremental benefits and costs of a single statewide database compared to utility specific energy data access mechanisms?

The benefits of a statewide data platform are:

- Economies of scale and cost savings from creating one data platform, operating one data platform, and governing one data platform instead of creating , operating and governing multiple duplicate platforms.
- A single point of access for all utility data, bringing lower costs to consumers and industry participants.
- The existence of a data standard creates higher level of data accuracy, which means better integration and lower costs to customers and industry participants.

There are well-known and well-documented issues experienced in the utility-specific model of data access. Utility-specific data access mechanisms are more expensive on a statewide basis because there are no economies of scale. Work effort and infrastructure are duplicated by each utility implementation. States that have implemented utility-specific data access mechanisms have documented issues with inconsistent data across platforms. The result of inconsistent data is loss of interoperability on a statewide basis. The cost to resolve data consistency issues is significant, with examples in the tens of millions dollars.

2. Is there an annual cost associated with maintaining Green Button Connect certification?

We will rely on other stakeholders to provide relevant information

3. Should costs associated with a statewide platform be recovered from all ratepayers or through user fees for those seeking: (a) individual data; or (b) aggregated and anonymized community-level data?

As the statutorily designated advocate for residential utility customers, you can expect that as we move through the SDLC we will be strong advocates for maximum reliance on fees imposed on third-party users of the data platform, although we will be mindful of the fact that ultimately all costs are borne by end-users of energy and energy management initiatives.

4. How might a user fee for the database be structured?

We look forward to collaborating with other stakeholders in developing a useful approach to this question.

VII. Phasing/Deferral

1. Are there any functionalities which should be considered for deferral or phased implementation during deployment of any energy data platform? Why?

In general, phases are recommended as a means of managing costs and risk when designing and deploying a technology platform. Once the stakeholder process has identified the business requirements and use cases the system will support, functionality can be prioritized into phases. It is critical to develop an awareness of future potential requirements, early on, prior to designing the data platform. Design decisions early on, such as adoption of underlying data models, are beneficial in designing the system in such a way that future phases can be added cost effectively, as necessary and appropriate.

Purely for illustrative purposes, subject to the understanding that our thinking may evolve in the future, we offer the following potential for phasing-in functionalities. We use phases in this letter simply as a means to illustrate a path from current functionality to future functionality known today. Phase 1 represents the bare minimum of what datasets the data platform must be capable generating and sharing to meet the statutory requirements. Phase 2 represents additional categories of datasets the data platform must be capable of generating and sharing in the near future. Phase 3 and beyond represents functionalities that the data platform should be capable of supporting, if made a priority, in the next 2 to 5 years.

- Phase 1: Green Button Connect My Data, Community Choice Aggregation shared services, regulatory datasets
- Phase 2: Online energy dashboard (Vermont model), energy efficiency program Tracking, Liberty Utilities Battery Storage pilot, Unitil Time-of-Use Rate Pilot
- Phase 3: Liberty / Lebanon Real Time Tariff pilot, Puc 900 Rules, Department of Environmental Services EV Infrastructure Program
- Phase 4: System Data, AMI data
- Potential longterm future phase: ISO-NE/NEPOOL Market Settlement, Transactions, Program Tracking, Performance payments.

2. How should an energy data platform be designed so that it includes the possibility of reasonably foreseeable functionalities whose costs may not be reasonable at this time, or future functionalities which may not be foreseeable at this time?

Determining what types of data the data platform will be designed to share is fundamental to answering this question. Developing the data model referenced in Figure 2, which defines the types of energy and energy-related data to be included in the platform, is one of the biggest and far reaching decisions that must be made in this project. Occurring prior to designing and building the system, the development of the data model will determine initial functionality, future functionality, future proofing (unforeseeable functionality) and cost. In this context, “cost” refers to both the initial cost of building the data platform, as well as the future costs of adding new functionalities in future years. A more robust data architecture may increase the initial costs of building the data platform but, if designed well based on comprehensive business analysis, can provide a lower risk cost effective path to implement additional use case functionality.

Risks, including delays and high costs, are often incurred by customers when their utility is forced to redesign an IT system that has already been designed, built, tested, deployed and in use. Poor data quality is often a contributing factor in the decision to redesign an IT system, including an energy data sharing system. At the technical session on February 20, several intervenors cited a real world example regarding more than \$20 million redesign costs being undertaken in another state to resolve data and functionality issues in utility data sharing systems that were developed and deployed years earlier. The data model analysis for SB284 should include analysis of issues documented nationally at other utilities and learn from them.

The proper sequence that will balance costs and future functionality is:

- Define business requirements
- Analyze the data requirements for each use case
- Design a data model that incorporates the data requirements (Figure 2)
- Design the data platform and components in a phase approach that follows the data model architecture.

VIII. Privacy Thresholds

1. Is there a threshold standard for energy data aggregation and anonymization that the Commission should adopt to enable multi-tenant property owners to access whole building energy data while also protecting the privacy of individual customers?

This proceeding is an appropriate opportunity to develop a New Hampshire Data Privacy framework, which should be established as a prerequisite to designing a data sharing platform. The privacy policy should be informed by:

- The NIST Privacy Framework,

- The federal Privacy Act of 1974, as amended (5 U.S.C. § 552a),
 - The Fair Information Practice Principles of the Federal Trade Commission,
 - General Data Protection Regulation (GDPR) of the European Union,
 - The California Consumer Privacy Act (CCPA) of 2018, and
 - The U.S. Department of Energy’s DataGuard energy data privacy program.
- 2. Is there a threshold standard for energy data aggregation and anonymization that the Commission should adopt to enable access to community-level data while also protecting large energy users in a single community from having their data disclosed in a manner which unfairly inhibits their business practices or might disclose trade secrets?**

Please refer to our response to the preceding question above about privacy standards.

IX. Obligations of Database Users

- 1. Is there a qualification and/or registration process that third parties must complete in order to access either individual or community level data? If so, please describe or provide an example of such a qualification and/or registration process.**

This question may relate to a Green Button Platform use case in which, for example, a DER vendor will be required to complete a registration process (through the Green Button Platform) prior to being able to request and receive a customer’s meter usage data (with customer consent). A task in this docket is to develop a plan for utilities to build, or contract out to an established outside vendor, to deliver a NH Green Button Platform that will integrate into the SB 284 data platform. Part of that planning process will include analysis of the registration process, financial requirements, as well as privacy and security requirements.

- 2. How long should the registration or certification be in effect and how often must it be renewed?**

Please refer to our previous response.

- 3. Should third parties be required to execute non-disclosure agreements, cybersecurity agreements or other similar agreement? If so, please describe or provide an example of such an agreement.**

Please refer to our previous response.

- 4. Should third parties be required to meet certain financial security standards or other mechanisms that may be warranted to assure third parties comply with privacy, cybersecurity, or other standards. If so, please describe or provide an example of such mechanisms.**

Please refer to our previous response.

X. Issues and Stakeholders Not Yet Identified

- 1. Are there any stakeholders who have not yet petitioned for intervention but would contribute materially to, and are likely to participate in, the DE 19-197 docket process?**

The OCA has conducted extensive outreach to stakeholders and potential stakeholders, both within New Hampshire and across the nation. As a result, there is significant interest in this docket both within the state and nationally, with a variety of intervenors stepping forward to contribute their expertise and/or to share insights into how stakeholders will benefit from the development of the platform.

- 2. Are there any foreseeable issues that should be covered in this docket that are not yet identified in the list of issues and questions above? If so please describe those issues.**

We recommend the development of an agreed-upon glossary of terms; when stakeholders and the Commission share a common vocabulary the risk (omnipresent in a highly technical realm such as this) of parties talking past each other is significantly reduced. In addition, we believe it would be helpful for the parties to address three additional questions: risks (vulnerabilities and mitigation possibilities), value areas (customer, utility, state/region), and an inventory of utility data collection systems that are currently in use or are under development.

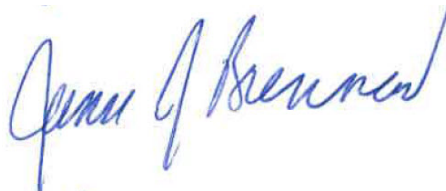
XI. Conclusion

The Office of the Consumer Advocate thanks the Commission for this opportunity to address issues related to the scope of this important regulatory proceeding. The submission of responses to the Staff's queries are an important first step in the development of a record that will allow the Commission to make choices in this adjudicative proceeding that will advance the public interest, pave the way for the development of the data platform contemplated by SB 284, and place New Hampshire at the forefront of national efforts to bring the benefits of 21st Century energy technology to customers – particularly the residential customers whose interests we represent. We look forward to continuing to collaborate with the Commission Staff and our fellow stakeholders in this proceeding.

Sincerely,



D. Maurice Kreis
Consumer Advocate



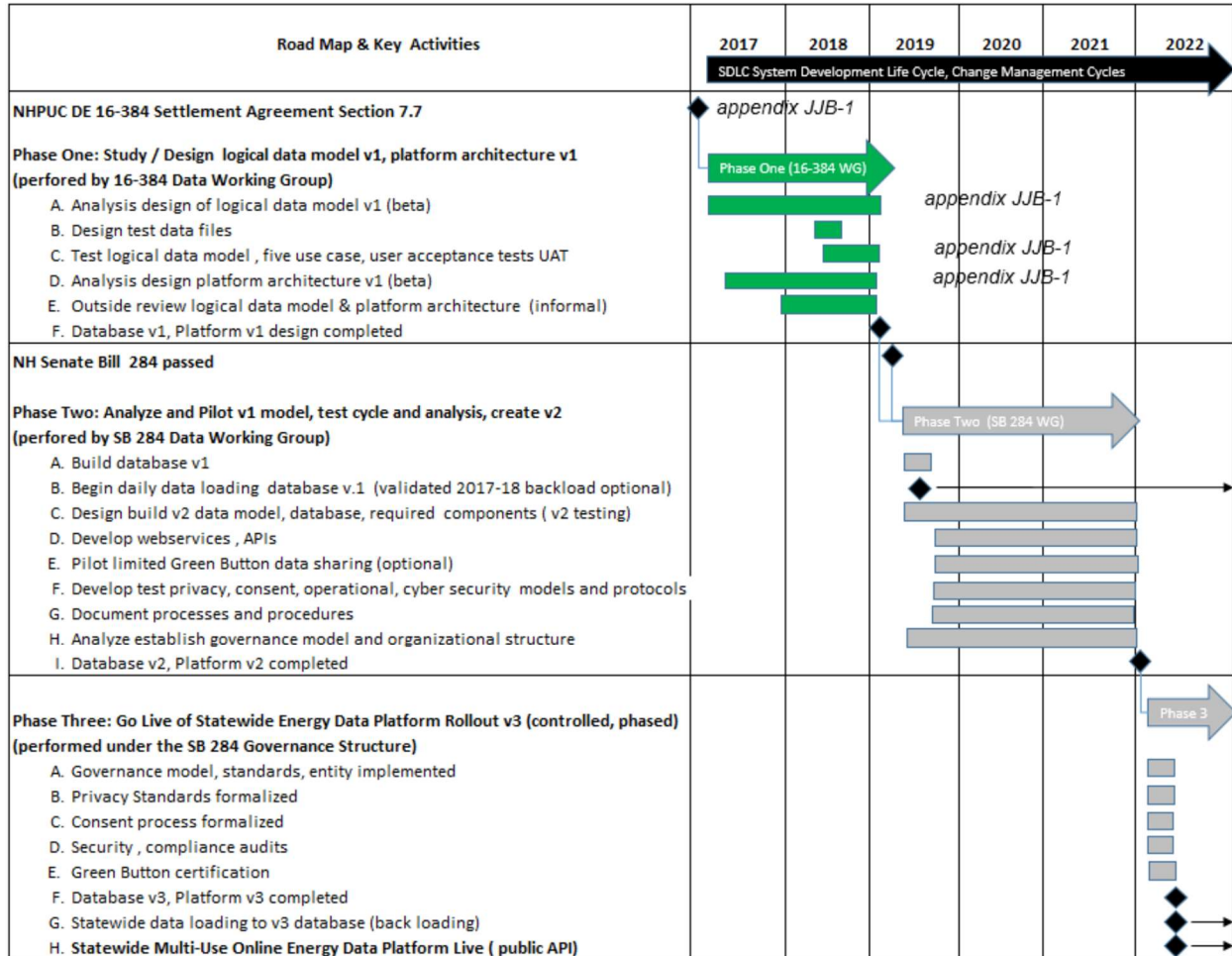
James J. Brennan
Director of Finance

Cc: Service list (via e-mail)

Appendix A: List of Transformational Use Cases

Use Case List – New Hampshire SB284 Statewide Multi-Use Online Energy Data Platform	Appendix: Use Case List
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Core Use Cases tested & completed during 18 month Logical Data Model analysis (tested by 16-384 DWG (PUC, Unitil, OCA) completed 2019).</p> </div> <ol style="list-style-type: none"> 1. Generate Billing Data dataset UC Core 2. Generate Time of Use dataset (three time blocks) UC Core 3. Generate Demand Read dataset (multi UOM test for smart meter) UC Core 4. Generate Multi-Tenant Multi-State dataset (test statewide and regional design) UC Core 5. Generate All Premises Energy dataset (electric, gas) UC Core 	<p>–Diagramed PUCO</p> <ul style="list-style-type: none"> Share Customer Meter Data (w PII) with CREB / 3rd Party Share anonymized data with CREB / 3rd Party 3rd Party App Supported: GreenButton RAN data
<p>NH Specific Transformational Use Cases (Outreach)</p> <ol style="list-style-type: none"> 1. Generate EE Analysis dataset based on EE program criteria (Track / validate / analyze Energy Efficiency) Dockets Supported: EERS 3 YR Plan 2. Provide State-wide Usage Point Index (all NH endpoints "books and records") UC Core 3. Generate Green Button Data sharing Datasets (enable Green Button platform based on OpenESPI, CMD) 3rd Party App Supported: GreenButton Legislation Supported: SB284 4. Provide on-line data integration to Energy Dashboard (web integrations, VT model in NH) 3rd Party App Supported: NH Energy Dashboard (Lebanon/VT Model) 5. Customer / System data connection supported by model Dockets Supported: 15-298 GridMod 6. DATA To NEPOOL GIS, ISO DER Forecasting 3rd Party App Supported: ISO Applications/Processes 7. Complex meter and storage Liberty Dockets Supported: 17-188 Liberty storage 9. Track System Data - selected (Customer & System data reference model) Dockets Supported: 15-298 GridMod 10. Big Data Integrations 11. Benchmarking Dockets Supported: EERS 3 YR Plan 12. Real Time Data - Indexed Program supported: Lebanon Real... 13. Complex Metering 900 Rules Net Metering Rules Supported: 900.08.0 all interconnections 14. Community Choice Aggregation CCA Shared Services (statewide model SB284) Legislation Supported: 2019 SB 284 CCA Subtopic 15. Generate circuit level granular dataset of DER data, linking to Utility Host Capacity Map. (enable citing analysis 3rd parties.) Dockets Supported: 15-298 GridMod 16. Track and provide data for calculations in PUC Rule 14, Page 41 909.10(a) electricity generated by host's facility..report suggested by Eversource Rules Supported: 900.10 host facility reporting 17. Regulatory Dataset (Kurt) 	<ol style="list-style-type: none"> 18. Program Performance Payment Data Exchange - DER/EE / BYOD-Batte (facilitate centralized TOU / Vendor communication channel) Dockets Supported: 17-188 Liberty Battery 19. DER Registry mechanism via API UC Technical 20. Track & Report VW EV Charging Program data - 3rd Party KW KWH Re Program supported: VW EV charging infrastructure (DES) 21. Track REC Renewable Energy Credit (transaction) Dockets Supported: 19-278 Net Metering Legislation Supported: 2019 SB 284 CCA 22. Communicate Liberty Battery Storage Participant Usage Data to vendor Dockets Supported: 17-188 Liberty storage 23. Track DER statewide by type, by location (DER Index, Storage, Generation, EV...) Rules Supported: 900.08.0 all interconnections, 2503.04 all generators on premises 24. EMPTY 25. Statewide Energy Efficiency Program Information Tracking (all utility & non-utility programs, subsidized and non-subsidized) Dockets Supported: EERS 3 YR Plan Legislation Supported: 2020 HB 1026 Study EE Programs 26. NO HUB Model UC Technical 27. HPWES Integrated Data Tracking System (Opinion Dynamics recommendation section 5.2) NH Saves Program supported: NH Saves, HPWES 28. Grid Codes management DER growth / system management(PINL) Dockets Supported: 15-298 GridMod 29. Distributed Entity Model (reference architecture) UC Business, Terminal 30: Centralized Data Source to NH Saves web application (centralized back end data) Program supported: NH Saves 31. Track Program Rebates (utility and non-utility) (tied to #27) Program supported: HPWES 32. Weatherizing Program Data Tracking - Partial centralization data in OT Tracking DB / Surveyor ("Contractor Barriers" section 4.2.5 NH Home Per Program supported: Weatherization (state and federal) 33. Track Clean Energy Fund Program data - (Goal #3 CDPA proposal) 34. (Privacy) Conform to NIST Privacy Framework v1 - data life cycle. Dockets Supported: 19-107 Data Docket 35. (Privacy) Conform to Green Button /OpenESPI privacy model (separation of PII dataset) Dockets Supported: 19-107 Data Docket

Appendix B: Road Map DE 16-384



Appendix C: SB284 Majority Report

SB 284-FN, establishing a statewide, multi-use online energy data platform. **MAJORITY: OUGHT TO PASS WITH AMENDMENT. MINORITY: INEXPEDIENT TO LEGISLATE.**

Rep. Kat McGhee for the **Majority** of Science, Technology and Energy. This bill, as amended, establishes a statewide, multi-use, online energy data platform regulated by the Public Utilities Commission (PUC) and operated by the state's electric and natural gas utilities. In order to fully support electric utility restructuring under RSA 374-F, it is necessary to provide energy consumers with a safe and secure way to access their energy usage information. Many NH towns have energy commissions or participate in energy cooperatives that are trying to improve energy efficiency to bring down costs. Everyone understands that rates increase during energy peaks, so time of use management requires the ability to track and measure usage. Aggregated and anonymized energy data creates the opportunity for innovation, competition, and efficiency, each of which helps keep energy costs down. NH Clean Energy, relevant state agencies (PUC, Department of Information Technology, Office of Consumer Advocate (OCA)), and NH's large electric utilities (Unitil, Eversource, and Liberty Utilities) collaborated to refine this bill to its current language and have agreed to stay engaged to help the state through the required PUC docket. The OCA at the PUC has a 3-phase project plan that concludes in 2022 to bring this platform into being. The passage of this bill will be one of the milestones of that project plan that came at the end of 18 months of research into how to do this well. The IT project plan from the OCA was developed in conjunction with executive level IT personal from Unitil. Those IT professionals have defined a uniform data model based upon the national Energy Service Provider Interface (ESPI) standard which, in itself, would be a huge improvement over the hodge-podge of data relayed from varied energy resources in varying formats. The benefits identified by the stakeholders of a statewide data platform include: better energy decision-making, adoption of a national data standard, the ability to manage distributed energy resources and deployments, greater energy-efficiency, empowering customers with energy options, implementing time of use rate savings, helping municipalities to aggregate by seeing their energy data, benchmarking buildings, optimizing distributed energy resources, supporting energy research, promoting energy innovation, optimizing storage, enabling demand response and reliability, reducing risk, quantifying opportunity costs, improving customer behavior and communication, supporting grid modernization and other restructuring efforts, and creating the potential to strengthen the energy grid as it becomes more distributed. All of these benefits have the potential to help NH lower energy costs and manage energy consumption. In the rush to add a fiscal note to the bill, it ended up with a note that does not reflect the project. Stakeholders who worked with the subcommittee assigned this bill agreed upon review that the fiscal impact attributed to this platform by the note is not warranted. **Vote 14-4.**