

STATE OF NEW HAMPSHIRE  
BEFORE THE  
NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION

DE 19-197

**Electric and Natural Gas Utilities**  
**Development of a Statewide, Multi-use Online Energy Data Platform**

REBUTTAL TESTIMONY OF KAT MCGHEE, M.ED., PMP  
MEMBER OF THE LOCAL GOVERNMENT COALITION

OCTOBER 23, 2020

1           **Q.** Please identify yourself and previous involvement in this docket.

2           **A.** I am Kat McGhee. I filed Direct Testimony on my own behalf and for the Local Govern-  
3 ment Coalition. I've also participated technical sessions including those before the filing of testi-  
4 mony and collaborated in written commentaries and the development of user stories.

5           **Q.** What is your rebuttal testimony?

6           **A.** Staff asked 3 discovery questions of me while Eversource and Unitil (EU) made 19  
7 discovery requests. Some elicited additional background and clarification of my direct testimony,  
8 while other questions from the utilities contrasted their positions with my own. My responses elab-  
9 orate on my direct testimony, often in contrast to the Eversource/Unitil positions. I am submitting  
10 my responses to their discovery requests and questions as my rebuttal testimony. The standard  
11 discovery response formatting has been removed, except for the request number line. A few re-  
12 sponses have had minor (non-substantive) typos fixed. Eversource and Unitil (EU) asked me 3 dis-  
13 covery questions that clarified several points in my direct testimony. I am submitting my responses  
14 to their discovery requests as my rebuttal testimony. The standard discovery response formatting has  
15 been removed, except for the request number line. A few minor (non-substantive) typos have been  
16 fixed and an e-mail address was removed..

17 **Request No. Staff to LGC 1-1**

Witness & Respondent: Kat McGhee

18           **REQUEST:** Reference McGhee Testimony at Page 9 of 22, Bates Page 27 of Local Government  
19 Coalition testimony, stating “The view of the required cost for this scale of project, when priced by an  
20 energy utility to build in-house vs. a more-nimble utility API company that specializes in this work, is likely  
21 not even close. In fact, initial discussions on project cost by the OCA Finance Director revealed that there  
22 are vast differences in project pricing depending upon whether or not you are looking at companies who  
23 dedicate their business to this type of data project and have a well-defined RFP.” Please expand upon what  
24 aspects of the scope and timeframe and what levels of detail should be included in a “well-defined RFP”  
25 for the purposes of achieving the lowest possible project price from a bidder.”

26           **RESPONSE:** The project scope, in terms of data-customer functionality, was defined during the  
27 technical session collaboration into a set of User Stories. (Identified customer data system outcomes).

28           Reaching agreement on ‘what’ will be delivered and to whom (users), provides needed insight for  
29 any technical team to begin defining more detailed specifications. Those specifications would include

1 additional layers of technical detail that cannot be known until the project team working on the implemen-  
2 tation begins defining the functional specifications.

3 The systems' design, or 'how' it will be delivered, includes the levels of software systems' archi-  
4 tecture required to allow for *inter and intra system operability* (how does the data hub work to deliver  
5 output to data consumers and how does it interact with the other data servers (API's) to supply that out-  
6 put?

7 The systems design requirements will also include the architectural decisions on:  
8 *relational data protocols* (how are data relationships configured to bring the desired data together  
9 (aggregation)?

10 What level of *performance* is required to meet quality expectation?

11 System standards such as: *security* (2 factor authentication, etc.), *data privacy* (permissions for  
12 who can see what), *change management* (to track bug-fix status) and *versioning* (so all users are on the  
13 latest version of software).

14 Finally, the all-important integration of the New Hampshire electrical energy data standard or  
15 *NEEDS model* – must be agreed to by all utility stakeholders as the starting point to making the data han-  
16 dling work. Consensus around a uniform data standard model up front, provides a cohesion that gives any  
17 vendor confidence they are working on a well-conceived project.

18 Systems' design specification is required in order for the data hub to meet its goals and in fulfill-  
19 ment of RSA 286. But, since companies who provide these types of services to other states have worked  
20 on all of these systems' requirements before, they already understand the relative scope of work entailed  
21 and are not providing estimates to the PUC without having first-hand knowledge, having undertaken simi-  
22 lar projects in the past. They may have 'plug and play' solutions or shortcuts to fulfilling these specs, of  
23 which the utilities would not likely be aware.

24 In my conversations with Utility API and Green Button Alliance, I was told that defining the NH  
25 logical data model standard and defining the User Stories (or "use cases"), along with the additional high  
26 level systems requirements that would be needed by any 21<sup>st</sup> century API-based data server system, is a  
27 fairly common level of detail for an initial utility data project RFP. Further detail from the utilities may  
28 be needed to define the volume of data to be handled. But, in relative terms, New Hampshire's utility cus-  
29 tomer base is small and for data API companies accustomed to working with larger energy markets, that  
30 translates into manageable (lower risk/lower cost).

1           The systems' requirements would be consistent for any data hub that the State of New Hampshire  
2 pursues, regardless of how it is built or delivered. But the specifications for how complex the design, im-  
3 plementation & testing phases of the project will be, and how long the project will take, are beyond my  
4 ability to define for the PUC without an RFP process.

5           In discussions with companies who work in this space, my understanding is that having the utili-  
6 ties be responsible for cleaning and providing the data in a standardized data feed is the best way to  
7 streamline and contain the costs. The NEEDS model will supply the consistent format that all the various  
8 data inputs will conform their data fields to, so the data becomes normalized into a useful format. If the  
9 API vendor has to do this task, it slows them in running their core tasks for the lowest cost turnaround.  
10 So, it does matter who does which pieces of this data project and also, how well they collaborate.

11           This is partly why I recommend engaging a company who does utility API work in my testimony.  
12 The best way to control the cost on a project that takes us to new places, is to leverage experience of those  
13 who have already been there. In this case, New Hampshire's utilities know their data and the security and  
14 privacy standards that need to be met in order to protect their customers. They are also intimately familiar  
15 with their own data and how the various utility data handling systems differ. We want to leverage that  
16 knowledge, but not to burden them with pieces of the project that are not their core business. This would  
17 require a learning curve that the utilities seem willing to undertake because they believe the statute re-  
18 quires it of them; but collaborating on that learning curve, across 3 companies' IT departments forces a  
19 level of complexity in communication, workload/cost-sharing and project management that is cumber-  
20 some and that, I presume, would make it more costly.

21           The RFP is a precursor to any project schedule. You could make a 'high-level' Time/Scope/Cost  
22 estimate a deliverable of your RFI/RFP. Consistent with my testimony, I believe Eversource and Unitil  
23 IT resources agreed that an agile project was preferable. This software methodology provides for regular  
24 communication and agreement, to avoid misunderstandings as you meet rapid milestones in a sprint pro-  
25 cess. This method is popular because it is proven to contribute to controlled costs and faster, desired re-  
26 sults. A data API company that practices agile software implementations would likely be able to supply a  
27 technical project lead to work in collaboration with the utilities.

28 **Request No. Staff to LGC 1-2** Witness & Respondent: Kat McGhee

29           **REQUEST:** Reference Testimony of Kat McGhee at Page 11 of 22, Bates Page 29 of Local Gov-  
30 ernment Coalition testimony stating "the PUC can and should outline a process by which a technical project

1 lead who may be engaged by, but not employed by, the utilities is given the autonomy to manage the project  
2 without the influence of any (or all 3), of the major utilities...”

- 3 a. Please provide one or multiple examples of a recommended independent technical project leader.
- 4 b. Please provide one or multiple examples of a process to select and engage a technical project  
5 leader which the PUC should outline.

6 **RESPONSE:**

- 7 a. To me the term ‘independent’ means one without competing interests in the implementation of the  
8 Energy Data Hub. If a company that responds to the RFP already uses agile software processes,  
9 then this would mean the project leader from that vendor could fulfill the role of technical leader  
10 to the governance council as well. There are also certified ‘scrum masters’ with utility data experi-  
11 ence, who could be hired onto the project to consult on behalf of the PUC. Scrum Master is the title  
12 given to an agile project leader once they have completed training on agile software development  
13 methodology. As a member of the Project Management Institute (PMI), I reached out to the NH  
14 president, Mark Lucas about how we would go about making a search of the local project manage-  
15 ment universe to find someone with specific expertise. He is happy to post an inquiry from the  
16 State of New Hampshire to conduct a search of people qualified to lead a utility data hub project  
17 using agile project management methods if we are interested in exploring unknown candidates in  
18 the region.

19 It was quite interesting to me that our ability to refine Use Cases was stymied before some-  
20 one with agile and utility data systems’ architecture expertise joined our technical sessions and  
21 post-session talks. Ethan Goldman, who is a volunteer expert witness on behalf of CENH , has a  
22 very specific set of skills emanating from his work in Vermont, that make him the type of project  
23 leader we need. I did not know him before Henry Herndon of CENH asked him to sit in on some  
24 calls; but, it was clear Ethan could see where the discussions were stalled, how to refocus us in a  
25 useful way and how to make strides in our talks with the utilities.

26 I was impressed with Ethan’s communication skills as I have participated in multiple meet-  
27 ings where he listened to stakeholder concerns and added immediate value to move us forward. His  
28 detailed understanding of utility data and his knowledge of the kinds of issues that can arise during  
29 a utility data integration project convinced me that finding a person with applicable experience to  
30 be able to meet the concerns of all stakeholders is a critical success factor for the State of New

1 Hampshire to consider. Ethan is clearly comfortable with the agile software development process  
2 and I thought this was worth mentioning. He brought a great deal of clarity to the process of re-  
3 working the Use Cases into User Stories so that everyone could find common understanding. This  
4 is the skill-set that will help run an effective and meaningful project.

5 So, although I think very highly of Ethan as a resource with explicit energy data architec-  
6 ture experience, which I see as uncommon, I see the choices as follows, we can:

- 7 1) Pick a utility data vendor partner who can run an agile software process and utilize their exper-  
8 tise as part of the software project to supply and experienced team leader who communicates  
9 regularly with the Data Hub Council and the utilities.
- 10 2) Secure as a project leader a consultant who will be responsible for an agile team of technical  
11 data software resources from our API vendor and the utilities; that can be done via a search  
12 with PMI-NH.org or via a technical head-hunter firm, or monster.com or another online service  
13 for finding talent.
- 14 3) Look at the very specific skills that exist within the docket's intervenors service list, for some-  
15 one with the experience we need.

16 b. As with any search process, the first step is to identify the skills you are seeking in your Technical  
17 Project Leader. Just as with the User Stories, when you identify the outcomes you expect, it leads  
18 to a process whereby we can more easily determine if the candidate meets the requirements. In the  
19 case of the NH Data Hub project team leader, I recommend including the following experience:

- 20 i. Agile technology project leader (scrum master training or equivalent)
- 21 ii. Utility data experience (3 years minimum)
- 22 iii. Data systems' architecture expertise (5 years +)
- 23 iv. API architecture experience (expertise preferable)
- 24 v. Excellent communications skills

25 **Request No. EU to LGC 1-022**

Witness & Respondent: Kat McGhee

26 **REQUEST:** Page 22, line 14: What are the elements of the distributed energy system beyond the  
27 utility areas that you would like the data platform to portray? Given SB284's required functionality of util-  
28 ity customer usage data, what other data, if any, would come from this area of the distributed energy system  
29 beyond the utilities?

1           **RESPONSE:** The easiest way to respond to this question is to put it in terms of metered energy  
2 data. If the State of New Hampshire and the PUC are to order the design and implementation of a statewide,  
3 online, energy data hub, it would be inefficient and short-sighted, to confine it to electric utility data in front  
4 of the meter. The ability for community aggregators and municipal governments to secure and use their  
5 data to manage energy costs is a major driver of providing easier access to all our energy data in a consum-  
6 able form. All energy contributing to the state’s generation must have a way of being captured so that the  
7 true ‘big picture’ of our needs and use is available in the data.

8           The bill called out the need for utility customer data because without the data that the utilities’  
9 control, a centralized data hub could not be created. It should not be inferred that because the utilities  
10 were compelled to include their customer data, other contributing forms of electric generation, storage,  
11 and consumption information, nor system data, would be excluded from an energy data hub. This would  
12 defeat the purpose of having access to ‘statewide’ energy data. The bill language discusses the strategic  
13 advantages of having access to energy data that can be turned into information; that information can be  
14 used in support of ongoing PUC efforts like grid modernization and energy efficiency plans.

15           Distributed energy sources, behind the meter, could be required to provide whatever uniform data  
16 elements are defined in the New Hampshire Electric Energy Data Standard (NEEDS) model. Whether this  
17 is accomplished in the initial rollout or is part of a phase plan that must be implemented as technical hur-  
18 dles are addressed, is an answer for those who will be assessing the technical challenges on the ground. I  
19 am not a technical person. I cannot provide the fields. But uniform energy data collection is the only way  
20 we will be able to roll up data into useful information. There is no language that excludes distributed re-  
21 newable forms of energy generation, storage, load, or system data from the equation. We do not know the  
22 significance of the role of each energy data type for our state in the near and not so near future. In order to  
23 build a hub that is ‘future proof’, we must make it capable of including whatever energy types are contrib-  
24 uting to the overall load requirements of our communities and state.

25 **Request No. EU to LGC 1-023**

Witness & Respondent: Kat McGhee

26           **REQUEST:** Page 23, line 8: Please explain fully what is meant by “an automated energy data  
27 hub”?

28           **RESPONSE:** I used the word ‘automated’ to describe the use of an API (a set of functions that access the  
29 features or data of an operating system, application, or other service) or series of API’s to pull energy data  
30 from various sources into a centralized database or a virtual data server.



1 folks on our energy committee are technical, competent and work regularly with the utilities. But the sys-  
2 tem is not automated – so they are forced to work on manual data dumps from disparate sources and the  
3 results are still not sufficiently comprehensive to illustrate the entire picture needed to show their home-  
4 work to the town selectman and budget committee. This is among the consumer problems an automated  
5 energy data hub is intended to address. They should be able to have access to their own data and be able  
6 to make sense of it.

7 So, the answer to your last question is, the energy data hub user would request the data and the  
8 platform would respond with that data.

9 **Request No. EU to LGC 1-025**

Witness & Respondent: Kat McGhee

10 **REQUEST:** Page 23, line 24: Please describe the steps stakeholders have taken to deter-  
11 mine whether User Stories are "reasonable" and the cost of implementing them is in the best interest of  
12 ratepayers. For all such determinations please provide all reference material used and calculations used to  
13 support these claims.

14 **RESPONSE:** The LGC objects to this question as overly broad as it seeks information that the  
15 witness does not have and asks the witness to undertake additional analysis and develop new information  
16 as part of a data request, which is not an appropriate use of discovery. Notwithstanding the objection, the  
17 witness provides the following response:

18 My use of the term 'reasonable' was in reference to teleconferences with Unitil and Eversource  
19 where we provided access to and in some cases walked through and provided access to the User Stories  
20 developed from the Use Cases across the docket, as a set of concrete 'outcomes' the platform (or hub)  
21 would deliver. There were also IT people who had reviewed the User Stories and commented in those  
22 meetings that they brought greater clarity to the objective outcomes of the hub. There were no particular  
23 objections to the outcomes described for any of the user categories.

24 There are no reference materials that relate to the reasonableness of specific outputs and what is  
25 in the best interest for the ratepayer. The User Stories document was designed in direct response to the  
26 identified needs of the various user categories. Customer, Third Party, CPA, Grid Modernization Group,  
27 Government (PUC), utility.

28 [https://docs.google.com/spreadsheets/d/1WSQELIC9anFVvl\\_TxqdiH0jPTEjeuH\\_j-ZtjXRcT-  
29 NbU/edit?ts=5f60da54#gid=1299256911](https://docs.google.com/spreadsheets/d/1WSQELIC9anFVvl_TxqdiH0jPTEjeuH_j-ZtjXRcT-NbU/edit?ts=5f60da54#gid=1299256911)

1 Improved energy efficiency, greater ease of use/time savings for distributed energy aggregators  
2 and municipalities, more accurate grid planning and modernization efforts are all insights into the portfo-  
3 lio of electric energy generations that an energy data hub can solve for the New Hampshire energy con-  
4 sumer, whatever their role. Someone more conversant in economics might be able to quantify value of  
5 being able to secure this information to the various electric energy consumers of New Hampshire. See  
6 also the estimate provided by Prof. Amro Farid in his testimony at Bates p. 164.

7 **Request No. EU to LGC 1-026** Witness & Respondent: Kat McGhee

8 **REQUEST:** Page 24, line 18: Please define “supporting relational data-sets” in terms of required  
9 or additional functionality of the platform. Who would benefit from their inclusion?

10 **RESPONSE:** Supporting relational data sets does not describe additional functionality. In James  
11 Brennan’s testimony for the OCA, the originating department in the State of New Hampshire, he discusses  
12 the importance of relational data sets in support of a data base structure that can roll up data, so it is useful.

13 The raw data in any database is just a set of ‘building blocks’. It’s the proverbial ‘gobbledygook’  
14 without a set of defined relationships between the data being collected that tells the system how to organ-  
15 ize and ‘inter-relate’ the data for display back to the user seeking information.

16 The relationships that exist between those blocks must be defined so that the information derived  
17 can be provided in a meaningful way. This is all I meant by relational data sets. It is a tech industry term  
18 that has been referred to in other testimony, so I did not think I would have to provide further elaboration.  
19 I am not a software developer, but I have worked in the software engineering environment and I trust that  
20 this layman’s definition will suffice.

21 In a relational data base, which the statewide, online energy data hub would be to meet any of its  
22 objectives, relational data sets are a feature.

23 **Request No. EU to LGC 1-027** Witness & Respondent: Kat McGhee

24 **REQUEST:** Page 24, lines 26-28: Please provide the definition of “state of the art security” that  
25 was discussed or shared with the User Stories and any relevant security standards referenced.

26 **RESPONSE:** There is no such reference on Bates page 24, so assumed page 23 was intended.  
27 This phrase was used as shorthand because I have no background in data security protocols or products.  
28 What I do know is that the statute requires that the energy data be secured to the level of security that is  
29 expected by the customers and stakeholders, including the utilities.

1 The details of those methods, (like 2-factor authentication, encryption etc.) are for the technical  
2 collaborators (including the utilities) to decide in meeting the requirement for data security. The term  
3 ‘state of the art’ simply means the best practice as it currently exists.

4 **Request No. EU to LGC 1-028** Witness & Respondent: Kat McGhee

5 **REQUEST:** Page 25, line 6: Do you believe the PUC should investigate cost as a consideration  
6 of the project? If so, would the PUC need to understand the scope of the platform in order to determine the  
7 initial and ongoing cost? If not, what is the justification for disregarding the method used to determine  
8 public benefit and what metrics would you replace cost/benefit analysis with?

9 **RESPONSE:** I believe it is the responsibility of the PUC to investigate costs and determine the  
10 benefits of the project. That does not mean one can conduct a cost benefit analysis as though the value was  
11 equal to the sum of the parts. The experts in utility data API solutions will need to join in an RFI/RFP  
12 process in order to examine both the initial scope and types of maintenance models that could be pursued  
13 and their associated costs.

14 I have no way of assessing whether the current methods used for assessing public benefit remain  
15 sufficient for this exercise. I believe having access to energy data is the crucible for governments around  
16 the nation and around the globe, so I’m pretty sure our investment will be both timely and cost effective  
17 in the long run. This is the missing piece in being able to manage our energy resources. If all energy con-  
18 sumers do not benefit from improved efficiency and planning, I would be surprised because that is a pri-  
19 mary driver of all of our efforts who work in this space. But I concede that this software project will have  
20 costs a non-technical project will not, so it may be difficult for the commissioners to put the project costs  
21 into context with the significant benefit having access to our changing energy data will provide.

22 Please also see the responses of witness Below to EU to LGC 1-001 and 1-002.

23 **Request No. EU to LGC 1-029** Witness & Respondent: Kat McGhee

24 **REQUEST:** Page 25, line 24: Please provide examples of what is meant by elusive efficiencies.

25 **RESPONSE:** The term ‘elusive efficiencies’ came from my notes of a keynote speech by Damir  
26 Novosel, President and Founder of Quanta, who spoke to us at the Boston Copley during the ISO-NE 10  
27 year Regional Systems Planning conference, one year ago, on September 10<sup>th</sup>, 2019. The President of Trans-  
28 mission for Eversource, Katherine Prewitt was a conference panelist.

1 Mr. Novosel made the point in his keynote that the most elusive and essential aspect of integrat-  
2 ing distributed generation assets successfully into the energy grid is our inability to ‘see’ the contribution  
3 of behind the meter load reducers. Or, as my friend Pat Martin puts it, you cannot manage what you can-  
4 not measure. The benefits of being able to leverage greater energy efficiency remains elusive expressly  
5 because we are unable to centralize and use our energy data today in a strategic way. Refer to my prior  
6 anecdote as to the efforts of the Hollis Energy Committee or those of fellow-LGC member, April Salas’  
7 testimony on the experiences of the Town of Hanover. These are just 2 New Hampshire towns who have  
8 found quantifying and managing their actions toward greater energy efficiency ‘elusive’.

9 **Request No. EU to LGC 1-030(a)**

Witness & Respondent: Kat McGhee

10 **REQUEST:** Page 26, line 21: Please provide examples of the type of companies you recommend  
11 here, and for each please provide pricing for their services.

12 **RESPONSE:** The LGC objects to this question as overly broad as it seeks information that the  
13 witness does not have and asks the witness to undertake additional analysis and develop new information  
14 as part of a data request, which is not an appropriate use of discovery. Notwithstanding the objection, the  
15 witness provides the following response:

16 The utilities participated in early Tech Session demos by companies like Utility API, Packetized  
17 Energy and later demos by mPrest and Kevala. These companies work in the utility data collection and  
18 display space.

19 I do not have pricing information for any of their services. Obviously, without discussing the spe-  
20 cifics of a particular project, including the volume of data to be hosted and the amount of collaborative  
21 effort required to ready the data for use, no estimate would be reliable. The point I was trying to make is  
22 that companies who are competing in the space of energy data services are familiar with the idiosyncra-  
23 sies of managing multiple utility data sources, security, permissions, change management, versioning etc.  
24 Because their services might price in these features and functionality, it is a good assumption they can of-  
25 fer them without the same effort it would take an in-house utility IT department to conceive, design, de-  
26 velop and test these from scratch.

27 Mr. Brennan, of the Office of the Consumer Advocate, who has a background in software man-  
28 agement, engaged in talks with a few such vendors relatively early in the process to get some idea of pric-  
29 ing for a project of this type. He was able to talk about what type of model the platform would require, so  
30 that the vendors had a good sense of the project scope. As a result of those discussions, Jim was

1 convinced that the estimates being expressed by the utilities were much higher than the cost of executing  
2 an API based service as his original diagram conceived. Large companies (like IBM’s involvement in this  
3 space) tend to price projects higher because they require specialized technical expertise. They know they  
4 can command a high price because they are trusted on the technology. But, just as technology products  
5 come down in price over time, the cost of implementing utility data systems is a space with competitive  
6 players, and prices have come down.

7 Mr. Brennan and I, both with experience in managing IT projects, agree that leveraging the lower  
8 cost option is the right approach for New Hampshire.

9 **Request No. EU to LGC 1-030(b)** Witness & Respondent: Kat McGhee

10 **REQUEST:** Page 27, line 7: Why would a “fee for service model” not be appropriate when the  
11 third parties selling services to customers would receive financial benefits from the development of such a  
12 platform?

13 **RESPONSE:** The role of distributed generation assets in the electric energy market is the rub isn’t  
14 it? Third parties may appear to the utilities to be the pesky competitors nipping at heels of traditional bulk  
15 generation supplied through the interstate transmission grid. But, those ‘financial benefits’ are a result of a  
16 market share that is being encouraged by regional grid planning goals for shaving peak, reducing load,  
17 properly integrating non-traditional generation assets and reducing emissions. So perhaps, all of these ben-  
18 efits are a worthy trade-off for encouraging clean energy producers work, rather than charging them, to use  
19 a system that is helping us achieve state and regional goals.

20 If the energy data hub is well conceived and developed, everyone involved in the energy market  
21 benefits, including regulators and utilities. If only certain stakeholders pay to access the system, it is not  
22 an equal resource to enable the desired clean energy transition.

23 I am of the opinion that this energy data hub should not be viewed as a utility application that  
24 other energy market participants pay for the privilege to access. The utilities will also benefit from this  
25 data access, in planning, partnering on behind the meter projects and supplying more robust data to regu-  
26 lators as analysis for strategic distribution investments. The utilities are playing an essential role in bring-  
27 ing the energy hub into being, but in my mind, that does not mean they are intended to reap greater bene-  
28 fit from the system, than smaller competitors or other stakeholders.

29 Everybody pays, or nobody pays would be how I would explain it. But then, the utilities have  
30 bigger pockets, can leverage economies of scale and depending upon the vendor relationship, may have

1 easier direct access to data; the stakeholder relationship in using the energy data hub has many ways to  
2 become unequal. That is why I argue against a fee for service.

3 **Request No. EU to LGC 1-031** **Witness & Respondent: Kat McGhee**

4 **REQUEST:** Page 27, lines 8-11: If parties other than the utilities are to participate and benefit  
5 from the “modern grid infrastructure” without contributing to this infrastructure, does this paradigm provide  
6 a competitive advantage?

7 **RESPONSE:** The small renewable company owners in New Hampshire can barely eek out a living  
8 on what we are doing to incent their contributions to the distributed grid. We keep failing to pass a proper  
9 ceiling for net metering caps. I admit that getting the balance right during a transition for a changing market  
10 is not easy and will not be done without some wrangling over turf, tools and tariffs.

11 But, these third parties are contributing to the infrastructure; they are building the distributed  
12 piece of the state’s infrastructure and educating the public, one project at a time. It is a different model  
13 than the traditional utility model, but it is what we have chosen to pursue. We should stop sending mixed  
14 messages and simply figure out how to integrate our grid as we keep saying is our intention.

15 The energy data hub is not part of the physical energy infrastructure – though it will play an inte-  
16 gral role in its management. The energy data hub is the way we will jointly engage with our infrastructure  
17 as a whole and manage it to the benefit of all customers.

18 **Request No. EU to LGC 1-032** **Witness & Respondent: Kat McGhee**

19 **REQUEST:** Page 27, lines 13-18: Please describe the role of a “more-nimble utility API com-  
20 pany” in building out the internal data mapping from utility backend systems to the Logical Data Model  
21 and the “behind the API” work required to get access to these disparate utility data sources. How might an  
22 external organization such as this deliver such work more efficiently and cost-effectively than the utility IT  
23 itself?

24 **RESPONSE:** The utility can absolutely supply a clean data feed that conforms to the logical data  
25 model easier and with greater institutional knowledge than any vendor. A data project of this type has got  
26 to be a collaborative effort. If we decide to build a virtual platform that handles data from the utilities and  
27 other metered, distributed resources through a series of data handling API’s, I think just as the utilities have  
28 more knowledge of their own data handling, the utility data companies that already do this work, will be  
29 able to craft an API software solution faster than the utilities, and for more streamlined costs.

1 **Request No. EU to LGC 1-033** Witness & Respondent: Kat McGhee

2 **REQUEST:** Page 27, line 18: Please provide any documentation available on the services offered  
3 by non-utility providers. What is the scope of cost estimates provided?

4 **RESPONSE:** The LGC objects to this question as overly broad as it seeks information that the  
5 witness does not have and asks the witness to undertake additional analysis and develop new information  
6 as part of a data request, which is not an appropriate use of discovery. Notwithstanding the objection, the  
7 witness provides the following response: I do not possess any cost estimates.

8 **Request No. EU to LGC 1-034** Witness & Respondent: Kat McGhee

9 **REQUEST:** Page 28, lines 15-20: Please describe what means the Commission might use to de-  
10 termine whether the delivered value of a platform such as this is cost beneficial, particularly with the “un-  
11 knowns” described in this testimony.

12 **RESPONSE:** All systems development involves unknowns. The nature of any systems’ project is  
13 that you are creating functionality that was previously unavailable.

14 The immediate benefits to energy consumers, stakeholders and planners are reflected in the User  
15 Stories’ outcomes. The tangential benefit of having insights like those described by the President of  
16 Quanta in his keynote address at the ISO-NE 10 Year Strategic Planning regional meeting were quite  
17 clear. This is where the energy sector is going and having access to our energy data is the missing piece.  
18 What price do we put on that? I believe the commissioners are more qualified to answer that question than  
19 me.

20 We have a golden opportunity to leverage this project to New Hampshire’s advantage as was de-  
21 fined in front of NH PUC Commissioners and the Governor’s Office of Strategic Initiatives, who were in  
22 attendance at that ISO/NE 10-year Strategic Regional Planning meeting. Creating data access and trans-  
23 parency was called out as the most significant missing piece of the puzzle to properly integrating distrib-  
24 uted generation assets.

25 I guess the proper question is what will it cost us to attain our goals? Or what is the opportunity  
26 cost of failing to attain our goals. This project is not seen by non-utility stakeholders and the other inter-  
27 venors on this project as another customer-utility interface. It is seen as a lynchpin for grid modernization  
28 and energy efficiency efforts.

1 **Request No. EU to LGC 1-035** Witness & Respondent: Kat McGhee

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2 **REQUEST:** Page 29, line 2: Please explain fully the “differing views on approach even amongst  
3 the 3 major utilities.”

4 **RESPONSE:** In conversations with 2 of the 3 utilities (Unitil and Eversource), it was apparent  
5 that company cultures varied and those differences boiled down to different levels of receptivity to the  
6 concept of modernizing data access in furtherance of more strategic statewide energy use. The response  
7 from Liberty Utilities was a welcomed, yet distinct perspective. I had not had an opportunity to speak with  
8 their representatives on Liberty’s position on the project.

9 **Request No. EU to LGC 1-036** Witness & Respondent: Kat McGhee

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10 **REQUEST:** Page 29, line 5: Please explain what elements of this new paradigm you are referring  
11 to in the testimony that the utilities have not embraced. How is it in the best interest of the project to give  
12 “the autonomy to manage the project without the influence of any (or all 3), of the major utilities” who own  
13 and best understand the utility data and are considered a stakeholder and user of the platform?

14 **RESPONSE:** This is a key question in term of stakeholder perspective. From the utilities’ per-  
15 spective they are the prime stakeholders for the project. It is a valid position based upon your points above.  
16 The point I am making is that the software project is not best owned/managed/conceived by the utilities.  
17 To ensure decisions are made in an agnostic way, no stakeholder should be designing features that benefit  
18 or disadvantage their competitors. It’s just not good practice from a process standpoint and if the state were  
19 asking a solar vendor like ReVision Energy to run the project, the utilities would cry foul as well. There  
20 should be distance between the software project and the utilities as stakeholders. That doesn’t mean the  
21 utilities are not prime collaborators on the project. But if this turns into a utility project, it will reflect the  
22 utilities’ stockholder’s perspective and it will resemble other projects they have undertaken for their cus-  
23 tomers. That is not the goal. The energy data hub is broader than the interests of the utilities by design and  
24 how the software project is structured needs to reflect that important distinction.

25 **Request No. EU to LGC 1-037** Witness & Respondent: Kat McGhee

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26 **REQUEST:** Page 30, line 6: Please explain how the legislation requires “systems data” within the  
27 platform.

28 **RESPONSE:** I never said the legislation requires systems data. I merely pointed out that it does  
29 not preclude the use of systems data. The specific references to energy data do not suggest that customer

1 data is the only form of data to be used. I was making this point in my testimony because Eversource had  
2 started to suggest that their interpretation was that customer data was the only data called out in the bill  
3 language, that is not the case.

4 *Multi-use Energy Data Platform*

5 *Under 378:51 Online Energy Data Platform Established.*

6 *I. The commission shall require electric and natural gas utilities to establish and jointly op-*  
7 *erate a statewide, multi-use, online energy data platform. The data platform shall:*

8 *a. Consist of a common base of energy data for use in a wide range of applications*  
9 *and business uses.*

10 ‘A common base of energy data’ does not determine whether system data, as necessary for the  
11 performance of certain data outputs, is to be included. The requirements in the User Stories for how ‘data  
12 seekers’ (to use OCA’s term) will use the system to perform energy stakeholder tasks, should be the  
13 driver of what the common base of data must include. The desired functionality drives the base data  
14 needed to achieve specific outcomes.

15 As I tried to explain in Technical Sessions and beyond, there are no bad data types or more ex-  
16 pensive data groups that can save us money if we ignore them. Discussions around what we are trying to  
17 achieve and whether we can achieve those goals without compromising security etc., are the conversa-  
18 tions that matter and will lead to a successful outcome. Excluding entire types of data is an untenable po-  
19 sition when designing a data system. My point was not that system data was required. My point was that  
20 saying systems data was not specified or to be included is not accurate.

21 **Request No. EU to LGC 1-038**

Witness & Respondent: Kat McGhee

22 **REQUEST:** Page 31, line 14: Please describe and cite the existing national energy data standard  
23 you are proposing which meets the current data platform requirements as defined.

24 **RESPONSE:** I am familiar with these data standards through the software engineers I’ve inter-  
25 acted with on this docket. Dr. Amro Farid has provided extensive testimony on the CIM (Common Infor-  
26 mation Model) standard as he has expertise on national and international work seeking to standardize how  
27 energy information is organized and protected.

28 Jim Brennan from OCA made me aware of the Green Button Alliance energy data handling pro-  
29 tocols already established and he made sure that GBA was specified in the legislation; It is my under-  
30 standing that ESPI Enhanced Serial Peripheral Interface Bus (eSPI), a synchronous serial communication

1 protocol, is also being considered as a way of establishing a method for handling large amounts of data in  
2 an efficient way. Because software professionals in the energy space are aware of work that has already  
3 been done to develop standards for use with energy data, there is concern that we incorporate standards  
4 such as these so as to make sure our statewide efforts can ultimately be compatible with regional and na-  
5 tional energy data efforts if and when they are needed. It is simply good practice to lift our gaze and un-  
6 derstand that we are not building access to our energy data in a vacuum. In order to make a sound and  
7 long-lasting investment in an energy data system, we must incorporate appropriate energy data standards  
8 to ensure our investment will not become rapidly obsolete. Please refer to Dr. Farid's efforts to document  
9 his position via testimony on behalf of LGC.

10 **Request No. EU to LGC 1-039**

Witness & Respondent: Kat McGhee

11 **REQUEST:** Page 33, line 1: Please elaborate on the statement that the “lens through which the  
12 utilities view data access is far too narrow” to embrace the needs of the distributed energy market. Are there  
13 examples of this that can be provided? If utilities have no ownership nor decision-making authority over  
14 the platform, and are similarly excluded from platform operation and ongoing management, what is the  
15 justification for recommending performance-based rate-making (PBR) and how would it work given the  
16 governance structure and utility roles as described in your testimony? Also, as no one has provided any data  
17 or support for the premise that any data platform would be used or to what degree, and this would be a  
18 wholly untested product, what is the reasoning for including the amount of platform usage as a performance  
19 metric in cost recovery, a mechanism that is going to be established before the platform is in use?

20 **RESPONSE:** In demonstrations from mPrest and Kevala we saw the incredible potential for the  
21 use of energy data. The kinds of strategic initiatives and efficiencies that access to energy data can enable  
22 are only limited by the imaginations of those in charge of managing them. Throughout the Technical Ses-  
23 sion proceedings, Eversource participants in particular kept stating that only customer data was involved,  
24 to the point where the PUC staff began making the same assumption. I believe that in some later calls, many  
25 of the intervenors who were working on the User Stories to help define what the system would do, conceded  
26 that they could live without system data for an initial rollout and work with the governance body on any  
27 additional data needs down the road. But the ability to define which benefits the system should provide is  
28 still an area of debate. We do not have a means of looking to any ‘system’ for energy investments, rate  
29 setting or optimization today. Is this an outcome we would like to obtain?

1           In a call with an Eversource representative the participants were told that entering into a discus-  
2 sion of systems' data was dangerous. Unutil on the other hand focused our conversations on the particular  
3 obstacles of particular types of system data, while readily admitting that on other types of system data,  
4 they foresaw no problem.

5           If we are asking a distributed generation market to augment traditional generation sources, we  
6 have to allow them to be self-sufficient in accessing the data that they need to see.

7           The model I suggest does not remove utility ownership or decision-making – it merely structures  
8 it in a way that creates a once-removed relationship that prevents direct ownership. The utilities ultimately  
9 own responsibility for the vendor partner who operates the platform (virtual or otherwise). In that role, the  
10 utilities will collaborate to provide vendor oversight and would thus be rewarded for meeting performance  
11 metrics. This model helps prevent a circumstance fellow-intervenors on DE19-197 from other state efforts  
12 have observed in other projects around the country; namely, that the utilities lack of interest in supplying  
13 data access meant that they built a platform that was hard to use and suboptimal in features. Without per-  
14 formance incentives, or disincentives, the utilities did the bare minimum because they did not see the  
15 business advantage to giving competitors energy data access. It's a conflict of interest. I do not want to  
16 see that happen in New Hampshire if we can benefit from the experience of others who have gone before  
17 us.

18           How do we know people will use the platform? Well, we know there are people attempting to  
19 combine energy data for their community investments who cannot easily access it today. We know that  
20 even among regulatory and utility energy data consumers, having a centralized data hub for energy infor-  
21 mation would be a vast improvement to support technical meetings and energy policy planning conversa-  
22 tions. Some consumers may wait until they hear of an easy phone app that can help them see how their  
23 solar panels are offsetting their home energy bills, but we are in both an energy and a data age, so it is like  
24 asking if those in the early years of telecommunications could envision whether the phone might catch on.  
25 Access to energy data is a hot topic globally. We have a chance to partner on something bigger than what  
26 we're doing today. This question feels like a reference to so many utility customer-interfaces that nobody  
27 takes the time to use is part of the reason I think it's a really bad idea to give the project to the utilities to  
28 design.

1 I was not suggesting that the example of metrics I referenced were to be the metrics used. So, I  
2 don't believe I have to defend a potential metric. The metrics are not for me to decide. I am suggesting  
3 that there be metrics, in order to incent the desired supportive behavior from the utilities.

4 **Request No. EU to LGC 1-040**

Witness & Respondent: Kat McGhee

5 **REQUEST:** Page 38: The 13-member vision/strategic data council proposed includes 6 energy  
6 stakeholder members and a technical lead (a majority) who can financially benefit from the data platform.  
7 Please explain how you believe the costs of the energy data platform could be controlled based on this  
8 proposed governance structure.

9 **RESPONSE:** The PUC supplies the oversight for any governing body and no major cost or func-  
10 tional decisions are made without their approval. The proposed model would allow for sufficient autonomy  
11 that all stakeholder members would be involved in determining maintenance and small improvements by  
12 vote; there would be an annual maintenance budget, over and above the vendor fees, so that daily opera-  
13 tional decisions would not require bothering the PUC. But with this framework, annual costs would be a  
14 known quantity once the initial project has been completed.

15 Voting rules do not have to be a straight majority that is TBD and there may be non-voting mem-  
16 bers on the committee. I do believe an odd number of voting members is a requirement for getting any-  
17 thing done. It sounds as though the concern here is that the utilities would not be in the majority for con-  
18 trolling outcomes. That is true. Since the utilities have the least to gain from having an effective energy  
19 data platform that removes their current control of energy data access, I see giving the utilities a majority  
20 vote by design, as counter intuitive.

21 I have no problem with the utilities participating fully in all aspects of the project. I have worked  
22 in large corporations and I do not see this collaboration in terms of us and them. But, for the sake of a  
23 healthy balance of stakeholders that leads to a healthy data hub, I see no reason to tilt the voting toward  
24 those who are least interested in seeing the project succeed. If we want to see a good use of the state's in-  
25 vestment, we need to engage those who are most enthusiastic about doing something worthwhile in direc-  
26 tion setting. They are not going to be building a tool for their private use and they will have fiscal parame-  
27 ters within which they must adhere. That is how we achieve the best outcome for the state of New Hamp-  
28 shire and for the ratepayer.

29 Most of the intervenors are in the clean energy space to reduce carbon emissions rapidly and they  
30 earn a living as a byproduct of that mission. Whether these stakeholders serve on the council or not, the

1 features of the tool, its maintenance plan and budget allocations will not earn them any more or less in-  
2 come. If by the question you are referring to the ability for distributed energy companies to more easily  
3 expand their businesses through better access to customer usage data, then that may be true. But I would  
4 argue that this expansion is long overdue and part of the impetus of the original legislation and if those  
5 goals were not achieved by this project, then it would have been derailed from its intent.

6         The technical lead role assumes that a qualified professional will be hired to drive the project to a  
7 successful outcome, without particular bias to any of the stakeholders. This project leader will be of value  
8 to the council in terms of objective input on the platform decisions from a technical perspective and an  
9 outcomes-based allegiance to the platform's goals. If the project outcomes are well defined, then knowing  
10 when those goals are met will not be in question. This confines the project timeline (being able to declare  
11 when done, is done) and also limits the contractual role and income of that technical lead depending upon  
12 his/her value to the council. If you are suggesting that someone who is paid to perform a project lead role  
13 is likely to prolong the project to preserve his/her own paycheck, that is an unfair projection. Any compe-  
14 tent project manager is looking to bring their project in on time, with all features, and in budget. In this  
15 capacity, anyone hired to undertake the platform project will be a temporary resource to the council, un-  
16 less it is decided that their continued participation would be of benefit to the platform maintenance and  
17 the council at large.

18         The functionality will be what is agreed to by the council members and put in place by the vendor  
19 partner or partners who execute the plan. The utilities will have significant input in that process and all  
20 along the way. The cost of the platform and any enhancements that will follow in subsequent years will  
21 not be determined by any stakeholder or stakeholder group alone. It will continue to be a collaboration of  
22 energy stakeholders and from this standpoint, I believe the allusion to cost containment being a problem if  
23 the utilities do not have a council majority is unfounded.

24         **Q.** Does this conclude your rebuttal testimony?

25         **A.** Yes, it does.