PACKETIZED
ENERGY

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Jody Carmody
Docket Supervisor
New Hampshire Public Utilities Commission
21 South Fruit St, Suite 10
Concord, NH 03301

Dear Ms. Carmody,

Please find enclosed an original and six (6) copies of Packetized Energy's scoping comments in regard to DE-19-197, Statewide Multi-Use Online Energy Data Platform Scoping Comment Solicitation.

Sincerely,

Kate Desrochers

Building virtual batteries from connected things

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Packetized Energy Comments

SB 284-FN (2019) amended RSA chapter 378 by adding a new subdivision entitled "Multi-Use Energy Data Platform," effective September 17, 2019. The Commission opened DE 19-197 on December 13, 2019 to determine the following aspects of the platform during DE 19197: (1) the governance, development, implementation, change management, and versioning of the energy data platform; (2) standards for data accuracy, retention, availability, privacy, and security, including the integrity and uniformity of the logical data model; and (3) financial security standards or other mechanisms to assure third-party compliance with privacy standards. RSA 378:51, II. The Commission must also determine whether the costs associated with the proposed platform may be reasonable and in the public interest. RSA 378:51, III.

To better delineate the form that the statewide multi-use online energy data platform may ultimately take pursuant to the directives of RSA 378:51, II, and describe the potential benefits and costs associated with the platform pursuant to RSA 378:51, III, the Commission Staff solicits comment on the below-described aspects of the platform. Commenters are encouraged to cite quantitative data and qualitative approaches from other jurisdictions while addressing the following issues in their comments:

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?**

   We think there are several key functional points to hit with this platform:
   - *The data should be easy to access by third parties with security in place that is deemed to be appropriate.*
   - *There should be a process where the data is standardized across utilities.*
   - *Data should be transparent and it should be available in real time wherever possible.*
   - *Data should be spatially and temporally granular for those approved to see that level of data (i.e. with correct security screening and permissions for any data that is personally identifiable information). It should be provided at the level of granularity offered by the meter, at least at the hourly level.*
   - *While data should be collected at an effective granularity, the platform itself should be updated at least or daily. It should be updated as often as possible, within the allowable budget of the project.*
   - *If utilities are being compensated for performing a given task or meeting a specific deliverable, the requirements must make sure that the deliverables are indeed useful to the end users. The platform and guiding rules must make*

sure that the data is not only technically available, but available in a way that is easy to use and standardized across utilities. For example, each utility providing the same kinds of data, formatted in the same way, and easily available through a well-documented API. Just having the data technically available through a complicated PDF download process that cannot be automated will greatly hinder use of the data. The quality of the data must enable reasonable usage of the data by firms trying to create value for utilities and ratepayers.

● *Third parties should justify their need for the data, specify their required time of access, and be able to access appropriate data given their designated levels of security.*

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

Our answer here doesn't necessarily address the issue of balancing cost and benefits, as we are not specialized in setting up such platforms. We can, however, advise on what levels of granularity enable us to do what we do at the most basic level. This should help determine what, at a bare minimum, a platform would need to provide to allow services that can reduce peak demand and integrate renewable energies.

Regarding <u>temporal granularity</u>, for demand response and flexible capacity offerings like those from Packetized Energy and many others, usage data should be provided as frequently as every hour, if not more. Peak demand is calculated on an hourly basis, and wholesale prices trend hourly (though technically can change every 5 minutes). In other words, we would not be able to provide accurate cost-saving information to utilities if we aren't provided with usage data of or less than every hour. More refined data is better. Data of the granularity provided by the AMI meter would be preferable.

With regards to <u>spatial granularity</u>, the minimum granularity useful would be data at the service transformer level for planning and modeling purposes. This does preserve privacy substantially, but utilities and their partners need to know where flows of electricity should be routed. Aggregating at the service transformer level could increase costs by increasing data handling. Increased spatial granularity, including data on customer usage profiles and their location on the grid, enables more value in demand response and related services. Individual meter data should be available as-needed to those with the appropriate security clearance who have been contracted to complete tasks that need this data, or to people who have been granted access to this data by the individual customer.

3. **How often should the data be updated?**

   The data should be streamed in constantly and updated at the very least daily or every 12 hours.

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?**

   A major focus should be usage data, yes, but it would be best to build a system where partners could add other data to the portal. The system should give utilities the ability to share data when third parties request. The cost would relate to the initial engineering of a system allowing data to be uploaded by partners, incremental costs afterwards would likely be minimal if the mechanisms are functional at the outset.

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?**

   Developing a platform such as this enables many companies like Packetized Energy to enter and develop projects to reduce electricity costs and integrate more variable renewable energy. The data on such a platform is best set up as a one-stop-shop model where utilities all connect to the same hub, rather than each utility developing their own model. Models that have each utility creating their own energy platform are redundant, unstandardized, and require third parties to create unique infrastructures for each platform. At this time, we think the rough sketches of what is proposed are a good starting point, but the details will matter if New Hampshire is to create an energy platform that accomplishes its goals.

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)**

   No comment from Packetized Energy.

2. **Are capabilities of current platforms a function of current metering/billing infrastructure? If so please describe that infrastructure.**

   No comment from Packetized Energy.

3. **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.**

   No comment from Packetized Energy.

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

   No comment from Packetized Energy.

Database Structure and Management

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

   *With regard to governance, we recommend **not** giving every stakeholder veto power. We see the phaser/ transmission industry as a cautionary tale, where stakeholders who collected data, created processes with firms that could turn it into value. Almost everyone had veto power, so nobody received data. It should be a clear, consistent, and transparent process in which utility gives permission for obtaining that access. Any concerns that arise should be routed to the NH PUC.*

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

   The best available standards for security in credit cards or other major industries would be fine. For privacy, we don't have a strong opinion, other than it should not stop third parties from providing value. Only third party entities that have a contract to get access should get access, and only the data that they need. Security should be designed such that different permissions allow access to different sets of data. NDA's should provide substantial enough privacy, as only utilities themselves and parties who sign NDA's would have access to the information.

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.**

   We prefer the approach of a rest API with clear documentation and security protocol to allow for authorized users to access the data. We would advocate for developing a single jointly designed and operated database that has the opportunity to be expanded in granularity and information types, without committing to a specific user interface beyond a well documented REST API. If the system isn't initially constructed with back end functionality in a way that can accommodate new fields or new levels

of granularity (or other things) then limits to functionality could limit growth or applicability.

4. **Please comment on the definitions of the terms "common base of energy data," and "userfriendly interface," and describe how they relate to preferred database structure and management approaches.**

The phrase "common base of energy data" is not a term we're familiar with. We think the regulators/system should provide a rest API with clear documentation that is available to those who need it. Third party providers, if enabled with good systems and clear security protocols, could provide the user interface for utilities on top of this Rest API. This would allow for competition in providing the user interface service and could allow different utilities to have interfaces customized to their needs and the needs of their customers.

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?**

   No comment from Packetized Energy.

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

   No comment from Packetized Energy.

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?**

   If the state invests in providing a unified system with a very simple interface, it will be very easy for utilities to collaborate in joint development of projects to reduce costs for all ratepayers. At the rest API level, unique concerns of utilities are not addressed. Every time you have a new interface to manage data, there is a significant upfront cost to reengineer the system.

   Incremental benefits: Data is standardized across utilities. Providers do not have to develop customized solutions for each utility. Statewide issues, like transmission planning, program planning, and other programs that could cross utility boundaries, can use standardized information to provide meaningful results.

   Costs: Utilities may need to invest initially in cleaning and standardizing the AMI data if different utilities receive AMI data from different providers. This may need to

happen on an on-going basis, but could likely be automated. There would also need to be a way to segment off utility data so that individual users only have access to the data relevant to their projects. This would likely mean the ability to grant permission to data on a utility-specific level. There may be some additional costs associated with this segmenting, however, the ability to segment data access based on permissions will be important within, as well as between, utilities, so this cost is not specific to the single database model.

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

   No comment from Packetized Energy.

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?**

   No comment from Packetized Energy.

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

   We agree with Kat McGhee's comments that the question is a bit premature. We will add that a user fee should be close to incremental cost, not average cost, as average cost includes the development costs which should be partly borne by ratepayers for the benefit they will receive. We could see a differentiated pricing structure for different applications and data sets. Furthermore, costs should depend on the scope of a project, i.e. If Firm A utilizes data from 10k meters, and Firm B uses 100k meters, Firm B should pay 10x as much as Firm A.

Phasing/Deferral

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

   We do not believe there should be phased or deferred implementation if it can be avoided. While we cannot know the scope of the platform until a project schedule is unveiled, leaving parts of the platform to be created at a later date risks leaving important parties out of contention for valuable, irreversible infrastructure projects.Given this platform is partly designed to enable the state's RPS goals which are on a timeline, there could be risk of major delay within phased implementation leading to an RPS being met inefficiently. There would also be added fixed costs to phased implementation.

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?**

If major investments aren't made in the user interface, this will happen automatically. By developing a back end that has the opportunity to be expanded in granularity and information types, without committing to a specific user interface (and allowing utilities to procure the user interface that works for them) the database will be flexible, and the user interface might even be interchangeable with other more applicable interfaces as the use cases change.

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?**

   No comment from Packetized Energy.

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?**

   We want to make the point that to require an opt-in defeats the purpose of this platform, as having insight into how the system is operating at any given time requires understanding as many consumers' usage as possible, and assuming consumers will understand the value of them opting-in runs against common sense behavioral understandings. Further, the structure of the platform should prevent most privacy concerns. For instance, unlike with a Sense Meter where you opt in to give Sense your data without any real security information, here everyone who has access to data is required to sign an NDA. Reasonable efforts should be made at the outset to keep user information anonymized, and if certain users have legitimate privacy concerns, there could be a way they can opt out. However, there still should be a way to get even that data, because if a big user with legitimate privacy concerns is not included on the platform, not seeing their contribution to load would throw all predictive efforts off.

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.**

   The process for third party access should be transparent, such that all stakeholders know who has access to the data and why they need access to the data. The process should be designed to ensure that all stakeholders have assurance that those who

are using the data are making use of appropriate security and privacy measures and are using the data for purposes that are valuable with respect to state and utility energy goals.

The process should not be designed such that agreement from all stakeholders is required before a particular entity may obtain access. A process that requires all stakeholders (or even multiple stakeholders) to agree will most likely inhibit innovation, greatly decreasing the value of this platform. A more streamlined process in which the data collecting organization (e.g., the utility) makes the decision regarding who can obtain access, subject to common privacy and security rules that all parties must adhere to will be more conducive to innovation than a process that requires agreement from all stakeholders.

A simple registration process could be as follows:

- *Requesting party fills out a form on the landing page explaining (a) who they are, (b) providing details regarding how their security and privacy systems align with the requirements for the platform, and (c) explaining why they need access to the data.*
- *The owner/collector of the data reviews the request to ensure that there is a legitimate purpose.*
- *An appointed security/privacy representative reviews the request to confirm that the requestor meets the platform requirements.*
- *The request is approved if there is a legitimate purpose, and the request meets the privacy/security requirements. Otherwise the request is denied.*

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

   Any such requirement should be negotiated upon registration and the duration of the agreement should depend on its scope and application. A 10 year contract with utility should be matched with a 10 year registration if possible. There also should be some sort of mechanism to adjust the duration in the event there are major advancements in technology.

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

   Yes, absolutely. if we don't make that piece work correctly, the system won't work. Either data access will be onerously restricted, even to those who could be authorized to use it, or data privacy will not be protected. Either outcome leads to a system that does not provide adequate value to ratepayers.

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.

It would be best to make sure those who have access to data are using industry standards for cyber security. Security standards that are used by entities that want to copy and store data locally should be at least as good as the state system. Specific measures that are important include the following:

- *Regular (e.g., annual) security audits from a trusted third party*
- *The use of multi-factor authentication to authenticate human users*
- *Encryption of all communications between computers/servers*
- *Effective use of certificates for machine-to-machine communications (e.g., standards such as TLS 1.2 or better)*
- *Good internal processes for software development, such as internal code reviews with an eye toward security vulnerabilities*
- *Third parties should be covered by adequate cyber security insurance*

Security standards should be designed with modern software systems in mind. For example, requiring particular windows-based virus scanning software is not relevant for modern cloud computing platforms.

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?**

    No comment from Packetized Energy.

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.**

    No comment from Packetized Energy.