

**THE STATE OF NEW HAMPSHIRE  
BEFORE THE  
PUBLIC UTILITIES COMMISSISON**

**DE 19-197**

**Electric and Natural Gas Utilities**

**Development of a Statewide, Multi-use Online Energy Data Platform**

Rebuttal Testimony of Samuel Nash Vautier Golding

On behalf of  
Local Government Coalition

October 23, 2020

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1 **I. Introduction**

2 **Q. Would you please identify yourself and your involvement in this proceeding?**

3 **A.** My name is Samuel Nash Vautier Golding. My business address is 12 S. Spring Street,  
4 Concord, NH 03301. I am president of Community Choice Partners, Inc., a consultancy that  
5 specializes in the design and operation of power enterprises operating in competitive markets and  
6 is dedicated to maximizing democratic, informed decision-making in the energy industry. I have  
7 previously filed Direct Testimony, responded to discovery / data requests, and participated  
8 actively in technical sessions and in informal conversations with stakeholders throughout this  
9 docket process as a member of the Local Government Coalition (“LGC”).

10 **Q. Please summarize your rebuttal testimony.**

11 **A.** The purpose of my testimony is to provide the Commission with context and advice  
12 regarding how best to structure governance of the Statewide Platform “in order to accomplish the  
13 purposes of electric utility restructuring under RSA 374-F”, the Electric Utility Restructuring  
14 Act, as called for under SB 284.<sup>1</sup> To that end, my testimony summarizes and analyzes the  
15 governance proposals submitted by parties and provides a more developed “strawman”  
16 proposal based upon the successful market-based governance framework that has evolved in the  
17 fully restructured ERCOT market.

18 In addition, Eversource and Unifil (EU) asked 19 discovery questions of me. Some elicited  
19 additional background and clarification of my direct testimony, while others provide insight into  
20 our differential positions and perspectives. Since all my responses elucidate my testimony in  
21 contrast to their positions, especially where we differ, I am submitting my responses to their  
22 discovery requests and questions as my rebuttal testimony. The standard discovery response  
23 formatting has been removed, except for the request number line. A few responses have had

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<sup>1</sup> Available online:

1 minor (non-substantive) typos fixed. My response to Request No. EU to LGC 1-058 on pages  
2 68-69 below, concerning whether a distribution level transactive energy platform would be  
3 subject to FERC jurisdiction, was prepared in collaboration with witness Clifton Below and  
4 should be considered the joint testimony of both of us.

5 **II. Summary of Governance Proposals**

6 **Q. Have you reviewed the governance proposals submitted by parties?**

7 **A.** Yes.

8 **Q. Please summarize the governance proposal of Liberty Utilities.**

9 **A.** Liberty Utilities recommends a model based upon the EESE Board and Grid Mod  
10 Stakeholder Group, with a governing body composed of “multiple stakeholders, including the  
11 utilities, Commission Staff, the OCA, along with parties that may be interested in utilizing the  
12 platform”, with “a set number of members that have voting rights” who make  
13 “recommendations to the Commission that are based on consensus” regarding the “design of  
14 the platform, costs and benefits to all stakeholders, especially costs to be passed on to utility  
15 customers for the initial setup and ongoing annual costs of the platform, standards for data  
16 accuracy, cyber security, financial security of third parties, and future enhancements of the  
17 platform as the energy landscape continues to change.”<sup>2</sup>

18 **Q. Please summarize the governance proposal of Eversource and Unitil.**

19 **A.** Eversource and Unitil propose two working groups of stakeholders who “represent the  
20 user experience and advocate for policy purposes of the platform”, called “the Governance

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<sup>2</sup> Joint Direct Testimony of H. Tebbetts & M. Samenfeld, Bates p. 028 to 029

1 Working Group (“GWG”) and the Operations Committee (“OC”)<sup>3</sup> with the following  
2 composition, voting structure and responsibilities:

- 3 • The Governance Working Group would have 11 to 14 members, consisting of 6 utility  
4 representatives, 3 Commission-appointed stakeholder representatives, 2 OCA  
5 representatives, and up to three Commission Staff. It’s role would be to “provide a  
6 diversity of ideas and ensure the platform capabilities can provide ongoing value to  
7 state energy policies and initiatives and would make recommendations to the  
8 Commission on a semi-annual or annual basis that the Commission could consider for  
9 implementation... Recommendations will be made by general consensus, with  
10 dissenting opinions noted for consideration. Recommendations must have more than  
11 six representatives supporting it to be submitted to the Commission. The GWG should  
12 meet at least monthly for the first year after the platform is active, with less frequent  
13 meetings as appropriate thereafter.”<sup>4</sup>
- 14 • The Operations Committee would consist solely of “equal representatives of each  
15 utility and be responsible for drafting platform operation policy and procedures,  
16 technical design, scoping and pricing changes, change management, security  
17 management and recommendations on the feasibility and cost/benefit analysis of  
18 requests for enhancements or changes. The proposals of the OC would be submitted to  
19 the GWG should it want to add recommendations to OC proposals. Proposals of the OC  
20 would be submitted periodically or as needed to the Commission, but no more  
21 frequently than semi-annually.”<sup>5</sup>

22 Further details regarding the responsibilities of the Operations Committee were provided in  
23 discovery (refer to Attachment 5: Response to Request No. STAFF 1-024):

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<sup>3</sup> Joint Testimony of Thomas Belair, Riley Hastings, and Dennis Moore for Eversource Justin Eisfeller, Kimberly Hood, and Jeremy Haynes for Uniti, p. 49.

<sup>4</sup> Ibid., p. 50

<sup>5</sup> Ibid., p. 50

1 “The Operations Committee (OC) would need approval of the Governance Working  
2 Group (GWG) for draft or revised operating policies and procedures; platform scoping  
3 and pricing changes; operating and capital budget revisions; and final decisions on  
4 security restrictions on users of the platform. The OC and GWG would need approval  
5 of the Commission on governance changes, and operating and capital budget approvals,  
6 as those items relate to the core mandate of the Commission’s authority.

7 The Operations Committee (OC) would make decisions on day-to-day operations and  
8 security including short term restrictions on platform access due to immediate cyber  
9 concerns; platform change management categorization (there is an expectation that  
10 change management approvals will vary with change complexity and risk); and cyber  
11 event classification and incident response. The OC would also be responsible for  
12 making technical design decisions where the decision affects the operations or security  
13 of the platform.”

14 **Q. Please summarize the governance proposal of the Office of Consumer Advocate.**

15 **A.** OCA recommended the creation of a Stakeholder Governance Board and Platform  
16 Operations Committee, with the following composition:

- 17 • The Stakeholder Governance Board would have 9 members: “the Consumer Advocate  
18 or his designee (to represent the interests of residential customers), a representative of  
19 small commercial customers, a representative of large commercial customers, two  
20 members of the Commission Staff, two municipal representatives, and two  
21 representatives of firms that provide energy-related services to consumers that depend  
22 on access to data” —all of which would be appointed by the Commission (other than  
23 the OCA representative) — or “alternatively, the size of the stakeholder governance  
24 board could be increased to 12 voting members with a representative of Eversource,

1 Liberty, and Unitil each given one vote”; regardless, the utilities would attend all  
2 meetings of the Board “to provide such information and advice to the body as it might  
3 require.”<sup>6</sup>

- 4 • The Platform Operations Committee would have 10 members: “three utility  
5 representatives (one each from Eversource, Liberty, and Unitil), three representatives of  
6 third-party service providers reliant on the platform for data, and a tie-breaking  
7 representative of the Commission Staff”, with non-utility representatives appointed by  
8 the Commission.<sup>7</sup>

9 Both bodies would draft their own bylaws and procedures, subject to Commission  
10 approval. The Stakeholder Governance Board would be responsible for the design and ongoing  
11 planning of the Statewide Data Platform, while the role of the Platform Operations Committee  
12 was described thus:

13 “The key here is nimble and efficient decision making. The committee should be  
14 responsible for operationalizing the initial and ongoing requirements established under the  
15 governance body. A key responsibility would be the review of changes to the technology,  
16 implementation, and functional requirements of the platform quickly, as the need for such  
17 changes arises in real time. There is also likely to be a need to resolve disputes in the event  
18 that platform users encounter obstacles or difficulties. It would make sense to allow the  
19 platform committee to authorize subcommittees to make decisions quickly, subject to  
20 review by the entire committee. Disputes within the committee should be brought to the  
21 governance board for resolution. If there is a need to resolve conflicts between the  
22 Committee and the Board these would go to the Commission.”<sup>8</sup>

23 **Q. Please summarize the governance proposal of Mission: data.**

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<sup>6</sup> Prefiled Direct Testimony of James Brennan, Bates p. 090-091  
<sup>7</sup> Ibid., Bates p. 091  
<sup>8</sup> Ibid., Bates p. 091-092

1    **A.**     Mission:data proposes that the Commission appoint a Data Platform Committee with 5  
2    members: 2 utility representatives, 2 Distributed Energy Resource representatives, and 1 OCA  
3    representative. The Committees function was described thus:

4            “The Committee’s responsibilities are to (i) review and attempt to resolve outstanding  
5            support tickets from the issue-tracking system; (ii) refine and approve change requests,  
6            which may be submitted by any Committee member, so long as the costs of  
7            implementing Committee-approved change requests shall not exceed \$250,000 per  
8            year. Committee-approved change requests will receive a presumption of prudence in  
9            each utility’s next rate case. Change requests must be for bona fide changes or  
10           improvements to functionality or user experience, and may not include security updates  
11           or other regularly-occurring or expected operations, whose costs are to be considered  
12           part of the basic operation of the platform and recoverable through rates. The  
13           Committee will make decisions by majority vote following Roberts Rules of Order,  
14           with minutes and change request forms publicly posted on the Commission’s website.  
15           Committee decisions may be appealed by any party at the Commission, which will  
16           review the decision de novo.”<sup>9</sup>

17   **Q.**     **Please summarize the governance proposal of Clean Power New Hampshire.**

18   **A.**     Clean Power New Hampshire proposes the creation of a “Data Platform Council” to  
19    oversee implementation and operation of the Statewide Platform. The body would have three  
20    core functions:<sup>10</sup>

21         1. Approving standards for publication on the Data Platform Hub, including shared logical  
22         data model, API standards, and standards for authentication and authorization;

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<sup>9</sup> Direct Testimony of Michael Murray, p. 69-70

<sup>10</sup> Testimony of Ethan Goldman for Clean Energy NH, Bates p. 25

- 1        2. Ensuring that new Data Sources meet established standards in order to be included in  
2            the Data Platform Hub;
- 3        3. Evaluating the ongoing performance of Data Platform to ensure it is meeting its goals.

4        Clean Power New Hampshire did not propose a specific number of representatives, but  
5 rather proposed that it “should have representation from diverse groups that represent the  
6 market, including public and private sectors, as well as representatives with technical  
7 familiarity with the subject matter”, which could include the following representatives  
8 “selected through an application/nomination process to be vetted and approved by the PUC”:<sup>11</sup>

- 9        • One or more seats for Data Sources (including utilities)
- 10       • One or more seats for state government (PUC, OCA, State Energy Manager)
- 11       • One or more seats for local government
- 12       • One or more seats for academia and other researchers
- 13       • One or more seats for advocacy groups
- 14       • One or more seats for third party energy service providers and DER representatives

15       Representatives would be expected to possess “adequate proficiency to participate in  
16 technical conversations about the functional requirements of the Platform and the tradeoffs  
17 inherent in different options”, or otherwise “designate a technical expert to participate in  
18 proceedings on their behalf, or to accompany the voting member at meetings to help parse the  
19 implications of different choices”<sup>12</sup> and would be occasionally supported by “an expert  
20 consultant who can provide independent advice to the Council regarding database structure,  
21 API mechanisms, security models, etc.”.<sup>13</sup>

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<sup>11</sup> Ibid., Bates p. 27-28

<sup>12</sup> Ibid., Bates p. 27-28

<sup>13</sup> Ibid., Bates p. 29

1        Utilities were recognized as a “major Data Source” that should be “closely involved with  
2 setting these standards so that they can help to avoid requirements that would be impossible or  
3 unduly expensive to meet, and instead to look for ways to leverage existing data systems and  
4 functionality” — but Clean Power New Hampshire cautioned that allowing utilities to vote on  
5 the Data Platform Council could potentially create a conflict of interest.<sup>14</sup>

6        **Q.        Please summarize the governance proposal of the Local Government Coalition.**

7        **A.**        The Local Government Coalition consists of myself, Clifton Below, April Salas, Kat  
8 McGhee, Dr. Amro M. Farid and Pat Martin. Proposals regarding governance are summarized  
9 below.

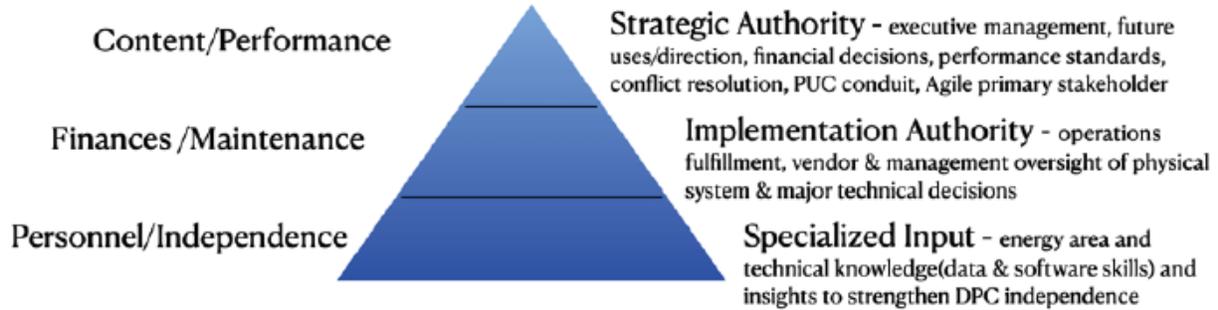
10        Representative Kat McGhee brought forward a “potential blueprint” establishing the  
11 “Platform Data Council” to provide “the vision, oversight and functional decision-making” for  
12 the Statewide Platform, with 13 members in total: 6 energy stakeholder members (3 of whom  
13 should have sufficient technical or software domain expertise), 4 utility members, 2 “State of  
14 NH members (Dept of Energy, OCA, PUC, ST&E, etc.)” and 1 ratepayer member.<sup>15</sup> The body  
15 would plan and oversee the implementation of the Statewide Platform within the boundaries of  
16 the PUC’s initial order / scope and budget, and thereafter prioritize and propose new  
17 functionality based on “consensus and non-consensus recommendations” under a process that  
18 would require “Commission approval prior to initiating new projects beyond initial scope.”  
19 Representative McGhee also provided a conceptual model delineating the scope and  
20 responsibilities of governance:

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<sup>14</sup> Ibid., Bates p. 28-29

<sup>15</sup> Testimony of Kat McGhee for LGC, Bates p. 38

# Governance model



## NH Data Platform Council

Kat McGhee, NH State Rep 2020

16

1

2 Representative McGhee’s additional insights and recommendations, reflecting her  
3 domain expertise as a legislator and software development practitioner, defy concise  
4 summation; refer to Testimony of Kat McGhee for LGC, Bates pages 33 through 38 as well as  
5 her relevant discovery responses (to Request No. EU to LGC 1-036, Request No. EU to LGC  
6 1-039, Request No. EU to LGC 1-040, all of which are included in her Rebuttal Testimony for  
7 reference) for a greater level of detail.

8 Dr. Amro M. Farid notes that governance should “include all of the stakeholder  
9 categories”<sup>17</sup> shown in the figure below:

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<sup>16</sup> Ibid., Bates p. 35

<sup>17</sup> Testimony of Dr. Amro M. Farid for City of Lebanon & Local Government Coalition, Bates p. 166

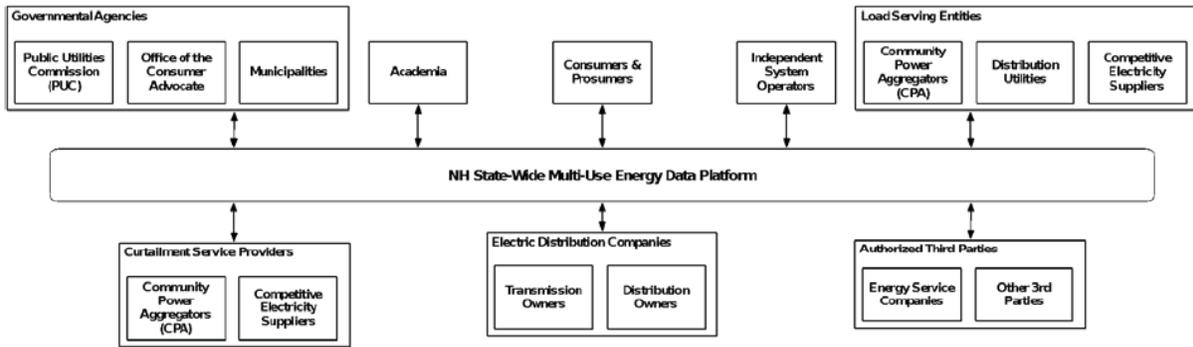


Figure 1. Interfaces between a NH State-Wide Multi-Use Energy Data Platform and NH Energy Stakeholders

18

1

2 My own Direct Testimony recommended the Commission look to how the Texas  
 3 ERCOT market has structured its governance, specifically their Technical Advisory Committee  
 4 (TAC) charter, customer representative segments and subcommittee protocols, which were  
 5 attached for reference.

6 To provide context in support of this recommendation, my testimony characterized: the  
 7 current state of public confidence in the utility industry; the extent and performance of the  
 8 competitive retail market in New Hampshire; the structure, performance metrics and  
 9 governance framework used in fully restructured competitive retail markets; my observations  
 10 regarding New Hampshire’s default service practices in relation to the goals of the Electric  
 11 Utility Restructuring Act; recent controversies regarding utility investments in the retail value  
 12 chain that structurally foreclose market-driven innovation in favor of utility-controlled  
 13 innovation; the statutory authorities, business model and political drivers of CPAs and how they  
 14 are naturally aligned with the development of market frameworks as called for under RSA 53-F;  
 15 and the anticipated expansion and sophistication of New Hampshire’s CPA market due to the  
 16 rapid progress of the Community Power New Hampshire joint-action initiative.

<sup>18</sup> Ibid., Bates p. 142

1           In other words, my testimony focused primarily on explaining why adopting a market-  
2 based governance regime for the Statewide Platform was both necessary and prudent, as a  
3 mechanism to see through the numerous reforms necessary to align New Hampshire’s market  
4 structure, operational practices and utility infrastructure investment decisions with the letter and  
5 spirit of the Electric Utility Restructuring Act — such that market participants would be able to  
6 put the data made available through the Statewide Platform to good use in actually creating new  
7 value for customers.

8           **III. Evaluation of Governance Proposals**

9           **Q. Do you consider any of the proposals to be credible?**

10          A. No.

11          **Q. Why not?**

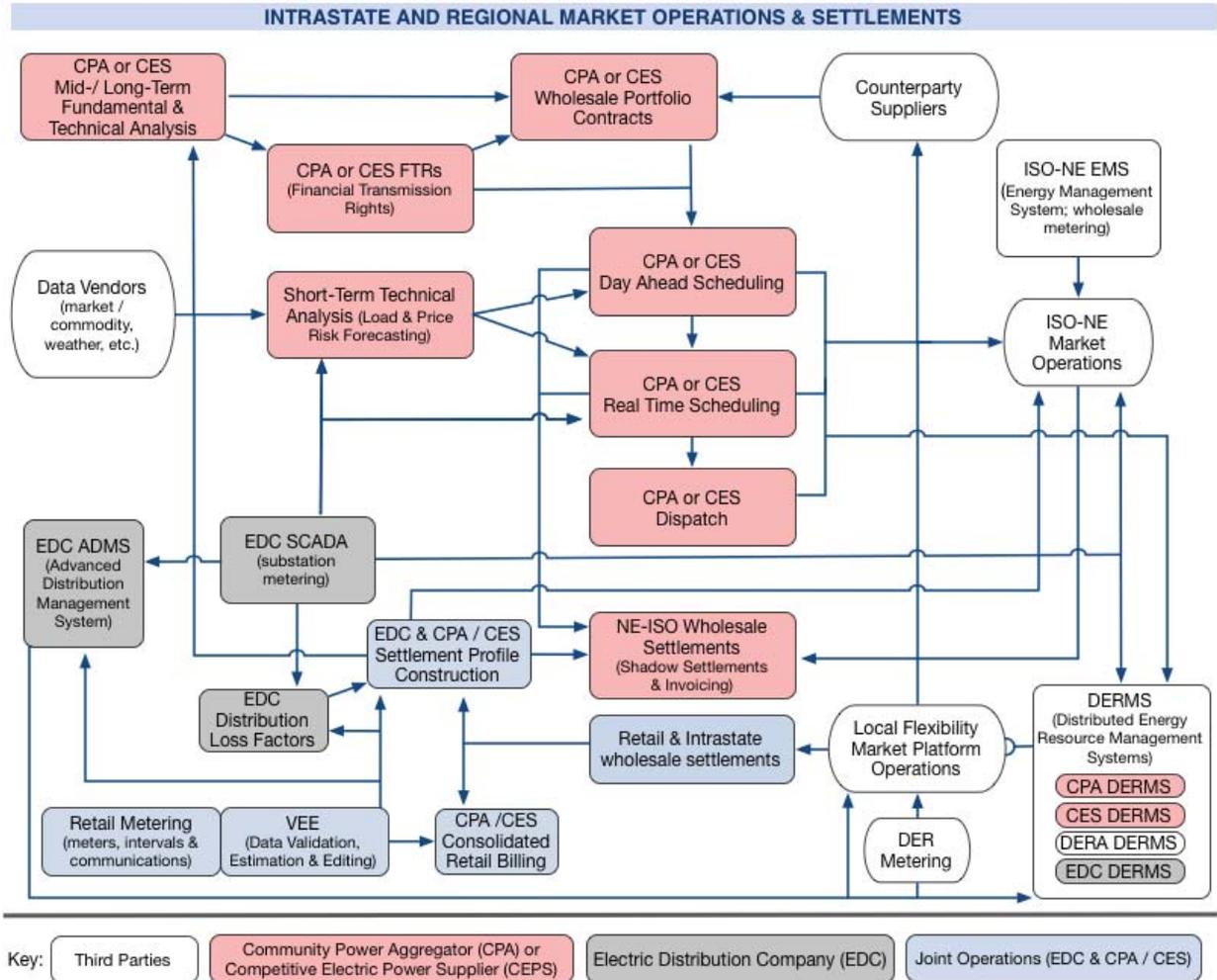
12          A. As a threshold matter, governance over the Statewide Platform must be structured in a  
13 manner that (1) incentivizes the participation and is responsive to the collective insights and  
14 requirements of a representative diversity of market participants, and (2) leverages their  
15 participation to assess and remove barriers to data-driven gains in operational efficiencies and  
16 market-based innovation by (a) reforming business processes and market rules and (b)  
17 informing and guiding the deployment of market-enabling infrastructure (e.g. Grid  
18 Modernization).

19           This is critical to ensuring the appropriate design, cost-effective implementation and  
20 continuous evolution of the Statewide Platform, for the simple reason that better access to data  
21 does not, in and of itself, create value for customers. Rather, market participants actually have  
22 to be able to put the data to good use by creating, marketing and monetizing new retail  
23 customer products and services in ways that create benefits for individual customers and the

1 system as a whole. This creates the requirement that business processes and market rules must  
2 accommodate data-driven innovation, and ipso facto, that governance over the Statewide  
3 Platform provide a credible mechanism through which market participants will identify and  
4 remove barriers to innovation from an operational “front lines” perspective. Absent a credible  
5 mechanism to do so, market participants will have weak incentives at best to participate in  
6 governance, and governance will thus remain under-informed in regard to (1) how the  
7 Statewide Platform should evolve to meet the requirements of market participants and (2) how  
8 business processes and market rules should change to accommodate data-driven retail market  
9 innovation.

10         Apart from the Local Government Coalition, parties have evinced little to no  
11 understanding regarding this critical aspect of governance. Proposals either envision  
12 governance to be narrowly focused on enhancing data access and exchange, without  
13 consideration of the fact that data access absent enabling reforms of business processes and  
14 market rules is insufficient to create new value for customers, and / or recommend the creation  
15 of one or two committees with representation weighted heavily towards non-market  
16 participants — usually in a manner befitting the strategic objectives or industry perspective of  
17 the proposing party — without consideration of the fact that market participants would be the  
18 ones responsible for actually using the Statewide Platform to create new value for customers.

19         In this context, it is critical to understand that retail data needs to be used by market  
20 participants in a variety of applications and functions that flow across all the horizontal  
21 dimensions of the electric power system — and that barriers at any point can undermine the  
22 ability of market participants to create new value for customers in practice. To that end, I offer  
23 the following schematic showing the inter-related functions required to facilitate transactions  
24 across retail, distribution and wholesale domains:



1

2 Refer to Attachment 6: ISO-NE\_EPRI Digital Grid\_June2020 for ISO-NE’s presentation at  
 3 an EPRI workshop earlier this year, which identified the need for states to establish a “local  
 4 energy market construct”, and to my Response to Request No. EU to LGC 1-061 (beginning on  
 5 page 71 herein) for additional context. Absent a governance regime that empowers market  
 6 participants to identify and resolve barriers to innovation across all the linkages in the above  
 7 schematic, the Statewide Platform will remain under-utilized and fail to maximize value.

8 This is why charging ratepayers for a Statewide Platform while excluding or unwisely  
 9 circumscribing the role of market participants in governance is comparable to “taxation  
 10 without representation” — i.e., not the hallmark of a stable regime!

1       **IV. Overview of Market-Based Governance Proposal**

2       **Q. Do you have a concrete proposal for how to establish a market-based governance**  
3       **framework for New Hampshire?**

4       **A.** Yes. As recommended in my Direct Testimony, New Hampshire should adopt a market  
5       governance framework based off of the successful framework that evolved in Texas to govern  
6       a robust, innovative and fully restructured market. To my knowledge, it is the only regime in  
7       any state that has successfully induced the active participation of a truly representative  
8       diversity of market participants, and used their collective insights and activity in order to guide  
9       the evolution of a statewide data platform along with the continuous streamlining of business  
10      processes and market rules in a manner that enables market-driven retail innovation.

11      To that end, I have adapted various foundational governance documents used by ERCOT  
12      for use in New Hampshire. These documents would create the Retail Operations Council of  
13      New Hampshire (the “ROC”) as a non-profit, non-stock voluntary corporation, the primary  
14      functions of which are to:

- 15      • Act as the NHPUC-appointed administrator of the Statewide Platform, and carry out  
16      other related market functions at the direction of the NHPUC going forward;
- 17      • Ensure that access to the Statewide Platform for all market participants is provided for  
18      on a nondiscriminatory basis;
- 19      • Ensure that information transacted across the Statewide Platform is conveyed in a  
20      timely manner to the market participants who need this information.

21      Please refer to Attachments 1 through 4 for the foundational governance documents, which  
22      consist of the following:

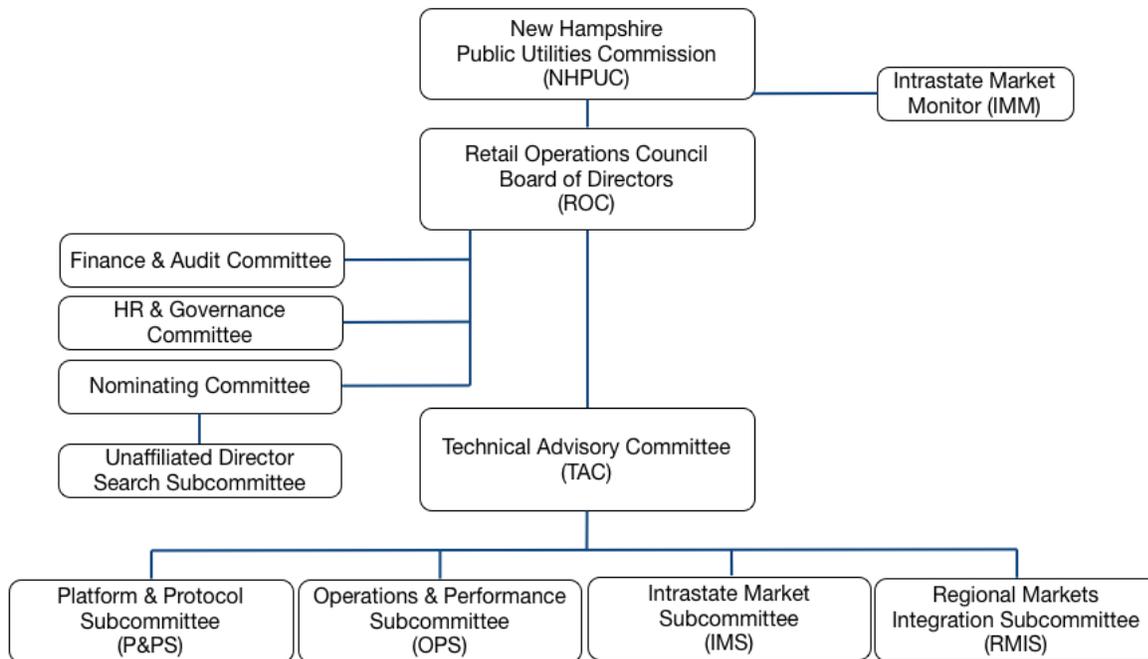
- 23      1. Corporate Bylaws;

- 1 2. Board Procedures;
- 2 3. Technical Advisory Committee (“TAC”) Procedures; and
- 3 4. Platform & Protocol Revision Request and Budgeting Process.

4 Note that these documents are in draft form and should be considered as a “strawman”  
5 proposal for review and future refinement.

6 **Q. Please summarize the ROC’s governance framework.**

7 A. The NHPUC would preside over what recommendations of the ROC are implemented.  
8 Within the ROC, there are three levels of organizational decision-making leading up to that  
9 point: the Board, the Technical Advisory Committee (TAC) and the TAC subcommittees.  
10 Please refer to the organization chart below:



11  
12 Governance within the ROC is predicated upon the voluntary participation of people and  
13 organizations who identify as belonging to one of the following nine (9) Market Segments:

- 1        1. Aggregator;
- 2        2. Competitive Electric Power Supplier (CEPS);
- 3        3. Cooperative;
- 4        4. Community Power Aggregator (CPA);
- 5        5. Distributed Energy Resource Company;
- 6        6. Electric Distribution Company or Local Distribution Company (EDC & LDC);
- 7        7. Limited Producer;
- 8        8. Municipal; or
- 9        9. Consumer.

10       The ROC covers its costs through member dues and platform fees and may not profit  
11       financially from its activities as the Statewide Platform Administrator for New Hampshire's  
12       intrastate market.

13       After paying nominal dues to become members —either Full, Associate or Adjunct  
14       Members (the voting rights of which vary) — members vote within their respective Market  
15       Segments to elect members to the ROC Board, to the Technical Advisory Committee (TAC)  
16       and to the TAC subcommittees. Members may also vote on amendments to the Bylaws (subject  
17       to NHPUC approval).

18       The four standing subcommittees of the TAC are:

- 19       1. Platform and Protocol Subcommittee (P&PS): to implement the Statewide Platform and  
20       its accompanying protocols (with input from the other subcommittees below), and to  
21       thereafter oversee the revision (change management) process;
- 22       2. Intrastate Market Subcommittee (IMS): to investigate and prioritize market barriers and  
23       opportunities to enhance market innovation at the retail and distribution grid integration  
24       levels within New Hampshire;

- 1           3. Regional Markets Integration Subcommittee (RMIS): to ensure that the development of  
 2           New Hampshire’s intrastate market aligns with NEPOOL and ISO-NE rules and is  
 3           cognizant of evolving rule changes and market dynamics;  
 4           4. Operations & Performance Subcommittee (OPS): to implement an expanded range of  
 5           metrics reported by market participants, and to ensure that these metrics, along with  
 6           analytics generated by the Statewide Platform, are sufficient to inform the situational  
 7           awareness and strategic decision-making of the IMS and RMS, the TAC, the Board and  
 8           the NHPUC in regards to the development of New Hampshire’s intrastate market.

9           The composition, voting weights, election of voting entities, and election at each level of  
 10          governance, as applicable, is summarized in the tables below:

		TAC Standing Subcommittees									
		Market Segment Standing Representatives				Market Segment Voting Weights					
		ROC Board	Technical Advisory Committee (TAC)	Platform and Protocol Subcommittee (P&PS)	Intrastate Market Subcommittee (IMS)	Regional Markets Integration Subcommittee (RMIS)	Operations & Performance Subcommittee (OPS)	Platform and Protocol Subcommittee (P&PS)	Intrastate Market Subcommittee (IMS)	Regional Markets Integration Subcommittee (RMIS)	Operations & Performance Subcommittee (OPS)
<b>Total</b>		<b>18</b>	<b>38</b>	<b>19</b>	<b>Minimum of 11; Maximum is self-determined</b>		<b>9</b>	<b>9.5</b>	<b>9.5</b>	<b>9.5</b>	
NHPUC Chair		1	0								
ROC CEO		1	1								
Unaffiliated Directors		5	0								
Nine Market Segments	Aggregators	1	4	2	Each segment elects one to four Standing Representatives			1	1	1	1
	CEPS	1	4	2				1	1	1	1
	Cooperative	1	2	2				1	1	1	1
	CPAs	1	4	2				1	1	1	1
	DER Companies	1	4	2				1	1	1	1
	EDCs & LDCs	1	4	2				1	1	1	1
	Limited Producers	1	4	2				1	1	1	1
	Municipals	1	4	2				1	1	1	1
	Consumers	3	7	3				See below (self-determined)			1
Consumer Market Subsegments	Residential (OCA)	1	1								
	Residential	0	1	1	Residential, Small & Medium Commercial and Large Commercial & Industrial subsegments each determine number of Standing Representatives			1/3	0.5	0.5	0.5
	Small & Medium Commercial	1	2	1				1/3	0.5	0.5	0.5
	Large Commercial		1					1/3	0.5	0.5	0.5
Industrial	1	2	1								

Voting Entities	Board members, except for NHPUC Chair	All TAC Members, except for ROC CEO; segments may opt for participatory voting	All ROC members (Full, Associate & Adjunct classes)	Standing Representatives	Standing Representatives	Standing Representatives
Election of Voting Entities	Full Members nominate & elect w/in segments; Unaffiliated Directors are (1) nominated by 2/3 Board vote, (2) approved by Full Members in 5 of 9 Market Segments, and (3) approved by NHPUC		n/a (see above)	Self-elected by Members w/in Market Segments		
Election of Officers	Board elects Chair & Vice-Chair from Unaffiliated Directors	Chair & Vice Chair TAC elected & Board confirmed	Chair & Vice Chair elected by Standing Representatives of each subcommittee; confirmed by TAC			

1           In exchange for participating in governance, each Member must comply with any  
2 applicable planning and operating criteria, procedures and guides adopted by or under the  
3 direction of the Board to maintain the integrity of the intrastate market, coordinate planning,  
4 promote comparable access to the intrastate market by all users and to further the exempt  
5 purposes of ROC.

6   **Q.     How would the ROC manage the evolution of the Statewide Data Platform?**

7   **A.**    Both the ROC Board and the TAC contribute to strategic planning and setting of  
8 objectives for the evolution of the Statewide Platform. To this end, the ROC CEO prepares the  
9 annual budget, which includes projections of ROC’s overall financial performance and  
10 financing plans, and describes the services, projects, programs, and the associated revenues  
11 and expenditures for the next fiscal year. Adoption of the Budget by the Board and approval by  
12 the NHPUC authorizes the CEO to complete work plans and make associated expenditures.

13           Additionally, specific requests for revisions to the Statewide Platform, its associated  
14 protocols and manuals may be submitted by a range of eligible entities (not just ROC  
15 members) at any time in the form of:

- 16       • Platform Change Requests (PCRs);
- 17       • Protocol Revision Requests (PRRs); and
- 18       • Market Guide Revisions (MGRs).

19           Submission of the above requests trigger a process in which much of the actual work to  
20 assess and refine the proposal occurs within relevant TAC subcommittees (and ad hoc working  
21 groups approved by TAC) in coordination with ROC staff, after which the revision request is  
22 voted on by P&PS, then TAC, and subsequently elevated to the Board for approval, rejection  
23 or remand (back to TAC subcommittees).

1           Within this process, the TAC may recommend prioritization of specific projects (and  
2 may delegate this responsibility to one of its subcommittees, on a project-specific basis), and is  
3 regardless responsible for incorporating the expense of proposed projects into annual  
4 budgeting exercises.

5           Platform and protocol changes approved by the Board are either implemented directly  
6 or submitted to the NHPUC for approval or denial by a Hearing Officer, as appropriate.

7   **Q.    What is the relationship between the NHPUC and the ROC?**

8   **A.**   Beyond appointing the ROC as the administer of the Statewide Platform, the  
9 relationship between the ROC and the NHPUC includes the following notable features and  
10 considerations:

- 11       • The NHPUC Chair is an ex officio, non-voting Director on the ROC Board;
- 12       • The ROC annual budget must be approved by the NHPUC;
- 13       • Amendments to the ROC Bylaws must be approved by the NHPUC;
- 14       • Statewide platform and protocol changes approved by the Board are either implemented  
15 directly or submitted to the NHPUC for approval or denial by a Hearing Officer, as  
16 appropriate;
- 17       • The five Unaffiliated Directors on the ROC Board (non-market participants, 2 of which  
18 must be Chair and Vice-Chair of the Board) are elected by ROC members but must be  
19 approved by the NHPUC;
- 20       • Removal of Unaffiliated Directors may only be done by the NHPUC, and any Board  
21 action to remove a Director or Alterative is subject to NHPUC review;
- 22       • ROC members must maintain their registration or certification by the NHPUC (to the  
23 extent required by statute or rule);

- 1       • NHPUC independently retains an “Intrastate Market Monitor” (IMM) to assist with  
2       oversight and enforcement activities, coordinating with the ROC OPS to identify  
3       conduct by market participants or market rules that compromise the efficiency or distort  
4       the outcomes of the markets. Additionally, the IMM issues periodic reports providing  
5       an independent assessment of the competitive performance and operational efficiency  
6       of the market; and
- 7       • NHPUC staff or the IMM may submit revision requests (PCRs, PRRs or MGRs), attend  
8       ROC meetings, comment on revision requests or subcommittee actions, and appeal the  
9       actions of subcommittees, the TAC or the ROC Board.

10   **Q.     Why is the ROC proposed as an independent, voluntary corporation?**

11   **A.**     For the simple reason that doing so was the most expedient way of adapting ERCOT’s  
12   successful governance structure to New Hampshire. In other words, preserving the ROC as an  
13   independent, voluntary corporation avoided necessitating substantive changes to the Corporate  
14   Bylaws, Board Procedures, Technical Advisory Committee (“TAC”) Procedures; and Platform  
15   & Protocol Revision Request and Budgeting Process — all of which are layered with  
16   references to the other documents in a way that would have been time consuming to re-align  
17   without introducing errors.

18           If the Commission would prefer establishing a similar governance regime under a less  
19   formal tiered committee or council structure, as the other parties have proposed, the option  
20   could be explored. I would recommend paying careful attention to how doing so might  
21   compromise key elements that are necessary to induce sufficient participation by market  
22   participants e.g. in terms of the membership structure, differential voting regimes, checks and  
23   balances inherent in the decision-making process, et cetera.

1 **Q. Can elements of other parties' proposals be integrated into this market-based**  
2 **governance framework?**

3 **A.** Yes. I expect parties will appreciate the robust and inclusive approach to ensuring that a  
4 diversity of industry stakeholders and market participants are included in governance and  
5 motivated to participate and will have additional insights and refinements to offer in that and  
6 other regards. For example, Mission:data specifically pointed out that:

7 "In Texas, the utilities operating SMT followed two practices that became problematic.  
8 The first was that any stakeholder was permitted to submit a change request, leading to  
9 a large volume of requests, some of which were impractical and not adequately thought  
10 through. The result was an extremely time-consuming and unfocused review of each  
11 request, some of which were limited to providing benefits to a particular third party and  
12 not to the state as a whole. By limiting change requests in New Hampshire to those  
13 proposed by Committee members only, my proposal encourages individual Committee  
14 members to fully vet and refine change requests prior to proposal before the  
15 Committee, and ensures that proposed change requests provide value to many platform  
16 users.

17 Second, there wasn't a defined budget for ongoing change requests in Texas. At first,  
18 the Texas utilities approved change requests under the belief they would be afforded  
19 cost recovery. But then the utilities reversed their policy arbitrarily and abruptly,  
20 bringing all improvements to a halt. Some of these improvements were very important  
21 to third parties, such as user experience improvements. My proposal eliminates the  
22 capriciousness and uncertainty of platform improvement seen in Texas by giving the  
23 Committee authority to approve change requests within a certain budget amount."<sup>19</sup>

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<sup>19</sup> Direct Testimony of Michael Murray, p. 71

1           Kat McGhee’s made similar recommendations regarding budgetary oversight and  
2 expenditure procedures, wherein the body is able to make decisions and minor changes on an  
3 expedited basis while prioritizing and budgeting for more substantive changes with PUC  
4 approval.

5           These and other refinements and recommendations could be readily incorporated into the  
6 “strawman” governance documents for New Hampshire.

7           **V.       Responses to Electric Distribution Company Discovery Requests**

8           Eversource and Unitil (EU) asked 19 discovery questions of me. Since all the responses  
9 elucidate my testimony in contrast to their positions, especially where we differ, I have inserted  
10 the responses to their discovery requests and questions below. Note that the standard discovery  
11 response formatting has been removed, apart from the request number line, and that a few  
12 responses have had minor (non-substantive) typos fixed:

13           **Request No. EU to LGC 1-041       Witness & Respondent: Samuel Nash Vautier Golding**

14           **REQUEST:** Page 47, lines 17-18: Please describe the “market framework” called for under  
15 New Hampshire’s Electric Utility Restructuring Act.

16           **RESPONSE:** The Electric Utility Restructuring Act refers to the establishment of a “*market*  
17 *framework*” under “*Administrative Processes*”, and states that:

18                       *“The commission should adapt its administrative processes to make regulation more*  
19                       *efficient and to enable competitors to adapt to changes in the market in a timely manner.*  
20                       *The market framework for competitive electric service should, to the extent possible,*  
21                       *reduce reliance on administrative process. New Hampshire should move deliberately to*  
22                       *replace traditional planning mechanisms with market driven choice as the means of*  
23                       *supplying resource needs.”*

24           The law is online here: <http://www.gencourt.state.nh.us/rsa/html/XXXIV/374-F/374-F-mrg.htm>.

25           See also the response to Request No. EU to LGC 1-009.

1 **Request No. EU to LGC 1-042**                      Witness & Respondent: Samuel Nash Vautier Golding

2 **REQUEST:** Page 47, line 20: What rule changes do you foresee as necessary for innovation in  
3 New Hampshire’s market operations? Please cite specific administrative rules.

4 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
5 testimony, as it asks the witness to undertake additional analysis and develop new information as  
6 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
7 objection, the witness provides the following responses:

8 New Hampshire has failed to extend the benefits of restructuring to the mass market, its current  
9 active retail market evinces a high degree of market concentration (never a good sign), and the  
10 metrics by which one could properly assess the level of innovation and barriers to fully  
11 animating choice at a granular level remain wholly untracked.

12 This question asks for technical particulars on what specifically has to change to enable  
13 innovation. That may be well-intentioned, and there are undoubtedly a variety of near-term  
14 specific changes warranted (a few of which any individual stakeholder could offer), but it really  
15 is missing the point. The appropriate question to ask is how did we manage to relegate ourselves  
16 to this disadvantageous position, and how do we make better decisions going forward?

17 Adapting to the accelerating pace of fundamental change in technologies, market dynamics and  
18 consumer preferences necessitates a continuous rule reform process that leverages a diversity of  
19 interested, informed, localized, and specific knowledge. I know of no other way of creating, let  
20 alone sustaining, a rational economic ordering of the electric power system given such dynamic  
21 fundamentals other than a market framework.

22 That is why the main purpose of my testimony was to demonstrate why New Hampshire needs to  
23 implement a market framework for governance — in compliance with the Electric Utility  
24 Restructuring Act, and as an alternative to the current reliance on administrative processes —

1 and how doing so could allow our industry to rely on the collective knowledge of all  
2 stakeholders (market participants like Community Power Aggregators in particular) to guide the  
3 rule reforms needed to allow innovation in retail customer products and services to play out  
4 freely whilst creating value for the system as a whole.

5 To put it bluntly: until we get governance right, I fear we will all be condemned to endlessly  
6 repaving the road to hell with our good intentions.

7 **Request No. EU to LGC 1-043**                      **Witness & Respondent: Samuel Nash Vautier Golding**

8 **REQUEST:** Page 50, line 11: Please define “fully restructured” relative to organized energy  
9 markets.

10 **RESPONSE:** I believe that the section “*How should the statewide, multi-use online energy data*  
11 *platform be governed?*” of my Direct Testimony, which starts on Bates p. 82, along with the  
12 section “*How are fully restructured markets governed in practice?*”, which starts on Bates p. 60,  
13 and the attachments from Bates p. 99 through 128, substantially addresses this question.

14 **Request No. EU to LGC 1-044**                      **Witness & Respondent: Samuel Nash Vautier Golding**

15 **REQUEST:** Page 50, line 21: What elements of integration within the retail market  
16 “*structurally disadvantage retail competition and foreclose retail innovation and choice in*  
17 *services*” and why?

18 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
19 testimony, as it asks the witness to undertake additional analysis and develop new information as  
20 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
21 objection, the witness provides the following responses:

22 Please refer to the response to Request No. EU to LGC 1-042.

23 **Request No. EU to LGC 1-045**                      **Witness & Respondent: Samuel Nash Vautier Golding**

1 **REQUEST:** Page 50, line 21: Please explain how the current state of distribution grid operation  
2 integration by the utilities “*structurally disadvantages*” retail competition.

3 **RESPONSE:** Page 50, line 21 references the following sentence, excerpted here in its entirety:

4 *“However, utilities have not been quarantined to operating the distribution grid, and*  
5 *instead remain integrated within the retail market in ways that I believe structurally*  
6 *disadvantage retail competition and foreclose retail innovation and choice in services for*  
7 *the majority of customers.”*

8 I am unsure what the phrase “*distribution grid operation integration by the utilities*” in the  
9 question refers to in the New Hampshire market context in general or in relation to my above-  
10 cited testimony. I did not assert that “the current state of distribution grid operation integration”  
11 structurally disadvantages retail competition.

12 **Request No. EU to LGC 1-046**                      Witness & Respondent: Samuel Nash Vautier Golding

13 **REQUEST:** Page 51, lines 3-6: What decision-making is “*carried out through administrative*  
14 *procedures and not through a transparent and responsive ‘market framework’*”?

15 **RESPONSE:** As far as I can tell, substantially all of it, except for a limited amount of retail  
16 choice of a limited number of products, mostly realized by larger C&I customers. As Bates p. 51,  
17 lines 3-7 states:

18 *“Moreover, it appears that almost all decision-making is still carried out through*  
19 *administrative procedures and not through a transparent and responsive “market*  
20 *framework” that would “enable competitors to adapt to changes in the market in a timely*  
21 *manner” as called for under RSA 374-F.”*

22 Note that the emphasis is on the lack of a market framework. This relegates decision making to  
23 an administrative regime by default — which are reactive, procedural and adversarial in nature,  
24 siloed in terms of scope in relation to the whole system, and commonly bifurcated by utility as  
25 opposed to applying uniformly across the natural boundaries of the retail market.

26 Moreover, the current administrative regime seems to have ignored, for years, undertaking even  
27 the most basic functional operational improvements for the competitive retail electricity market.

1 As one example, the Electric Distribution Companies’ Electronic Data Interchange (EDI)  
2 documentation on the PUC website and PUC order initially approving the EDI<sup>20</sup> states that they  
3 are temporary, indicate they will be soon will be finalized and implemented by rules and are  
4 more than two decades old at this point. The EDI Working Group recommended “that the  
5 Commission establish a standing working group to address the need for modifications and  
6 enhancements to the standards and processes described in the report.”<sup>21</sup> However, the working  
7 group was apparently never established, and the EDI data transaction formats, test plans, training  
8 manuals et cetera all were last updated in 1998.<sup>22</sup> There are also apparently several fields in the  
9 Electronic Data Interchange tariffs that indicate functionality that are not, in reality, functionally  
10 available to CEPS to utilize.

11 **Request No. EU to LGC 1-047**                      **Witness & Respondent: Samuel Nash Vautier Golding**

12 **REQUEST:** Page 51, line 7: Please describe your view of “*a holistic, responsive and market-*  
13 *based decision-making framework.*”

14 **RESPONSE:** I believe that the section “*How are fully restructured markets governed in*  
15 *practice?*” of my Direct Testimony, which starts on Bates p. 60, substantially addresses this  
16 question.

17 **Request No. EU to LGC 1-048**                      **Witness & Respondent: Samuel Nash Vautier Golding**

18 **REQUEST:** Page 51, line 7: Please provide specific examples of cases where  
19 the NH distribution utilities decision making with respect to the retail market has been “*unduly*  
20 *mediated by the monopoly distribution utilities.*”

21 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
22 testimony, as it asks the witness to undertake additional analysis and develop new information as

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<sup>20</sup> In Order No. 22, 919, May 4, 1998 the Commission states that “we will temporarily adopt the Working Group's recommendations pending the outcome of a rulemaking on the implementation of EDI standards.” Web address: <https://www.puc.nh.gov/Regulatory/Orders/1998ords/22919e.html> .

<sup>21</sup> “Consensus Plan for the Transmission of Electronic Data in New Hampshire’s Retail Electric Market,” Docket DR 96-150, Electric Utility Industry Restructuring, April 2, 1998, p. 4. Web address: <https://www.puc.nh.gov/Electric/EDI/edirev53.pdf>.

<sup>22</sup> NH PUC “EDI Information” webpage: <https://www.puc.nh.gov/electric/edi.htm>

1 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
2 objection, the witness provides the following responses:

3 I believe that the section “*Have distribution utilities’ recent investment decisions in the retail*  
4 *value chain hindered or supported the development of a competitive retail market?*” of my  
5 Direct Testimony, which starts on Bates p. 72, substantially addresses this question.

6 More broadly, Bates p. 51 lines 7 through 9 are as follows:

7 *The lack of a holistic, responsive and market-based decision-making framework means*  
8 *that decisions regarding the functionality of the retail market remain heavily, and almost*  
9 *certainly unduly, mediated by the monopoly distribution utilities.*

10 Note that the emphasis is on the lack of a market framework, and how this relegates decision  
11 making to administrative proceedings by default — which are reactive, procedural and  
12 adversarial in nature, siloed in terms of scope in relation to the whole system, and commonly  
13 bifurcated by utility as opposed to applying uniformly across the natural boundaries of the retail  
14 market. The behavior of the electric distribution companies to-date is largely a product, a logical  
15 outcome, of this administrative regime. From that perspective, such behavior underscores the  
16 need to reform the very rules by which this game is played.

17 **Request No. EU to LGC 1-049**                      Witness & Respondent: Samuel Nash Vautier Golding

18 **REQUEST:** Page 55, line 5: Please provide the referenced EIA 861 datasets.

19 **RESPONSE:**        EIA    861    datasets    are    publicly    available    online    here:  
20 <https://www.eia.gov/electricity/data/eia861/>.

21 Please note that "Public Service Co of NH" (utility name) in the 2013 EIA861 dataset  
22 "Advanced\_Meters\_2013.xls" lacks any data reported under "Number Non AMR/AMI Meters".  
23 Consequently, this utility is missing about 475,000 meters. I notified EIA of the first omission on  
24 7 January 2020 but it appears that the data is still unreported or missing. "Public Service Co of  
25 NH" could presumably provide the data directly.

26 **Request No. EU to LGC 1-050**                      Witness & Respondent: Samuel Nash Vautier Golding

1   **REQUEST:** Page 57, line 1: Please provide a comparison of market prices versus default  
2 energy prices in NH and comment on the competitiveness of 3<sup>rd</sup> Party pricing for residential  
3 customers.

4   **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
5 testimony, as it asks the witness to undertake additional research and analysis and develop new  
6 information as part of a data request, which is not an appropriate use of discovery.  
7 Notwithstanding the objection, the witness provides the following responses:

8   If you assume that residential customers only want a commodity, then you misunderstand  
9 consumer preferences in today’s retail electricity market. Those preferences are heterogenous:  
10 some may value assistance in ensuring continuity of service (e.g. backup generation) at a  
11 premium, or price stability in the form of longer-term hedged products relative to default service,  
12 or access to more granular time-varying pricing and assistance shaping their load to wholesale  
13 price or carbon emission intensity intervals, or to purchase a product with higher renewable or  
14 local generation content, or to access more convenient customer services, or bespoke advisory  
15 services regarding DER products, or help with budgeting and pre-paid or otherwise flexible  
16 payment options — the list goes on.

17   In a word, freedom is the most accurate metric by which to approximate the potential of a market  
18 to create value for customers: the aggregator’s freedom to innovate in offering new products and  
19 services and the customer’s freedom to choose those same products and services.

20   Analyzing commodity price is therefore antediluvian and altogether too narrow an accounting —  
21 specious, in fact — without first collecting a sufficiently broad array of market metrics and  
22 accounting for the above service quality and product differentiators. Such a question is  
23 motivated, in my opinion, by ignorance at best and an anti-consumer bias at worst.

24   Regardless, the strengthening of consumer protection depends upon maximizing long-run  
25 creation of value, in all the many forms valued by consumers. Thus, the framing that lower

1 consumer prices of the commodity should be pursued without regard to consequences of scope or  
2 quality of service is both naïve and a threat to social welfare.

3 **Request No. EU to LGC 1-051** Witness & Respondent: Samuel Nash Vautier Golding

4 **REQUEST:** Page 58, lines 6-8: What do you and what does the Council of European  
5 Regulators consider as a sufficiently “*low concentration*” within a given market  
6 structure? Please explain.

7 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
8 testimony, as it asks the witness to undertake additional analysis and develop new information as  
9 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
10 objection, the witness provides the following responses:

11 Refer to the table on Bates p. 60 for the specific metrics the Council of European Regulators uses  
12 to track progress for this and other key properties of well-functioning markets. Refer to Bates p.  
13 59, footnote 19 for the report from which this table was taken, refer to page 3/74 therein for  
14 documents related to the report, and refer therein to the “*2017 Handbook for National Energy*  
15 *Regulators How to assess retail market functioning*”, pages 11 through 17 for detailed tables  
16 summarizing the following for each metric related to this key property: Metric Name;  
17 Description; Purpose; Source of Data; Quantification; Frequency; Unit of Measure; and Data  
18 Completeness.

19 The aforementioned “*2017 Handbook for National Energy Regulators How to assess retail*  
20 *market functioning*” is available online here: [https://www.ceer.eu/documents/104400/-/-](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)  
21 [/840b4ce7-9e4a-5ecc-403a-fad85d6ba268](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)

22 The tables available therein are excerpted below for your convenience:

<b>Metric 1</b>	<b>Herfindahl-Hirschman Index</b>
<b>Description</b>	The HHI measures the degree of concentration in a market.
<b>Purpose</b>	<p>Based on guidance from the European Commission (Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (2004/C 31/03), a HHI above 2000 signifies a highly concentrated market. In general, a high number of suppliers and low market concentration are seen as one of the indicators of a competitive market structure.</p> <p>To accurately evaluate the degree of concentration, the NRA could use the following step-by-step approach, which is in line with that used by the Directorate-General for Competition (DG COMP) and national competition authorities:</p> <ol style="list-style-type: none"> <li>1. Define the relevant product markets (i.e. assess the degree of demand and supply substitution of different products):                  The retail supply of both gas and electricity can be divided into several categories of final customers, with different product preferences and needs: (i) households, (ii) small industrial and commercial customers (SMEs), (iii) large industrial customers and (iv) very large/energy intensive customers. We advise to, as a minimum, distinguish between household and non-household customer segments and, preferably between households, SMEs and other customer segments. In some member states, the supply of energy at regulated prices (or supply covered by a designated supplier of last resort) and the supply of energy at free prices (or the supply to customers with different metering arrangements e.g. prepayment meters, time of use and smart meters) can be considered as relevant product markets. The market for some categories of vulnerable household customers or the market for households on social tariffs can also be considered as relevant markets. For electricity, industrial/commercial customers are usually 'half-hourly metered' and often connected to high and medium voltage grids. It may however be considered that supply to large industrial consumers forms part of the wholesale market, not retail market, depending on whether industrial consumers buy energy to consume or to resell. Households and smaller industrial/commercial customers are most often non-half-hourly metered and connected to the lower voltage grids.</li> </ol> <p>For gas, product markets can be defined on the basis of criteria such as the customers' volume of consumed gas, off take patterns (e.g. usage of gas for electricity generation) or whether they are connected to the transmission network. Finally, the possibility of a combined</p>

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	<p>retail gas and electricity market for domestic customers can be considered, as some suppliers offer a single contract covering both the supply of gas and electricity (dual fuel contract) to domestic customers.</p> <p>2. Define the relevant geographic markets (i.e. identify the geographic boundaries of the area where suppliers compete against each other): The retail supply of electricity to large industrial and commercial customers can be considered to be national, provided that these markets are fully liberalised and if the conditions of competition are found to be uniform throughout the relevant territory. The retail supply of electricity to household and smaller industrial and commercial customers is generally national in scope, however, if, for example, many local energy companies (vertically-integrated DSO/supplier) exclusively serve their historical zones and no other suppliers operate, regional areas can be considered as relevant markets. For gas, retail supply markets are generally national in scope, but can also be local.</p> <p>3. Calculate the HHI for every relevant market according to the quantification as suggested below.</p> <p>The resulting relevant markets should also be considered for the completion of the other metrics contained in this handbook.</p>
<b>Source of data</b>	Information request to retailers or regulated companies.
<b>Quantification</b>	The HHI is calculated as the sum of the squares of the market shares of all firms in the market. It ranges between 0, for an infinite number of small firms, and 10,000, for one firm with a 100% market share. Market shares can be calculated on the basis of consumed volumes and number of customers or meter points.
<b>Frequency</b>	The HHI should be calculated at least annually. In particular, its development over time should be assessed to understand whether the market structure becomes more or less competitive.
<b>Unit of measure</b>	Index
<b>Data completeness</b>	Depending on the relevant market definition, the data requirement to calculate the HHI may be more or less complex. As a minimum, the NRA should be able to obtain data on supplier shares in household and non-household markets.

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2 **Request No. EU to LGC 1-052** Witness & Respondent: Samuel Nash Vautier Golding

3 **REQUEST:** Page 58, lines 9-11: What do you and what does the Council of European

4 Regulators consider as sufficiently “*low market-entry barriers*” within a given market

5 structure? Please explain.

1 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
2 testimony, as it asks the witness to undertake additional analysis and develop new information as  
3 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
4 objection, the witness provides the following responses:

5 Refer to the table on Bates p. 60 for the specific metrics the Council of European Regulators uses  
6 to track progress for this and other key properties of well-functioning markets. Refer to Bates p.  
7 59, footnote 19 for the report from which this table was taken, refer to page 3/74 therein for  
8 documents related to the report, and refer therein to the “*2017 Handbook for National Energy*  
9 *Regulators How to assess retail market functioning*”, pages 11 through 17 for detailed tables  
10 summarizing the following for each metric related to this key property: Metric Name;  
11 Description; Purpose; Source of Data; Quantification; Frequency; Unit of Measure; and Data  
12 Completeness.

13 The aforementioned “*2017 Handbook for National Energy Regulators How to assess retail*  
14 *market functioning*” is available online here: [https://www.ceer.eu/documents/104400/-/-](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)  
15 [/840b4ce7-9e4a-5ecc-403a-fad85d6ba268](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)

16 The tables available therein are excerpted below for your convenience:

**3.2 Key property II: Low market entry barriers**

In order to facilitate competition and innovation, barriers to market entry and growth for new market actors (i.e. suppliers and third parties) as well as barriers for innovation (including demand response) need to be as low as possible.

**Metric 2: Time needed and cost of accessing well-functioning wholesale markets and licencing/balancing regimes**

<b>Metric 2</b>	<b>Time needed and cost of accessing well-functioning wholesale markets and licencing / balancing regimes</b>
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17

<b>Description</b>	<p>Fair access to energy procurement on the wholesale market and to licencing and balancing regimes is a key pre-requisite for any supplier considering entry into the retail market. A supplier is always responsible for acquiring contracts regarding energy procurement and balance responsibilities. This can be achieved in different ways. In this respect, the NRA shall verify whether or not there are procedures to obtain such responsibilities for a new supplier.</p> <p>To ensure a level playing field to enter a market there is a need for a common denominator for market rules, such as equal and non-discriminatory access for all suppliers within the relevant market.</p>
<b>Purpose</b>	<p>Firstly, establish whether such procedures are available to all parties interested in becoming, or acting, as a supplier on the market. Secondly, establish that such procedures, and in particular their length and costs, are equal and non-discriminatory for all suppliers on the market, or suppliers wanting to access a market.</p>
<b>Source of data</b>	<p>For the first purpose, the main sources would include NRAs' knowledge of regulatory and legal entry processes, as well as the information made available by regulated companies and balancing and settlement agencies. For the second purpose, market participants may be best placed to offer (via surveys/discussions/questionnaires) a more qualitative assessment of balancing, licencing and other access costs, based on their actual entry experience.</p>
<b>Quantification</b>	<p>The metric focusses on the time and costs associated with administrative and financial rules to access wholesale markets and licencing/balancing regimes. It does not include entry IT investment and staff resources costs incurred by individual suppliers.</p> <p>In order to quantify this metric we suggest that the NRA addresses the following three sets of questions (please specify whether the answers differ at national and regional levels):</p> <p>Wholesale energy procurement</p> <ul style="list-style-type: none"> <li>• Are there procedures to access a national or regional wholesale market?</li> <li>• How long does it take to gain access to energy procurement in a national or regional wholesale market?</li> <li>• What is the cost of accessing national or regional wholesale market?</li> <li>• Supplier license: Are market participants required to have a license to act in a national or regional market?</li> <li>• How long does it take to obtain a licence to act in a national or regional market?</li> <li>• What is the cost of acquiring a licence to act in a national or regional market?</li> </ul> <p>Balancing responsibility</p>

1

	<ul style="list-style-type: none"> <li>• Is it possible for market participants to become a balance responsible party (BRP) in a national or regional market?</li> <li>• How long does it take to become a BRP in a national or regional market?</li> </ul> <p>What is the cost to obtain balancing responsibility in a national or regional market (e.g. bank guarantees)?</p>
<b>Frequency</b>	This metric should be monitored every one or two years.
<b>Unit of measure</b>	Regarding the existence of the relevant procedures: Yes/No and qualitative explanation. Regarding time: Number of months (legal requirements and/or as observed in practice if data is available). Regarding costs: Euros as applicable in relation with the different types of procedures/licensing.
<b>Data completeness</b>	NRAs should have access to such information since it is a requisite for the market functioning. As such, the data should be available at the national level.

1

**Metric 3: Percentage of consumers connected to “bundled” DSOs**

<b>Metric 3</b>	<b>Percentage of consumers connected to “bundled” DSOs</b>
<b>Description</b>	As energy networks are regulated monopolies, DSOs have exclusive access to all customers within their network area. Suppliers bundled with these DSOs have an indirect access to such information. The 3 <sup>rd</sup> Package requires legal, functional and accounting separation of DSOs and suppliers within a vertically integrated utility, although it also specifies exemptions from the requirements for smaller DSOs. This metric focusses on the existence of exempt bundled DSOs and not on other aspects of the 3 <sup>rd</sup> package requirements on unbundling.
<b>Purpose</b>	For new suppliers entering the market, both national and cross-border, equal rules are essential. Bundled DSOs and suppliers acting mutually towards customers might prevent new actors from entering a market. Therefore, there must be a sufficient level of unbundling between suppliers and associated DSOs in order to create a level playing field in retail energy markets. This is essential for all competitive actors to compete on the same terms.  The existence of bundled DSOs does not immediately presuppose a problem; nevertheless, it might be a sign to further look into the matter. Through this metric the NRA can monitor the situation and must then evaluate whether the result reveals a problem or whether the market works well despite the existence of customers connected to bundled DSOs.
<b>Source of data</b>	Information request and survey to regulated companies.
<b>Quantification</b>	In order to quantify this metric we suggest that the NRA addresses four main questions:

2

	<ul style="list-style-type: none"> <li>• Are there DSOs with bundled suppliers exempted from the legal requirements in the 3<sup>rd</sup> Package?</li> <li>• What is the minimum standard for being exempted?</li> <li>• How many customers are connected to exempt DSOs? Compare this figure with the total number of customers in the MS.</li> <li>• How many active<sup>6</sup> rival suppliers operate in the exempt DSOs' areas? Compare this figure with the total number of active suppliers in the MS.</li> </ul>
<b>Frequency</b>	This metric should be monitored every one or two years.
<b>Unit of measure</b>	Regarding unbundling implementation: yes/no and qualitative explanation. Regarding exempted DSOs and their customers: number and % of total amount of customers in the MS.
<b>Data completeness</b>	NRAs should have access to such information as part of their basic market monitoring

1

**Metric 4: Percentage of consumers with regulated energy prices**

<b>Metric 4</b>	<b>Percentage of consumers with regulated energy prices</b>
<b>Description</b>	<p>By definition, an end-user regulated price is a price subject to regulation by a public authority, as opposed to an end-user price exclusively set by the interaction of supply and demand. Price regulation can take different forms, such as the setting or approval of prices, price caps, or various elements of these. Regulation can be set ex-ante (price is defined by the responsible authority on underlying information on the market, before market participants conclude contracts based on these prices) or ex-post (price is checked and possibly amended/changed by responsible authority after contracts have been concluded by market participants). The regulatory intervention can also be social, when a regulated price is set for specific consumer groups, e.g. vulnerable customers (social tariffs). Another relevant distinction is about regulation that is permanent and regulation that is designed as temporary, with a clear end date.</p> <p>Regulated energy prices distort competition in the market and might prevent new actors, both national and cross-border, to enter a market.</p>
<b>Purpose</b>	The purpose is to measure the impact of price regulation in the market, with the ultimate goal to abolish the regulated energy prices in order to remove the barrier to entry for a new supplier and to create a level playing field between competing actors.
<b>Source of data</b>	NRAs generally already provide this data for the CEER database, which is used for the ACER/CEER Market Monitoring Report (MMR). Retailers are the main source for this data but, depending on the market, bundled DSOs/suppliers may also be a relevant source.
<b>Quantification</b>	<p>In order to quantify this metric we suggest that the NRA addresses three main questions:</p> <ul style="list-style-type: none"> <li>• Which types of price regulation apply to gas and electricity markets?</li> </ul>

2

	<ul style="list-style-type: none"> <li>• What is the proportion of customers (and their consumption volume) with regulated energy prices on each type of regulated price and each relevant market?</li> <li>• What is the proportion of customers on social tariffs? If there are different types of social tariffs, aimed at different categories of vulnerable customers, please indicate the proportion of customers on each tariff type.</li> </ul>
<b>Frequency</b>	This metric should be monitored at least on an annual basis.
<b>Unit of measure</b>	Regarding the existence of price regulation: Yes/no and qualitative explanation of what regulation exists. Regarding the customers: Proportion of customers and their consumption relative to the total number of customers and consumption in each considered relevant market.
<b>Data completeness</b>	NRA's should have access to such information as part of their basic market monitoring.

1

**Metric 5: Number of common standards for consumer data and for DSO-supplier contract or existence of a national data hub**

<b>Metric 5</b>	<b>Number of common standards for consumer data &amp; for DSO-supplier contracts or the existence of a national data hub</b>
<b>Description</b>	<p>Efficient, safe and secure data exchange between stakeholders is vital to ensure a well-functioning retail market and the possibility for new suppliers, both national and cross-border, to enter into a market. All suppliers, both existing and new, and other third parties (authorised by the customer) need to be able to access relevant customer meter data on equal and non-discriminatory terms.</p> <p>CEER recommends having one national common standard (<a href="#">CEER Advice on Customer Meter Data Management for Better Retail Market Functioning</a>). In 2016, CEER conducted a comprehensive review of data management models in eight countries. All of the countries participating in the study reported to have a common standard for access to data for suppliers and third parties. Moreover, all but one country reported to be moving to a more centralised model of data management, either in the form of data hubs with storage, or communication hubs. The participating countries generally cited efficient data handling, fair competition and easier access to data as advantages of their more centralised future models. A summary of the reported change from current to future models is shown below. More details can be found in the CEER Review of Current and Future Data Management Models (C16-RMF-89-03).</p> <p>With a supplier centric model there is a need for agreements between DSOs and relevant suppliers. This might become a burden and even a barrier for small actors on a market.</p> <p>Where available and feasible, the existence of a data hub is an alternative option to ensure access to information on equal and non-discriminatory terms, including the implementation of a common standard. A data hub simplifies the market structure further, as suppliers only communicate with a centralised hub rather than with several DSOs.</p> <p>The roll out of smart meters may also make access to information on equal and non-discriminatory terms easier.</p>

2

<b>Purpose</b>	The purpose of this metric is to monitor the possibility of accessing information easily for suppliers, aggregators and other third parties on the retail market. The lack of access to consumer data is a barrier for new actors, both national and cross-border.
<b>Source of data</b>	Possible sources of data include the following: the data hub or the metering operator regarding the common standards for historical data; the metering operator regarding the common time-of-use data; and the DSOs regarding DSO-supplier contracts.
<b>Quantification</b>	<p>In order to quantify this metric it will be necessary for the NRA to examine whether there are set processes regarding access to customers data for authorised supplier or third party. It will be important to show the MS level of implementation of the advice on data management or if there is a functioning data hub, which meets the functionality demands set by the European Commission. More specifically, in order to quantify this indicator the NRA should consider the following questions:</p> <ul style="list-style-type: none"> <li>• Is there a procedure containing common standards regarding the accessibility of data for suppliers and third parties? What kind of data is covered by the procedure (in particular, is historic consumption information, defined in metric 18, included)?</li> <li>• Is there a procedure for contracts between DSO-supplier in a MS where a supplier centric model is applicable?</li> <li>• Is there a national data hub? What are its main features (e.g. who runs it and to what extent does it rely on explicit customer consent for data sharing with third parties)?</li> </ul>
<b>Frequency</b>	This metric should be monitored every one or two years.
<b>Unit of measure</b>	Yes/or no for all the questions and related qualitative explanations
<b>Data completeness</b>	NRA should have access to such information as part of their basic market monitoring.

1

**Metric 6: Availability of time-of-use metering and, where applicable, additional fee paid by the consumer to be able to have time-of-use price vs. traditional metering**

<b>Metric 6</b>	<b>Availability of time-of-use metering and – where applicable – additional fee paid by the consumer to be able to have time-of-use prices vs. traditional metering and profiling</b>
<b>Description</b>	The availability of smart metering equipment and systems which allow time-of-use meter readings is a pre-requisite for consumers to be able to choose implicit demand response and flexibility schemes. Smart meters may also enable explicit demand response services through a dedicated standard interface, either as mandatory equipment or as an option. Availability of such metering might also include an additional fee for the customer.

2

<b>Purpose</b>	The purpose of this metric is to determine if customers have the possibility to be active on the market through demand response or flexibility schemes. If the customer cannot access time-of-use meter readings then this might distort competition on the retail market for new suppliers, aggregators and third parties with innovative contracts, as well as restrict market choice for customers. Lack of time-of-use-metering, such as hourly readings, hinders innovation and development on the market as a whole.
<b>Source of data</b>	Information request to DSOs, metering operators and retailers (in those markets where retailers may be responsible for meters).
<b>Quantification</b>	<p>We suggest that the NRA answer the following questions:</p> <ul style="list-style-type: none"> <li>• Are meters for time-of-use metering available for customers in each relevant market?</li> <li>• What type of time-of-use metering is available, e.g. 15 minute, half-hourly, hourly metering, day/night metering? And such meters for which the timeframe is linked to the market settlement period? Consider both electricity and gas meters.</li> <li>• How many time-of-use meters of each type are there in the MS? What is their number relative to the total number of metering points?</li> <li>• Is there an additional fee to install these meters in each relevant market? How much does it cost?</li> </ul>
<b>Frequency</b>	This metric should be monitored at least on an annual basis.
<b>Unit of measure</b>	<p>Regarding the availability of time-of-use metering: Yes/no and qualitative explanations.</p> <p>Regarding the share of time-of-use meters, percentage: Number of installed meters relative to total number of metering points.</p> <p>Regarding the additional fee to access these meters: Euros for installation.</p>
<b>Data completeness</b>	NRAs should have access to such information as part of their basic market monitoring, although the detail on costs may be more difficult to obtain.

1

2 **Request No. EU to LGC 1-053** Witness & Respondent: Samuel Nash Vautier Golding

3 **REQUEST:** Page 59, line 1: Please explain what energy service components are included  
 4 within “*retail prices*” as referenced.

5

6 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
 7 testimony, as it asks the witness to undertake additional analysis and develop new information as  
 8 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
 9 objection, the witness provides the following responses:

1 Refer to the table on Bates p. 60 for the specific metrics the Council of European Regulators uses  
2 to track progress for this and other key properties of well-functioning markets. Refer to Bates p.  
3 59, footnote 19 for the report from which this table was taken, refer to page 3/74 therein for  
4 documents related to the report, and refer therein to the “*2017 Handbook for National Energy*  
5 *Regulators How to assess retail market functioning*”, pages 11 through 17 for detailed tables  
6 summarizing the following for each metric related to this key property: Metric Name;  
7 Description; Purpose; Source of Data; Quantification; Frequency; Unit of Measure; and Data  
8 Completeness.

9 The aforementioned “*2017 Handbook for National Energy Regulators How to assess retail*  
10 *market functioning*” is available online here: [https://www.ceer.eu/documents/104400/-/-](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)  
11 [/840b4ce7-9e4a-5ecc-403a-fad85d6ba268](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)

12 The tables available therein are excerpted in the response to Request No. EU to LGC 1-054 for  
13 your convenience.

14 **Request No. EU to LGC 1-054**                      Witness & Respondent: Samuel Nash Vautier Golding

15 **REQUEST:** Page 59, lines 1-4: If retail prices do not closely reflect wholesale market prices, is  
16 it your opinion that customers are not “*paying a fair price*”?

17 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
18 testimony, as it asks the witness to undertake additional analysis and develop new information as  
19 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
20 objection, the witness provides the following responses:

21 As a foundational matter, it is important to keep in mind that there are eight key properties of  
22 well-functioning markets here, which are as follows: low concentration within a relevant market;  
23 low market-entry barriers; a close relationship between wholesale markets and retail prices; a  
24 range of offers, including demand response; a high level of awareness and trust; the availability  
25 of empowerment tools; sufficient consumer engagement; and appropriate consumer protections.  
26 These are accompanied by a matrix of 25 metrics used to track progress within each of the eight

1 key properties (Bates p. 60.). The point is that no one metric, narrowly considered in isolation  
2 from the others, could credibly suffice to indicate a well-functioning market.

3 The question references one of the above eight key properties but does so in a way that  
4 seemingly misconstrues my testimony. The lines in question from my testimony (Page 59, lines  
5 1-4) state:

6           *“A close relationship between wholesale markets and retail prices to ensure that*  
7           *consumers receive correct price signals, which is an important incentive for demand*  
8           *response. In addition, the mark-up between wholesale and retail prices reveals whether*  
9           *consumers are paying a fair price.”*

10 Referring to the above, I do not consider the wording “*close relationship*” in the above metric to  
11 be synonymous with the phrase “*closely reflect*” as used in the question; the latter brings to mind  
12 a direct comparison in a narrow sense, while the latter does not. Furthermore, the metric refers to  
13 “*wholesale markets*” and not “*wholesale market prices*” per se; again, the latter is a much  
14 narrower conception than the former. Last but not least, the key property clearly refers to the  
15 “*mark-up between wholesale and retail prices*” as providing a measure of insight into whether or  
16 not consumers are “*paying a fair price*” — not whether retail prices “*closely reflect wholesale*  
17 *market prices*”.

18 These distinctions are rather critical, considering that retail pricing structures in fully restructured  
19 markets reflect what the customer has agreed to with their retailer, and therefore naturally  
20 encompass an appropriate range of price-risk structures and product options serving a diversity  
21 of customer preferences and capacities, and within those, a range of correlations between retail  
22 price-risk structures and wholesale price-risk dynamics. Put another way: different retail  
23 products offer a variety of price-risk structures relative to underlying wholesale price-risk drivers  
24 and price movements, and a credible analysis must appropriately capture this reality. In this way,  
25 the key property as cited in my testimony appropriately countenances this real-world complexity,  
26 while the question seems oblivious to it.

1 If you refer to the table on Bates p.60, you will see that this key property is actually composed of  
2 two metrics: the first is “Metric 7: Correlation between wholesale and retail energy prices” while  
3 the second is “Metric 8: Mark-up between wholesale and retail energy prices”.

4 The question has created a chimera by conflating two distinct metrics of this key property —  
5 managing to doubly-misconstrue the key property in question as a consequence.

6 For a detailed description regarding both of the metrics, refer to the “2017 Handbook for  
7 National Energy Regulators How to assess retail market functioning”, available online here:  
8 <https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268>

9 There you will find detailed tables containing the following fields for each metric: Metric Name;  
10 Description; Purpose; Source of Data; Quantification; Frequency; Unit of Measure; and Data.

11 Note that “Metric 7: Correlation between wholesale and retail energy prices” is on page 18/44 to  
12 19/44, and “Metric 8: Mark-up between wholesale and retail energy prices” is on page 19/44 to  
13 20/44.

14 The tables available therein are excerpted below for your convenience:

### **3.3 Key property III: Close relationship between wholesale markets and retail prices**

Well-functioning retail energy markets are dependent on well-functioning wholesale energy markets. Organised and transparent wholesale markets set the market value of energy as a commodity, thereby providing the foundation for the prices that consumers pay in retail energy markets. These metrics only concern the energy component of the total retail energy price.

#### **Suggested analysis to accompany metric 7 and 8: Break down of the cost components of the total retail energy price**

Accompanying these metrics should be a table with a breakdown of the total retail energy price, showing the shares that the energy component, network tariff, taxes and other components (e.g. capacity component, RES-charge) respectively constitute of the total price that consumers pay. This is important because it puts metrics 7 and 8 in perspective. In addition to this it is essential to clarify the right consumption profile, because it affects the breakdown of the total retail energy price.

15

<b>Metric 7</b>	<b>Correlation between wholesale and retail energy prices</b>
<b>Description</b>	<p>Well-functioning retail energy markets depend on well-functioning wholesale energy markets. Organised and transparent wholesale markets determine the price of energy as a commodity. The relationship between the energy component of the total retail price and the wholesale price is important, as it reveals what consumers are paying for their energy relative to the underlying wholesale market price. This metric concerns only the energy component of the total retail price, which is separate from network tariffs, taxes and surcharges.</p>
<b>Purpose</b>	<p>Close correlation between wholesale and retail prices can ensure that consumers receive correct price signals from wholesale markets. Price signals may function as an incentive for demand response. Consumers may receive price signals from wholesale markets through the energy component of the retail price, if the pricing of this component follows variations in the wholesale price. This depends largely on the price structure of the contract the consumer has agreed with the retailer. Price structures may vary from hourly pricing set against wholesale markets at one end, to fixed prices at the other.</p> <p>The ability of retailers to offer contracts that have a close correlation to wholesale markets depends on their ability to access and procure energy in a well-functioning wholesale market. This analysis therefore presumes that wholesale markets are well functioning, organised and transparent.</p> <p>Given that consumers can choose different pricing options with different degrees of correlation, e.g. hourly wholesale pricing, standard variable pricing or fixed pricing, this analysis should use aggregate price <i>per contract type</i> for comparison with wholesale markets. Both flexible and fixed price contracts should correlate with wholesale markets at the time of offering, reflecting the inherent price-risk structure of the contracts, to different extents. For example, with a wholesale-based contract the customer carries the risk of the price variation, whereas with a fixed-price contract the supplier could carry the risk of the price variation.</p>
<b>Source of data</b>	<p>Information request to retailers, price comparison tools or other parties (e.g. statistical bureaus) that collect price data for retail energy contracts. The data should differentiate between different types of contracts offered to households and business consumers, e.g. wholesale-based price, standard variable price, fixed price. The wholesale price data should be day-ahead and forward prices from power/gas exchange/hubs.</p>
<b>Quantification</b>	<p>Retail and wholesale price data should be monthly average data, for a minimum of three consecutive years. If the data is weighted, the method of weighting must be clearly specified. Only the energy component of the retail price can be used for comparison against wholesale price data. The data should be placed in a time series graph. The energy component should be separated from bundled products.</p>

1

	<p>Monthly average retail price data for each contract type should either be prices effectively paid (e.g. what suppliers actually billed consumers) or prices on contract offers (e.g. what is listed in a price comparison tool), weighted at consumption values that are representative for each country. For example, the ACER/CEER MMR uses 5,000 kWh/yr for electricity and 15,000 kWh/yr for gas. In the absence of retail price details by contract type, the methodology used by the ACER/CEER MMR may be used.</p> <p>Wholesale prices should be quantified as the monthly average hub/exchange prices, where available. A nationally specific quantification of the wholesale price may be added to transparent market data. The source and type of all price data used for the analysis, and any method of quantification used, must be clearly specified.</p>
<b>Frequency</b>	This metric should be monitored at least on an annual basis.
<b>Unit of measure</b>	Unit prices should be expressed in terms of Eurocent/kWh
<b>Data completeness</b>	Foreseeable issues include availability of retail price data by contract type as well as the availability of wholesale prices in the absence of transparent wholesale markets.

1

<b>Metric 8</b>	<b>Mark-up between wholesale and retail energy prices</b>
<b>Description</b>	<p>Well-functioning retail energy markets depend on well-functioning wholesale energy markets. Organised and transparent wholesale markets determine the price of energy as a commodity. The relationship between the energy component of the total retail price and the wholesale price is important as it reveals what consumers are paying for their energy relative to the underlying wholesale market price. This metric concerns only the energy component of the total retail price, which is separate from network tariffs, taxes and surcharges.</p> <p>Mark-ups are not precisely comparable to the suppliers' final profits. Suppliers have to pay operational costs and taxes out of this margin. Mark-ups represent the gross margin, while the actual or net margin will depend significantly on operating costs and consumption levels. However, the evolution of mark-ups may serve as an indication of the level of retail competition and the "responsiveness" of the retail to wholesale prices over time.</p>
<b>Purpose</b>	<p>The mark-up between wholesale and retail prices reveals whether consumers are paying a fair price for energy relative to the underlying wholesale price. The responsiveness of the mark-up relative to rising or falling wholesale prices is essential for this analysis. The level of the mark-up will depend on the price structure of the contract the consumer has agreed with the retailer. Price structures may vary from hourly pricing set against wholesale markets at one end, to fixed prices at the other.</p> <p>This analysis presumes that wholesale markets are well functioning, organised and transparent.</p>

2

	<p>By analysing the mark-up based on different contract types, e.g. wholesale-based or fixed pricing, the analysis reveals which contract types are the most beneficial for consumers. Different contract types should have different levels of mark-up to wholesale markets, reflecting the differences in the inherent price-risk structure of the contract type. For example, with a wholesale-based contract the customer carries the risk of the price variation whereas with a fixed-price contract the supplier could carry the risk of the price variation.</p>
<b>Source of data</b>	<p>Information request to retailers, information available on PCTs or from other institutions (e.g. statistical bureaus) that collect price data for retail energy contracts. The data should differentiate between contracts offered to households and business consumers. The wholesale price data should be day-ahead and forward prices from power/gas exchange/hubs. Where transparent market data is not available, the methodology of the ACER/CEER MMR should be used.</p>
<b>Quantification</b>	<p>Retail and wholesale price data should be monthly average data, for a minimum of three consecutive years. If the data is weighted, the method of weighting must be clearly specified. Only the energy component of the retail price can be used for comparison against wholesale price data. The mark-up is quantified as the monthly difference between the retail price and the wholesale price, expressed in eurocent/kWh. The data should be placed in a time series graph. The energy component should be separated from bundled products.</p> <p>Monthly average retail price data for each contract type should be either prices effectively paid (e.g. what suppliers actually billed consumers) or prices on contract offers (e.g. what is listed in a price comparison tool), weighted at consumption values that are representative for each country. For example, the ACER/CEER MMR uses 5,000 kWh/yr for electricity and 15,000 kWh/yr for gas. In the absence of retail price details by contract type, the methodology used by the ACER/CEER MMR may be used.</p> <p>Wholesale prices should be quantified as the monthly average hub/exchange prices, where available. A nationally specified quantification of the wholesale price may be added <i>in addition</i> to transparent market data. The source and type of all price data used for the analysis, and any method of quantification used, must be clearly specified.</p>
<b>Frequency</b>	<p>This metric should be monitored at least on an annual basis.</p>
<b>Unit of measure</b>	<p>Unit prices should be expressed in terms of Eurocent/kWh</p>
<b>Data completeness</b>	<p>Foreseeable issues include availability of retail price data by contract type as well as the availability of wholesale prices in the absence of transparent wholesale markets.</p>

1  
 2 **Request No. EU to LGC 1-055**                      Witness & Respondent: Samuel Nash Vautier Golding

1

2 **REQUEST:** Page 59, line 5: What is a sufficient range of offers, including demand response  
3 services, for a well-functioning market? Please explain.

4

5 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
6 testimony, as it asks the witness to undertake additional analysis and develop new information as  
7 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
8 objection, the witness provides the following responses:

9 Refer to Bates p. 64, footnote 24: for a list of innovative retail products, refer to page 25 of this  
10 report: Dr. Philip R. O'Connor, "Restructuring Recharged," Retail Energy Supply Association.  
11 April 2017. Available online:

12 [https://www.resausa.org/sites/default/files/RESA\\_Restructuring\\_Recharged\\_White%20Paper\\_0.](https://www.resausa.org/sites/default/files/RESA_Restructuring_Recharged_White%20Paper_0.pdf)  
13 [pdf](https://www.resausa.org/sites/default/files/RESA_Restructuring_Recharged_White%20Paper_0.pdf)

14 The table referenced is excerpted below for your convenience:

**TABLE 6 - INNOVATIVE PRICING, PRODUCTS & SERVICES IN CHOICE MARKETS**

Fixed-Price Multi-Year Contracts	In monopoly states, utilities generally decide when to file for rate changes. In choice states, customers can choose multiyear price guarantees that in some markets may be as long as five years. Among other things, a business can lock in a key budget item for a known period of time.
Index Pricing	In choice markets, some customers will choose to buy power supply under various index-pricing arrangements. Options may include pricing on a monthly, daily or even hourly basis. Such deals may or may not include the cost of capacity, transmission or other ancillary cost values depending on the type of program selected by the customer.
Mixed Fixed & Index Pricing	Some customers will choose a mix of fixed and floating or index-based pricing. Some businesses also choose to purchase fixed-price "blocks" similar in shape to those acquired in the wholesale market in order to mitigate risk and achieve cost savings. A business may adjust its operations to control its usage and demand to save money.
Blend & Extend Pricing	Customers who have chosen a fixed-price or a mix of fixed- and index-pricing may choose to extend the duration of a supply contract if market prices move downward or if there is a concern about possible upward movement in price. This gives the customer the opportunity to have a more favorable price going forward under an existing contractual relationship based on their view of the market and their company's unique risk profile.
Real-Time Pricing	Real-time pricing is available for nearly all C&I customers and some residential customers in competitive jurisdictions from competitive suppliers, the local wires utility or the RTO. Some monopoly utilities provide real-time supply options to some C&I and residential customers under highly restricted conditions, including limiting the favorable prices to only a portion of supply or requiring payment of procurement charges or latent capacity fees. In choice markets, customers can simply access the real-time energy price, while not paying for capacity. Customers therefore can choose to bear the unhedged risk of short-term high prices in order to take advantage of both low on-peak and off-peak prices that can lead to overall cost savings on average.
Demand Response (DR)	Retail competitive markets allow customers to contract directly with RTOs, through wires-only utilities and/or through competitive suppliers. Demand reductions during peak periods are compensated on the same basis as supply. DR is less prevalent under monopoly models because participation is controlled by utilities that own generation against which DR competes. <sup>24</sup>
Renewable & Green Supply Blends	Customers in competitive states can usually choose the portion of supply that is produced by renewable (green) resources, rather than being limited to minimum levels mandated by state government policies that may prevail in some monopoly or competitive states.
Market Data, Analytics & Budget Reports	Many C&I customers receive energy market data and additional analytics in order to facilitate purchase decisions and budget planning. Such services operate in tandem with options for customers to blend and extend their contracts, for example. Some suppliers will work with customers to provide ongoing reports that integrate with firm budgeting when electricity is a key business expense.
Energy Efficiency Options & On-Bill Financing	Although many traditional vertical monopoly utilities offer energy efficiency programs, including on-bill financing, there can be inherent conflicts due to ownership of rate-based generation assets. In choice markets, while suppliers sell power, they have incentives to help customers achieve efficient energy use as a means of customer retention and as a business in and of itself. Many competitive suppliers enable efficiency project financing with charges for this service added to competitive supplier's commodity bills or through energy savings.
Distributed Energy Resources (DER)	Customers interested in locating DER on their premises can often work with competitive suppliers to optimize the value of the resources, unhindered by local monopoly tariffs and regulations which may limit customers in selling output into the market.
Integrated Home Solutions	Suppliers are offering residential customers smart thermostats, smart home automation and various applications to facilitate home energy and appliance management in order to optimize the value of market signals.

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1 Refer to the table on Bates p. 60 for the specific metrics the Council of European Regulators uses  
2 to track progress for this and other key properties of well-functioning markets. Refer to Bates p.  
3 59, footnote 19 for the report from which this table was taken, refer to page 3/74 therein for  
4 documents related to the report, and refer therein to the “*2017 Handbook for National Energy*  
5 *Regulators How to assess retail market functioning*”, pages 11 through 17 for detailed tables  
6 summarizing the following for each metric related to this key property: Metric Name;  
7 Description; Purpose; Source of Data; Quantification; Frequency; Unit of Measure; and Data  
8 Completeness.

9 The aforementioned “*2017 Handbook for National Energy Regulators How to assess retail*  
10 *market functioning*” is available online here: [https://www.ceer.eu/documents/104400/-/-](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)  
11 [/840b4ce7-9e4a-5ecc-403a-fad85d6ba268](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)

12 The tables available therein are excerpted below for your convenience:

### **3.4 Key property IV: A range of offers, including demand response**

13 A well-functioning market is characterised by innovation and the range of products and  
services offered to consumers. In general, retailers’ ability to offer a significant number of  
commercial options - coupled with consumers’ ability to compare the offers and take informed  
decisions - is a sign of healthy competition and innovation.

14 Demand response can be defined as the capacity to change electricity usage by end-use  
customers (including residential) from their normal or current consumption patterns in  
response to market signals, such as time-variable electricity prices or incentive payments, or  
in response to acceptance of the consumer's bid, alone or through aggregation, to sell demand  
reduction/increase at a price in electricity markets or for internal portfolio optimisation. The  
valuation of demand response can be done explicitly or implicitly: explicit demand response is  
sold as a product on a market and therefore requires a specific control (ex-ante and/or ex-  
post). Implicit demand response does not need such a process since it is not sold to anyone  
and remains only for the benefit of the final consumer and the corresponding retailer or the  
Balance Responsible Party (BRP)<sup>7</sup> as an optimisation respective of its sourcing costs or  
imbalances (e.g. via a payment organised between the independent flexibility service provider  
and the supplier).

<b>Metric 9</b>	<b>Availability of a variety of pricing and billing options</b>
<b>Description</b>	This metric describes two ways of differentiating an offer (pricing and billing) in retail energy markets. Retailers may offer different products based on the way in which they are priced or billed. The consumers' bill contains key information, and may consist of information about the energy component price, the network tariff and taxes paid. This metric is aimed at the household market and possibly SMEs when and where applicable.
<b>Purpose</b>	<p>Various options of pricing and billing can present innovation in the market and create benefits for the customer.</p> <p>Examples of various pricing options may be fixed pricing, variable pricing, or wholesale-based pricing. Wholesale pricing may be hourly (based on time-of-use metering), or monthly (based on an arithmetic mean, or load profile adjusted day-ahead price for the previous month, where time-of-use metering is not available). With wholesale pricing, the supplier earns its margin through an add-on per kWh or a monthly fee. Consumers should have the option to choose to be exposed to time-varying electricity prices, which reflect the value and cost of electricity and transportation at the moment of consumption. Equipped with this information, consumers can make conscious choices – or automate the decision – to use less electricity at times of high prices and thereby reduce their energy bill.</p> <p>Variations of billing options could be many, falling essentially under two broad categories: advance payments or post-meter reading payments. Post-meter reading billing should be advocated for consumers with time variable pricing, as this ensures that consumers are billed for the actual energy consumed during the billing period. As such, advance payments may be a barrier to demand response unless a correct settlement takes place after each consumption period.</p> <p>Opportunities for a variety of pricing and billing options should enable new suppliers with innovative ideas on pricing and billing to enter a market. If such opportunities are severely restricted, this might distort competition.</p>

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<b>Source of data</b>	Information requests to retailers and information available on PCTs are the most common sources of this data. The ACER/CEER MMR already provides an overview of the main pricing options for most capital cities MSs, based on PCT information.
<b>Quantification</b>	<p>This metric aims to capture the variety of pricing and billing options available to customers in a relevant market. It does not require a detailed monitoring of the offers at each supplier level, although this could provide a useful piece of complementary information to understand the pricing and product strategies followed by different suppliers. Another relevant piece of complementary information could be the number of customers on each pricing and billing option.</p> <p>In order to quantify this metric the NRA should address the following two sets of questions:</p> <p>1) Is there a variety of pricing options? Tick boxes for the yes or no options below.</p> <p>Variable price set, and announced, ahead of time (ex-ante). Example: Price is changed every month and announced before the start of the month.</p> <p><input type="checkbox"/> Variable price that changes 4-12 times per year  <input type="checkbox"/> Variable price that changes more than 12 times per year</p> <p>Wholesale-based price announced ex-post plus fee and/or mark-up announced ex-ante. Example: The wholesale price changes every month and is announced after the month has ended, when the supplier knows what it paid on average during the previous month.</p> <p><input type="checkbox"/> Price settled against monthly average wholesale  <input type="checkbox"/> Price settled against daily/weekly average wholesale  <input type="checkbox"/> Price settled against hourly average wholesale</p> <p>Fixed price stipulated in the contract ahead of time. Example: Price and fee for the following 12 months are announced in the offer before the customer signs the agreement.</p> <p><input type="checkbox"/> Fixed 3-11 months  <input type="checkbox"/> Fixed 1-3 years  <input type="checkbox"/> Fixed 4 years or longer</p>
	<p>Mixed price based on both fixed and variable components. Example: 50% of the consumption is billed according to fixed rate (winter) and 50% according to a variable price (summer) component.</p> <p><input type="checkbox"/> Mix of variable and fixed price  <input type="checkbox"/> Pricing method varies between seasons</p> <p>Other price that does not fit description above</p> <p><input type="checkbox"/> Other pricing 1 (specify) _____  <input type="checkbox"/> Other pricing 2 (specify) _____  <input type="checkbox"/> Other pricing 3 (specify) _____</p>

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	<p>2) Are there a variety of billing options? Tick boxes for the yes or no options available below.</p> <p><input type="checkbox"/> Direct debit  <input type="checkbox"/> Bank transfer  <input type="checkbox"/> SEPA<sup>8</sup>  <input type="checkbox"/> Credit card  <input type="checkbox"/> Cash  <input type="checkbox"/> Pre-payment  <input type="checkbox"/> Other (specify) _____</p> <p>All pricing and billing options should refer to viable options, i.e. it should be possible for the addressed consumer to utilise these options.</p>
<b>Frequency</b>	The frequency for the monitoring of this metric may range from monthly to yearly, depending on the relevant market circumstances.
<b>Unit of measure</b>	Yes/or no for all the questions and any relevant qualitative explanations
<b>Data completeness</b>	NRA's should have access to such information as part of their basic market monitoring, although the level of detailed breakdown may vary.

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<b>Metric 10</b>	<b>Availability of value added services for implicit demand response and self-generation</b>
<b>Description</b>	This relates to the availability of contracts containing price mechanisms, and/or added services that allow consumers to reduce their load or shift it from peak to off-peak periods, as well as to self-generate. Availability of market infrastructure, e.g. smart meters, and procedures enabling consumers to receive the correct price settlement are essential to make implicit demand response and self-generation an established viable option for consumers.

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<b>Purpose</b>	<p>The availability of demand response offers and flexibility services can indicate an innovative, competitive and diversified market. It can offer consumers the opportunity to lower energy costs by adapting to time varying prices that reflect price formation on well-functioning wholesale market e.g. settlement against hourly prices.</p> <p>For customers it is essential to get clear information regarding the conditions when a contract is bundled e.g. with energy-efficiency services, products, maintenance services or other add-ons such as value added services.</p> <p>A second purpose of this metric is to determine if the customers have the possibility to self-generate their electricity and also to feed the surplus into the system. Fair access to market mechanisms and systems through which prosumers can feed energy into the energy networks are essential.</p> <p>It is, however, crucial that the contract terms for the market arrangements, mentioned above, do not disadvantage the customer or limit customer benefits.</p>
<b>Source of data</b>	Survey to retailers and energy service companies
<b>Quantification</b>	<p>In order to quantify this metric the NRA should address the following questions:</p> <ul style="list-style-type: none"> <li>• Are there contracts available for implicit demand response such as time-of-use contracts or flexibility contracts?</li> <li>• What kind of value added services or products that contribute to demand flexibility are available for customers?</li> </ul> <p>(Automatically controlled or supplied with demand response switch)</p> <p><input type="checkbox"/> Hot water heaters</p> <p><input type="checkbox"/> Storage – batteries</p> <p><input type="checkbox"/> Smart thermostat</p> <p><input type="checkbox"/> Gas heater</p> <p><input type="checkbox"/> Air conditioning</p> <p><input type="checkbox"/> Washing machines</p> <p><input type="checkbox"/> Refrigerators</p> <p><input type="checkbox"/> Electric car chargers</p> <p><input type="checkbox"/> Maintenance services</p> <p><input type="checkbox"/> Other</p> <p>Specify other:</p> <p>Questions regarding the conditions for self-generation.</p> <p>Questions regarding whether the surplus from self-generation can be fed into the system</p> <ul style="list-style-type: none"> <li>• How many consumers participate in implicit DR through a contract?</li> <li>• How many customers have contracts, which include feed in from electricity, and/or gas from self-generation?</li> <li>• Are there appliances with demand response switches or other connections available on the electricity and gas market?</li> </ul>

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<b>Frequency</b>	The frequency for the monitoring of this metric may range from monthly to yearly, depending on the relevant market circumstances
<b>Unit of measure</b>	Yes/No and a qualitative elaboration, multiple choice. On self-generation: number of customers relative to the total amount of customers.
<b>Data completeness</b>	This is an area of the market that is developing and that NRAs may not have started monitoring yet, hence data may not be complete.

<b>Metric 11</b>	<b>Availability of online offers, bills, contracts and online customer service.</b>
<b>Description</b>	The European Commission's Digital Agenda proposes to better exploit the potential of Information and Communication Technology (ICT). The availability of different user-friendly channels through which a customer can interact with the market actors is a sign of innovation in the retail market.
<b>Purpose</b>	The purpose of this metric is to monitor innovation related to the use of ICT. If customers can interact with market actors in executing key contractual processes such as comparing different offers, signing up to an offer and receiving a bill online, as well as getting online customer service (i.e. the 'customer journey'), this can be seen as a sign of innovation and progress in the market. The focus should be on identifying whether retailers provide these options and whether these options are available to all categories of consumers (there may be some that, for geographical or technical issues, may not have access to these online offers). This metric is closely related to metric 17, which refers to the access to an independent and verified PCT.
<b>Source of data</b>	PCTs, and information requests to retailers.
<b>Quantification</b>	In order to quantify this metric the NRA should consider the following questions. These questions are linked to the 'customer journey'. <ul style="list-style-type: none"> <li>• Are offers comparable online and/or through digital applications for all MS customers? If not, please indicate why and for what proportion of customers this is not the case.</li> <li>• Can contracts be signed online through the PCT or otherwise for all MS customers? If not, please indicate why and for what proportion of customers this is not the case. Is management of energy contracts online and/or through digital applications available to all MS customers?</li> <li>• Are bills available online?</li> <li>• Is customer service available through online channels</li> </ul>
<b>Frequency</b>	The frequency for the monitoring of this metric may range from monthly to yearly, depending on the relevant market circumstances.
<b>Unit of measure</b>	All questions: yes/no and possible number of customers and qualitative explanations (especially if a "no" answer is provided).
<b>Data completeness</b>	This is a relatively new monitoring area and NRAs may not have developed it yet, hence data may not be complete.

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<b>Metric 12</b>	<b>Availability of contracts guaranteeing the origin of energy</b>
<b>Description</b>	This metric measures the availability of specific contracts, for each relevant market, containing information on the source and origin of the electricity and/or gas procured by the supplier. The contracts should specify the source(s) of energy as well as the supplier's commitment on how to obtain this [e.g. by acquiring Guarantees of Origin (GO)].
<b>Purpose</b>	The purpose of this metric is to assess whether products with a specific origin and source, mostly renewable sources, are available for consumers. The availability of such contracts is a sign of innovation on a market. .
<b>Source of data</b>	PCTs, and information requests to retailers.
<b>Quantification</b>	<p>In order to quantify this metric the NRA should consider the following questions:                  Are there contracts with a specific source guaranteed for each relevant market (e.g. contracts guaranteeing the source to be from wind, water or solar)? Is it possible for customers to sign contracts such as those listed below? Tick the box if the option is available.                  Guarantees for energy sources (exclusively)</p> <p><input type="checkbox"/> Hydro  <input type="checkbox"/> Wind  <input type="checkbox"/> Solar  <input type="checkbox"/> Biomass  <input type="checkbox"/> Nuclear  <input type="checkbox"/> Fossil (any)  <input type="checkbox"/> Specific plant (any type, such as a specific wind farm, etc.)  <input type="checkbox"/> Other (specify)</p>
<b>Frequency</b>	<p>Guarantees for energy sources (in combination)</p> <p><input type="checkbox"/> Hydro  <input type="checkbox"/> Wind  <input type="checkbox"/> Solar  <input type="checkbox"/> Bio</p> <p>What is the share of the above contracts that are available in the market and how many suppliers offer them? This should give an indication of whether the availability is actually meaningful.</p> <p>The frequency for the monitoring of these offers may range from monthly to yearly, depending on the relevant market circumstances. On the other hand, the update of the Guarantees of Origin registry will generally happen once per year.</p>
<b>Unit of measure</b>	All questions: yes/no and possible qualitative explanations (especially if a "no" answer is provided).
<b>Data completeness</b>	NRAs may already collect this data as part of the implementation of the renewable directive and disclosure of the source of electricity sold to end-users by suppliers, though this does not necessarily imply that there are contracts with specific origin and/or that these are supervised. Some MSs also have guarantees of origin and disclosure for gas sold to end-users by suppliers.

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<b>Metric 13</b>	<b>Availability of explicit demand response offers</b>
<b>Description</b>	This metric monitors the availability of products that provide explicit demand side flexibility in the market. In explicit demand response the “freed-up/shifted” electricity is traded in electricity markets or used for other purposes. Consumers receive specific remuneration to change their consumption upon request (using more or using less), e.g. triggered by activation of balancing energy, differences in electricity prices or a constraint on the network.
<b>Purpose</b>	The purpose of the metric is to assess if there are explicit demand response opportunities available and to which customers. In particular, it aims at identifying what, if any, market arrangements exist, allowing customers to free up or shift electricity usage and trade it in a market place. Moreover, it is of particular interest to monitor the flexibility capacity that is available on the market through these products.
<b>Source of data</b>	Information is likely to come from different entities according to the use of flexibility and the related main market body: <ul style="list-style-type: none"> <li>• For balancing and reserve markets: TSOs, as already required by European regulation (article 17 of Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets)</li> <li>• For local system support services: DSOs.</li> <li>• For wholesale markets: reporting by different market actors may be necessary, based on clear rules protecting sensitive information.</li> </ul>
<b>Quantification</b>	In order to quantify this metric, the NRA should address the following questions: <ul style="list-style-type: none"> <li>• Are explicit demand response opportunities available in each relevant market?</li> <li>• How much capacity/volume is available through the use of explicit demand response contracts on an annual basis? Use a metric based on capacity for market mechanisms essentially based on availability (balancing and ancillary services, and system adequacy mechanisms) and a metric based on volume for flexibility sold into the market annually for the wholesale market and some reserves market where energy is traded.</li> </ul>
<b>Frequency</b>	The frequency for the monitoring of this metric may range from monthly to yearly, depending on the relevant market circumstances.

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<b>Frequency</b>	The frequency for the monitoring of this metric may range from monthly to yearly, depending on the relevant market circumstances.
<b>Unit of measure</b>	Regarding explicit demand response opportunities: <input type="checkbox"/> Possible <input type="checkbox"/> Not possible <input type="checkbox"/> Possible but contracts not available <input type="checkbox"/> Possible and contracts available

2

<b>Data completeness</b>	<input type="checkbox"/> Possible but no knowledge if such contracts are available. Regarding capacity measure: kW in total or proportion of total peak-demand. Regarding volume measure: kWh in total or proportion of total demand. This is a new monitoring area for most NRAs. The gathering of data may prove difficult and, in the case of the capacity measure, may require estimates.
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<b>Metric 14</b>	<b>Percentage of consumers knowing they can switch supplier</b>
<b>Description</b>	A precondition for consumer participation in retail energy markets is awareness and knowledge about the possibility to make an active and informed choice. This includes choosing another supplier, choosing another contract with their current supplier, or deliberately staying with their current supplier. This metric focusses on switching supplier. Recent studies show that even in liberalised markets a significant share of household consumers is insufficiently aware of the possibility to switch supplier and thus reaping key benefits of market liberalisation (cheaper energy, increasing competition, etc.). While market liberalisation brings a number of rights for consumers, switching supplier can be seen as crucial.
<b>Purpose</b>	The metric is used to measure the awareness of consumers about a key consumer right and how this awareness varies over time. Widespread awareness of this right facilitates market participation, which is key to well-functioning retail energy markets.
<b>Source of data</b>	NRAs may rely on existing national consumer surveys.
<b>Quantification</b>	This indicator should be the result of a survey based on a representative sample of the consumer population in terms of gender, age, location, socio-economic category. The targeted interlocutor is the person in the household in charge of electricity and gas bills payment. There should be different panels for gas and electricity.  The survey questions should cover the following dimensions: factors determining the choice of supplier, the possibility to choose a supplier, etc.  After consultation with national experts in this field (e.g. consumer survey companies), the questions could read as follows, though NRAs are welcome to use questions that would lead to similar results: "In your opinion: 1. The choice of an [electricity / gas] supplier is determined by the geographic area where you live? o Yes o No [correct answer] o No opinion 2. Every household can choose its electricity supplier?"

	<ul style="list-style-type: none"> <li>○ Yes [correct answer]</li> <li>○ No</li> <li>○ No opinion</li> </ul> <p>3. Can you quote the name of 3 [electricity / gas] suppliers?</p> <ul style="list-style-type: none"> <li>○ 3 or more correct answer</li> <li>○ 2 correct answer</li> <li>○ 1 or less correct answer</li> <li>○ Mention companies that are not electricity / gas suppliers (e.g. DSO, TSO, etc.)”</li> </ul>
<b>Frequency</b>	This metric should be measured annually or, at least, every 3 years
<b>Unit of measure</b>	For each question, percentage of consumers choosing the different possible answers.
<b>Data completeness</b>	N/A

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<b>Metric 15</b>	<b>Percentage of consumers who know that DSOs are responsible for the continuity of supply and, where applicable, of metering</b>
<b>Description</b>	A precondition for consumer participation in retail energy markets is awareness and knowledge about the possibility make an active and informed choice. It also involves some ‘basic knowledge about how the market works. This metric focusses on the awareness about the role of the DSO. In particular about the responsibility of DSOs for continuity of supply, as well as the awareness that switching to another supplier has no impact on continuity of supply. Such a concern is often given by consumers as one of the main reasons for not switching supplier.
<b>Purpose</b>	The metric is used to measure the understanding of retail market functioning principles of consumers. This could help NRAs to raise consumers’ awareness and therefore increasing the confidence of consumers in the market.
<b>Source of data</b>	NRAs may rely on existing national consumer surveys.
<b>Quantification</b>	<p>This indicator should be the result of a survey based on a representative sample of the consumer population in terms of gender, age, location, socio-economic category. The targeted interlocutor is the person in the household in charge of electricity and gas bills payment.</p> <p>There should be different panels for gas and electricity.</p> <p>Survey questions should cover the following dimensions: link between switching a supplier and changing one’s meter, link between supplier switching and power cuts, entity responsible for meter reading, etc.</p> <p>After consultation with national experts in this field (e.g. consumer survey companies), the questions could read as follows, though NRAs are welcome to use questions that would lead to similar results:                  “In your opinion,</p>

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	<ol style="list-style-type: none"> <li>1. If you switch to another supplier, must you change your meter?                     <ul style="list-style-type: none"> <li><input type="radio"/> Yes</li> <li><input type="radio"/> No</li> <li><input type="radio"/> No opinion</li> </ul> </li> <li>2. If you switch to another supplier, do you believe that you will experience more power cuts??                     <ul style="list-style-type: none"> <li><input type="radio"/> Yes</li> <li><input type="radio"/> No</li> <li><input type="radio"/> No opinion</li> </ul> </li> <li>3. If you switch to another supplier, do you believe that your new supplier will be in charge of meter reading?                     <ul style="list-style-type: none"> <li><input type="radio"/> Yes</li> <li><input type="radio"/> No</li> <li><input type="radio"/> No opinion</li> </ul> </li> <li>4. Can you quote the name of the company that operates [power lines / gas pipes] to your home?                     <ul style="list-style-type: none"> <li><input type="radio"/> Correct answer [depends on interviewee location]</li> <li><input type="radio"/> Incorrect answer</li> <li><input type="radio"/> No opinion"</li> </ul> </li> </ol>
<b>Frequency</b>	This metric should be measured annually or, at least, every 3 years.
<b>Unit of measure</b>	For each question, percentage of consumers choosing the different possible answers.
<b>Data completeness</b>	N/A

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<b>Metric 16</b>	<b>Percentage of consumers trusting the energy market</b>
<b>Description</b>	This metric measures the level of trust in the market and in the individual suppliers. It is important for consumers to be confident that they will be treated fairly and can trust the information that suppliers provide them. A bad experience with one supplier can undermine consumers' confidence in the energy market as a whole, causing them to disengage in the long term. And, because energy is an essential service, consumers should be able to expect to receive fair treatment from their own and other suppliers.
<b>Purpose</b>	The metric is used to measure the consumer's trust in the energy markets. A high level of consumer confidence in the market allows for a more active participation. However, trust is a complex concept and when assessing the situation, an NRA must be careful to attain an accurate picture of the situation. In addition to the outcome of this metric, more background information, including the results from the other metrics, is necessary to fully understand the situation.
<b>Source of data</b>	NRAs may rely on existing national consumer surveys or on the DG Justice Consumer Scoreboard.

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<b>Quantification</b>	<p>This indicator should be the result of a survey based on a representative sample of the consumer population in terms of gender, age, location, socio-economic category. The targeted interlocutor is the person in the household in charge of electricity and gas bills payment.</p> <p>There should be different panels for gas and electricity.</p> <p>Survey questions should cover the following dimensions: consumer evaluation of competition, consequence of competition in terms of service quality and price development, etc.</p> <p>NRAs are welcome to define questions that best fits their national context after consultation with experts in surveys. A large set of pilots is provided as an example of possible approaches.</p>
<b>Frequency</b>	This metric should be measured annually or, at least, every 3 years.
<b>Unit of measure</b>	For each question, percentage of consumers choosing the different possible answers.
<b>Data completeness</b>	N/A

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<b>Metric 17</b>	<b>Percentage of consumers having access to at least one independent and verified price comparison tool</b>
<b>Description</b>	Percentage of consumers having access to offers through at least one independent and verified price comparison tool
<b>Purpose</b>	<p>This metric is used to measure whether the consumer has the possibility to identify the best offers. The easier the consumer can estimate available savings, the more informed their decision will be to either switch to a better offer or stay with the current deal.</p> <p>An independent and verified price comparison tool (PCT) is a powerful empowerment tool to make comparisons easier for consumers. A PCT is a tool, generally a web page, which lists all the offers available to the consumer and where they can evaluate the potential benefits of switching. Such a tool can be considered:</p> <ul style="list-style-type: none"> <li>- <u>Independent</u>: as long as it is free from any commercial bias.</li> <li>- <u>Verified</u>: if the check made by the NRA, or another competent authority, shows that the tool is correct, accurate and exhaustive.             <ul style="list-style-type: none"> <li>o Exhaustiveness: all prices and products available for all customers should be shown as a first step. If not possible, the Comparison Tool should clearly state this before showing results. After the initial search, the option to filter</li> </ul> </li> </ul>

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	<p>results should be offered to the customer.</p> <ul style="list-style-type: none"> <li>○ Correctness and accuracy: price information used in the comparison should be updated as often as necessary to correctly reflect prices available on the market.</li> </ul>
<b>Source of data</b>	This indicator should be the result of research made by the NRA.
<b>Quantification</b>	<p>The percentage of consumers is calculated on the basis of the number of consumers that have access to an independent and verified comparison tool, relative to the total amount of consumers. This PCT has been identified as an independent and verified tool by the NRA.</p> <p>This metric should be calculated separately for gas and electricity. Similarly, metric 11 should also focus on whether at least one of such PCTs lists offers that are relevant for all categories of consumers (for geographical or technical issues there may be some consumers who cannot find relevant offers on any PCTs).</p> <p>“Having access to a PCT” requires that consumers can actually find at least one alternative offer from an alternative supplier for their connection point, assuming that they can access the internet. (The intention is not to measure the possibility for consumers to access the internet.)</p>
<b>Frequency</b>	This metric should be measured annually.
<b>Unit of measure</b>	Percentage of consumers having access to relevant offers through an independent and verified price comparison tool
<b>Data completeness</b>	N/A

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<b>Metric 18</b>	<b>Percentage of consumers having access to online historical consumption information</b>
<b>Description</b>	Percentage of consumers having access to online historical consumption information
<b>Purpose</b>	<p>This metric is used to measure the possibility for consumers to access their consumption data through online tools. Having access to accurate historical consumption data enables consumers to compare alternative offers available in the market and make informed choices. It is also important for a consumer to get insight into their historical consumption in relation to the impact on the bill. This may, in turn, help towards a more responsible use of energy.</p> <p>Online access seems the most convenient way to access consumption data when required, especially in the case of a large amount of data (such as hourly billing).</p>
<b>Source of data</b>	Research conducted by the NRA and, potentially, information requests to retailers and/or regulated companies.
<b>Quantification</b>	Data available to the consumer must go back at least 3 years, if such data is available to the concerned supplier or DSO (if the customer is in the supplier / DSO portfolio for less than 3 years, the data available must cover the whole period starting from the entry of the customer in the portfolio).

2

	<p>The percentage should be broken down into four categories depending on the level of detail provided:</p> <ul style="list-style-type: none"> <li>- annual data;</li> <li>- monthly data;</li> <li>- daily data;</li> <li>- all the data required by the current supplier in order to proceed to billing: consumption on each billing period (annual, monthly, peak / off-peak, hourly,...).</li> </ul> <p>The metric should be calculated separately for gas and electricity.</p>
<b>Frequency</b>	This metric should be measured annually.
<b>Unit of measure</b>	Percentage of consumers having access to online historical consumption information relative to the total number of consumers in the member state, to be broken down, if possible, by category as illustrated above.
<b>Data completeness</b>	N/A

1

<b>Metric 19</b>	<b>Percentage of consumers having access to standardised supplier switching process (and its duration)</b>
<b>Description</b>	Percentage of consumers having access to standardised supplier switching process (and its duration)
<b>Purpose</b>	<p>This metric is used to measure the availability of a standardised supplier switching process for consumers. An easy to use and quick switching process can spur further consumer engagement. This metric will inform NRAs about any needs for measures to improve the existing switching process.</p> <p>According to the 3rd Package, a supplier switch should take no longer than three weeks, and consumers should receive their final bill within six weeks. In the CEER Guidelines of Good Practice on electricity and gas retail market design, with a focus on switching and billing, there are three recommendations regarding the timing on a supplier switch:</p> <ol style="list-style-type: none"> <li>1. A switch should be executed as quickly as possible. This could be as quickly as within 24 hours and in any case within three weeks.</li> <li>2. A switch should be possible any day of the week.</li> <li>3. No market actor should be able to stop an initiated switch except for limited cases foreseen in the regulatory framework.</li> </ol>
<b>Source of data</b>	Research conducted by the NRA and potentially information requests to retailers and/or regulated companies.
<b>Quantification</b>	<p>In order to quantify this metric, the NRA should first of all verify the implementation of the switching process with the DSOs. It should also calculate the average time between:</p> <ul style="list-style-type: none"> <li>- the date of the switching request made by the supplier, with all required data provided; and</li> <li>- the date when the actual transfer of the client is completed.</li> </ul>

2

	The time required to resolve any legitimate disputes that prevent the transfer according to national regulations should not be included in the calculation.
<b>Frequency</b>	The duration should be measured monthly to annually. The percentage of consumers having access to a standardised switching process should be measured annually.
<b>Unit of measure</b>	Regarding the access of consumers to a standardised switching process: percentage of consumers out of the total number of consumers in the MS. Regarding the duration of the switching process: average number of working days to complete the process across all suppliers.
<b>Data completeness</b>	NRAs should have access to such information as part of their existing market monitoring of 3 <sup>rd</sup> Package indicators.

1  
 2 **Request No. EU to LGC 1-056** Witness & Respondent: Samuel Nash Vautier Golding

3 **REQUEST:** Page 59, line 12: Do you consider default energy supply options as providing  
 4 customer engagement?

5 **RESPONSE:** In the context of the question, yes. (The answer is self-evident to the degree that  
 6 I'm curious how anybody could think otherwise.)

7 However, the context of my testimony that the question cites is rather more specific and prudent  
 8 in these regards. Bates p. 59 lines 12-14 reads:

9 *“Sufficient consumer engagement where switches, renegotiations and prosumers are*  
 10 *assessed on a yearly basis. In general, a well-functioning market is one in which a*  
 11 *significant number of consumers engage with the market on a regular basis.”*

12 Refer to the table on Bates p. 60 for the specific metrics the Council of European Regulators uses  
 13 to track progress for this and other key properties of well-functioning markets. Refer to Bates p.  
 14 59, footnote 19 for the report from which this table was taken, refer to page 3/74 therein for  
 15 documents related to the report, and refer therein to the “2017 Handbook for National Energy  
 16 Regulators How to assess retail market functioning”, pages 11 through 17 for detailed tables  
 17 summarizing the following for each metric related to this key property: Metric Name;  
 18 Description; Purpose; Source of Data; Quantification; Frequency; Unit of Measure; and Data  
 19 Completeness.

- 1 The aforementioned “2017 Handbook for National Energy Regulators How to assess retail
- 2 market functioning” is available online here: [https://www.ceer.eu/documents/104400/-/-](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)
- 3 [/840b4ce7-9e4a-5ecc-403a-fad85d6ba268](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)
- 4 The tables available therein are excerpted below for your convenience:

**3.7 Key property VII: Sufficient consumer engagement**

A well-functioning market is one in which a number of consumers engage with the market.

**Metric 20: Supplier switching rate**

Metric 20	Supplier switching rate
<b>Description</b>	The rate at which consumers switch or engage with energy suppliers or the wider market, measured on a yearly basis. The switching rate alone may be a crude measure of supplier engagement. In this metric the definition of switching is extended to also include another measure of consumer engagement, namely the renegotiation of contracts.
<b>Purpose</b>	This metric is used to measure the active engagement of consumers in the energy retail market. The supplier switching rate is one of these measures. It is directly linked with the level of competition, since the switching rate affects the market share of competing companies and thus puts competitive pressure on energy suppliers. Supplier switching, or the threat thereof, can stimulate companies to offer better products and services. Supplier switching must be observed over time, as only a long-term perspective can contribute to a better understanding of what triggers supplier switching and how a competitive market reacts to this. In addition to this, renegotiated contracts could be measured. Consumers who actively decide to renegotiate their contracts with their current supplier also put competitive pressure on their energy supplier.
<b>Source of data</b>	Information requests to DSOs/national point of information exchange (data hub) and retailers. Wider measures of household consumer engagement among household consumers may be gathered through survey data (the latter will be consumer perceptions of the switching experience).
<b>Quantification</b>	For completeness, the NRA should quantify both the customer switching to a new supplier and the renegotiation of contracts with the existing supplier.  A switch is counted when a consumer moves from one energy supplier to a competing energy supplier. Switches are measured separately for household and business consumers. The definition of switching should follow the methodology established for data collection in the CEER database, feeding into ACER/CEER MMR.

5

	The number of renegotiated contracts with the existing suppliers should, ideally, exclude automatic roll-overs and changes that only affect payment method or account management. Note that this measure, also defined as “internal switching”, is a metric included in the DG JUST Consumer Scoreboard.
<b>Frequency</b>	This metric should be measured annually.
<b>Unit of measure</b>	For the switching rate: Percentage of meter points, supplier customer accounts, and/or consumption volume that switched supplier in a given year relative to the average number of meter points/customer accounts or total consumption volume in the relevant market.  For the number of renegotiations: Percentage of number of renegotiations relative to the total number of supplier meter points /customer account (if the data is gathered from suppliers) or consumers (if the data is gathered through a consumer survey).
<b>Data completeness</b>	NRAs have access to such information normally through monitoring or through the national statistical responsible body. Issues with availability of survey data are foreseeable.

1

<b>Metric 21</b>	<b>Percentage of inactive consumers</b>
<b>Description</b>	Inactive consumers are defined here as consumers who have neither switched supplier/product nor actively searched for better deals. As a proxy, consumers considered as inactive are contracted on a default contract and have not made a choice of supplier in the market. The definition of default contract depends on the national context. What constitutes a default contract should be clearly specified when undertaking the assessment.
<b>Purpose</b>	The metric is used to measure the lack of consumer involvement in the market. Inactive consumers represent the share of consumers that do not actively participate in liberalised market processes. Inactive consumers may lack the opportunity to participate in liberalised market processes altogether depending on the national context. The metric can help inform NRAs’ policies aimed at improving the level of consumer engagement and stimulating competitive pressure on suppliers.
<b>Source of data</b>	Information requests to retailers (incumbents, default suppliers, or suppliers of last resort) and regulated companies. Consumer surveys can also be used.
<b>Quantification</b>	Number of consumers who have not switched supplier for the last 3 years and are contracted on a default contract. What constitutes a default contract should be clearly specified when undertaking the assessment. Inactive consumers are measured separately for gas and electricity. Inactive consumers are measured separately for household and business consumers.  Number of consumers who have never switched (based on survey data).  Number of consumers who have <u>not</u> actively searched for better deals within the last 3 years (based on survey data).

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<b>Frequency</b>	This metric should be measured annually.
<b>Unit of measure</b>	Percentage: Number of inactive consumers relative to the total number of supplier meter points/customer accounts. Percentage: Number of consumers who have never switched relative to number of consumers. Percentage: Number of consumers who have not actively searched for better deals relative to number of consumers.
<b>Data completeness</b>	Issues with availability of survey data are foreseeable.

2

<b>Metric 22</b>	<b>Percentage of prosumers</b>
<b>Description</b>	Self-generation of energy allows consumers to become active “prosumers”. Being able to produce and consume energy, by using different available technologies (e.g. roof solar photovoltaic panels, batteries), allows the consumer to engage actively in the market. Prosumers are consumers who produce energy on-site, behind a metering point capable of registering at least their hourly generation and consumption, making production data available <sup>9</sup> . Small generation plants connected at distribution level, for which there is not on-site production, are not typically classified as prosumers. The percentage of consumers engaging in distribution-level schemes could nonetheless be relevant to measure, e.g. community initiatives. Equally, this applies to consumers living in multi-dwelling buildings that may have come together to invest in generation capacity.
<b>Purpose</b>	This metric is used to measure the percentage of “prosumers” engaged with the market for self-consumed energy and related services. It indicates the percentage of consumers that participate actively in the energy transition, by producing energy on-site. This could include prosumers living in multi-dwelling buildings that have a metering scheme that differs from the traditional definition of prosumers as being behind one metering point. As a separate measure, the level of consumers engaged in distribution-level schemes in the local community could be measured. Where the latter is measured, this must be clearly specified.
<b>Source of data</b>	This could be DSOs/TSOs or any registers or organisations for prosumers. This list is not exhaustive.
<b>Quantification</b>	The percentage of prosumers is calculated as the share of consumers that are registered and defined as prosumers on the national level. The method of registration and definition may be subject to national specificities; however, if a definition of prosumers also includes generation beyond a consumer’s metering point this must be clearly specified.  The share of prosumers engaged in schemes in multi-dwelling buildings either as a separate measure, or if specified, as part of the general definition of prosumer.  The share of prosumers engaged in local schemes at distribution level.
<b>Frequency</b>	This metric should be measured annually.

<b>Unit of measure</b>	Percentage: Prosumers relative to the total number of supplier meter points/customer accounts.
<b>Data completeness</b>	This is a new monitoring area for most NRAs. Data availability and completeness may be an issue.

1

2 **Request No. EU to LGC 1-057** Witness & Respondent: Samuel Nash Vautier Golding

3 **REQUEST:** Page 59, lines 15-17: What do you consider as appropriate  
4 consumer protections? Which customer types do you consider as most vulnerable?

5 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
6 testimony, as it asks the witness to undertake additional analysis and develop new information as  
7 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
8 objection, the witness provides the following responses:

9 Refer to the table on Bates p. 60 for the specific metrics the Council of European Regulators uses  
10 to track progress for this and other key properties of well-functioning markets. Refer to Bates p.  
11 59, footnote 19 for the report from which this table was taken, refer to page 3/74 therein for  
12 documents related to the report, and refer therein to the “*2017 Handbook for National Energy*  
13 *Regulators How to assess retail market functioning*”, pages 11 through 17 for detailed tables  
14 summarizing the following for each metric related to this key property: Metric Name;  
15 Description; Purpose; Source of Data; Quantification; Frequency; Unit of Measure; and Data  
16 Completeness.

17 The aforementioned “*2017 Handbook for National Energy Regulators How to assess retail*  
18 *market functioning*” is available online here: [https://www.ceer.eu/documents/104400/-/-](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)  
19 [/840b4ce7-9e4a-5ecc-403a-fad85d6ba268](https://www.ceer.eu/documents/104400/-/-/840b4ce7-9e4a-5ecc-403a-fad85d6ba268)

20 The tables available therein are excerpted below for your convenience:

**3.8 Key property VIII: Appropriate protection**

In well-functioning retail energy markets, consumers enjoy an appropriate level of protection and there are specific measures to protect those defined as vulnerable customers.

**Metric 23: Time between notification to pay and disconnection for non-payment**

<b>Metric 23</b>	<b>Time between notification to pay and disconnection for non-payment</b>
<b>Description</b>	This is the time period between the notice to pay/notice of disconnection after missing payments and the disconnection of the customer.
<b>Purpose</b>	This metric should be used to assess the level of protection against disconnections due to non-payment, in conjunction with metric 24 on number of disconnections for non-payment. In selected cases, suppliers and/or DSOs can disconnect consumers from electricity and gas networks. Specific consumer protection legislation foresees a number of provisions to mitigate disconnecting household consumers in cases of non-payment of bills. However, if those consumers continue to fail to pay their bills, suppliers and DSOs can disconnect them. Most MSs have installed a procedure for disconnections, which foresees a certain period between non-payment and disconnection, to settle due amounts. That is why this metric should be assessed in conjunction with the other metric on the number of disconnections due to non-payment.
<b>Source of data</b>	This metric should first be evaluated from a legal point of view. To evaluate this metric from a practical point of view, the NRA could submit an information request to either the retailer or the regulated company, depending on the national circumstances, to assess the minimum duration from non-payment to disconnection. The ADR/Ombudsman organisation may be considered as a source for information as well. If complaint handling is run by the NRA, this may be a source of information as well.
<b>Quantification</b>	Number of working days between the notice of disconnection after missing payments and the connection of the customer for both electricity and gas. When answering from a legal point of view, indicate the number of days fixed by law, and when answering from a practical point of view, indicate the average number of working days observed in practice. For the practical measure, consider that only households are included that do not make any payments toward the unpaid amounts (consumption in the past), nor do the households pay any upcoming instalments. It should also be assumed that the delivery of mail, notifications or similar warnings is instantaneous to make it possible to speak about an "absolute minimum" length of this duration.
	In case the regulated company (DSO) does not know the exact reason for a disconnection, as a proxy the total amount of disconnections by the DSO per request of the supplier, can be assessed.
<b>Frequency</b>	The metric should be measured annually.

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<b>Unit of measure</b>	Number of working days, or days.
<b>Data completeness</b>	NRAs should have access to such information as part of their existing market monitoring of 3 <sup>rd</sup> Package indicators.

<b>Metric 24</b>	<b>Percentage of disconnections due to non-payment</b>
<b>Description</b>	In selected cases suppliers and/or DSOs can disconnect consumers from electricity and gas networks due to non-payment.
<b>Purpose</b>	<p>This metric should be used to assess the level of protection against disconnections due to non-payment, in conjunction with metric 23 on disconnection notification time. Specific consumer protection legislation foresees a number of provisions to mitigate disconnecting household consumers in cases of non-payment of bills. However, if those consumers continue to fail to pay their bills, suppliers and DSOs can disconnect them. Most MSs have installed a procedure for disconnections, which foresees a certain period between non-payment and disconnection, to settle due amounts. That is why this metric should be assessed in conjunction with the other metric on disconnections</p> <p>If prepayment meters are widely distributed and used as a tool to manage debt, the proportion of new prepayment meters installed for debt (and especially if they are accompanied by a Court order) should be monitored alongside the number of disconnections for debt.</p>
<b>Source of data</b>	Retailers and/or regulated companies. The ADR/Ombudsman organisation may be considered as a source for information as well.
<b>Quantification</b>	<p>To quantify this metric the NRA should use the following step-by-step approach:</p> <ol style="list-style-type: none"> <li>1. Determine the number of disconnected households due to non-payment t for electricity and gas separately during a given year;</li> <li>2. Determine the share of disconnections by dividing the number of disconnections by the total amount of household metering points for electricity and gas separately during the same year.</li> </ol> <p>If applicable, determine also the number of new prepayment meters installed for debt, using the same reference year as that used for disconnections.</p> <p>In case the regulated company (DSO) does not know the exact reason for a disconnection, as a proxy the total amount of disconnections by the DSO per request of the supplier, can be assessed.</p>
<b>Frequency</b>	The metric should be measured annually.
<b>Unit of measure</b>	Percentage of total electricity and/or gas disconnections in a given year, and if available: number and percentage of prepayment meters installed for debt.
<b>Data completeness</b>	NRAs should have access to such information as part of their existing market monitoring of 3 <sup>rd</sup> Package indicators.

2

<b>Metric 25</b>	<b>Percentage of suppliers applying rules for key information in advertising and bills</b>
<b>Description</b>	Consumers need to be provided with the means of assessing the offers against each other in a transparent and clear manner. The proportion of suppliers using minimum standards for key information in advertising and bills ideally identified separately and based on Annex 1 of the 2009 Directive, can serve as an indicator of suppliers' compliance with this provision. Rules for key information in advertising and bills are defined as legislation and/or self-regulation.
<b>Purpose</b>	The purpose of this metric is twofold. It monitors the existence in the MS of minimum information standards, as well as the proportion of suppliers complying with them. This is a complex area and when assessing the situation an NRA must be careful to attain an accurate picture of the situation. In addition to the outcome of this metric, more background information is necessary to fully understand the situation.
<b>Source of data</b>	Most likely sources will include legislation/license conditions and research conducted by NRAs on how suppliers comply with the standards. Consumer organisations and/or ADR/Ombudsmen could also be a source of information.
<b>Quantification</b>	At this point there is no one-size-fits-all approach to assess this metric. Ideally, and as a result, the outcome of the metric consists of: Rules for key information in advertising and bills are defined as legislation and/or self-regulation. For each of the rules, the proportion of active suppliers using it out of the total number of active suppliers. CEER encourages NRAs to explore the approach that is most suitable to the national circumstances. As a best practice example we refer to the pilot that is included in this handbook.
<b>Frequency</b>	The metric should be measured annually.
<b>Unit of measure</b>	Yes/no (list of standards) and, if feasible percentage of total amount of suppliers of electricity and/or gas.
<b>Data completeness</b>	This a relatively new and complex monitoring area, for which new research by NRA will be required

1

2 **Request No. EU to LGC 1-058**

Witness : Samuel Nash Vautier Golding  
 Respondents: Samuel Golding and Clifton Below

3

4 **REQUEST:** Page 64, lines 5-7: If a New Hampshire “*market platform facilitates transactions*  
 5 *between the wholesale generation market, the distribution utility, and the non-utility entities that*  
 6 *serve retail customers and manage portfolios of distributed energy resources*” would such a  
 7 platform be subject to FERC regulation? Please explain.

1   **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
2 testimony, as it asks the witness to undertake additional research and analysis and develop new  
3 information as part of a data request, which is not an appropriate use of discovery. It is also  
4 seeking a legal opinion from someone who is not a lawyer. Notwithstanding the objection we  
5 provide the following response:

6   A distribution system level transactive energy system platform (or platforms), the data  
7 platform(s) supporting it, and all of the interconnected DERs and eIoT devices connected to the  
8 distribution grid, including DG and storage that is less than 5 MW in capacity<sup>23</sup> and are not  
9 participants in the ISO-NE FERC jurisdictional interstate wholesale electricity market  
10 jurisdictional distribution grid should not be subject to FERC regulation. States have exclusive  
11 jurisdiction over retail and intrastate wholesale sales of electricity and the entire distribution grid  
12 (and generally things connected to that grid, especially including DERs and eIoT devices behind  
13 retail meters) per the Federal Power Act and FERC and US Supreme Court interpretations of that  
14 law. Please see the response to Request No. EU to LGC 1-006 for more detail and citations.

15   Of course the retail market, the state jurisdictional portion of the overall market, is and will  
16 continue to be necessarily connected to the interstate wholesale markets, like the distribution grid  
17 is connected to the transmission grid, so that interface and participation in those markets would  
18 be subject to FERC regulation. Likewise, DERs including DG less than 5 MW that voluntarily  
19 chooses to participate in the FERC jurisdictional ISO New England markets are subject to FERC  
20 regulation with regard to that participation, even if they are connected to the distribution grid and  
21 are behind a retail meter. We can't think of any good reason why a market interface, respecting  
22 jurisdictional boundaries can't be drawn just like we have a clear boundary between what is  
23 FERC jurisdictional transmission facilities and what is state jurisdictional distribution facilities  
24 with the interface jointly managed and regulated.

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<sup>23</sup> Any generator 5 MW or greater in capacity in New England is required to register as a FERC jurisdictional interstate wholesale market participant with ISO New England per OP No.14, so is subject to FERC regulation.

1 **Request No. EU to LGC 1-059**                      Witness & Respondent: Samuel Nash Vautier Golding

2 **REQUEST:** Page 64, line 9: Please elaborate on the term “permission-less innovation”.

3 **RESPONSE:** Refer to Bates p. 64, footnote 23: Refer to Lynne Kiesling and Michael Giberson,  
4 "The need for electricity retail market reforms," Regulation. Fall 2017. Available online here:  
5 <https://www.cato.org/sites/cato.org/files/serials/files/regulation/2017/9/regulation-v40n3-4.pdf>

6 **Request No. EU to LGC 1-060**                      Witness & Respondent: Samuel Nash Vautier Golding

7 **REQUEST:** Page 64, line 13: Does NH offer a large enough market to drive  
8 the standardization of data exchange and market innovation? Please include comparison of NH  
9 markets versus New England, Texas and California.

10 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
11 testimony, as it asks the witness to undertake additional analysis and develop new information as  
12 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
13 objection, the witness provides the following responses:

14 New Hampshire, as a partially restructured market, is certainly behind the curve. Its relatively  
15 small size is not of particular concern, however, in the context of the question as I understand it.

16 Refer to LGC 1-061. There are numerous third-party providers of Local Flexibility Markets, for  
17 example, which have developed in mature, fully restructured organized electricity markets. My  
18 understanding is that such companies, having already developed and deployed the necessary  
19 capabilities — often with substantial public and private investment — are now actively seeking  
20 opportunities to deploy their platforms in new markets at marginal cost.

21 In other words, New Hampshire is likely in a position to “free ride” upon the leadership and  
22 hard-won lessons learned of other markets in this regard — because in the process, they have  
23 collectively created a market of proven, innovative data platform providers, in competition with  
24 one another for market share beyond the confines of their respective native domains.

1 Moreover, these are software companies. As any software market matures (i.e. become  
2 standardized in terms of functionality) it becomes a commodity. As such, software companies  
3 are naturally — and keenly! — motivated to capture sufficient market share in strategic domains  
4 so as to create a ‘network effect’ as a means to foreclose their competition. As such, providers  
5 will almost certainly view the opportunity to deploy a statewide platform in New Hampshire as a  
6 “first mover” competitive advantage in capturing and thereby unifying additional state-level  
7 markets within ISO-NE.

8 Given such context, I would be surprised if New Hampshire were unable to extract advantageous  
9 contractual concessions beyond pure pricing dimensions from qualified bidders e.g.  
10 performance-based contracting, et cetera.

11 **Request No. EU to LGC 1-061**                      **Witness & Respondent: Samuel Nash Vautier Golding**

12 **REQUEST:** Page 65, line 4: Please explain “Local Flexibility Markets” referenced in simple  
13 diagram provided.

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

18 Local flexibility markets (LFM) are a platform approach to allowing intelligent load  
19 management devices and DERs to be autonomously coordinated in a decentralized manner that  
20 is co-optimized across all the horizontal segments of the electric power system. The platform  
21 spans multiple Electric Distribution Company territories and is naturally operated by neutral  
22 third parties.

23 (Note that a market framework has to be constructed to enable this flexibility because of the lack  
24 of distribution locational marginal pricing — the advent of which will obviate transaction costs  
25 while increasing market efficiency).

1 Particularly in the context of increasing variable renewable penetration, closure of thermal power  
2 plants, and the multi-sectoral electrification that decarbonization entails (which at-scale  
3 confound forecasting and traditional planning, resource adequacy and operating regimes), active  
4 orchestration of a growing “grid edge” asset fleet enables efficient allocation of capital across all  
5 geographic and temporal dimensions — which are, generically:

- 6 1. Over the short-term and at the regional level: lessening renewable curtailment, price  
7 volatility, high voltage network congestion and ancillary service requirements;
- 8 2. Over the short- to medium-term and at the local level: lessening operational stress on existing  
9 low-voltage network components while steering investment in retail technologies and  
10 enabling services towards specific geographies where deployments create system value; and
- 11 3. Over the medium- to long-term and at both the local and regional levels: deferring and  
12 refining (i.e. minimizing stranded cost) investments in both generation capacity and low-  
13 voltage and high-voltage network upgrades.

14 Local flexibility markets are thus not only beneficial for retail customers, who receive an  
15 additional revenue stream in exchange for their demand flexibility and DER dispatch, but for the  
16 system as a whole.

17 From the perspective of an Electric Distribution Company, such markets offer the means to  
18 forego capital expenditures in favor of operational expenditures that procure products from  
19 aggregators to manage congestion on low-voltage networks. This naturally requires the utility to  
20 become a “wires only” enterprise and the evolution of a suitable regulatory regime (e.g. RIIO in  
21 the UK being one such example).

22 An electric distribution company facing network capacity constraints due to the penetration of  
23 DERs could, for example, transact with aggregators managing fleets of DER and trading  
24 capacity on the local flexibility market platform so as to curtail demand during times of  
25 congestion — or publish operating envelopes around which aggregators trade capacity with one

1 another to achieve the same operational objective. Load usage patterns are actively shaped in this  
2 fashion, within targeted geographies, to elevate the level of distributed generation  
3 interconnection that would otherwise (i.e. absent the market) require upgrades to the underlying  
4 network. Further, the development of such a platform architecture enables more granular and  
5 societally equitable marginal cost pricing approaches in comparison to cost-averaging tariff-  
6 based regimes, for example by facilitating bid-based capacity reservation tenders to manage the  
7 charging of electric vehicles (to recover the cost of the network).

8 In fully restructured electricity markets, it is natural to assume such a holistic perspective and to  
9 therefore plan and operate the system in relation to market activity across horizontal segments.  
10 The need for a market-based approach to unlocking operational flexibility is thus as widely  
11 established in the EU and Oceania as it is lacking in the USA (wherein state-level retail markets  
12 remain almost all vertically integrated or partially restructured).

13 Below are a selection of useful resources in regard to the design of Local Flexibility Markets:

- 14 • Smart Grid Task Force (of the European Commission), “*Regulatory Recommendations for*  
15 *the Deployment of Flexibility*”, 2015. Available online:  
16 [https://ec.europa.eu/energy/sites/ener/files/documents/EG3%20Final%20-](https://ec.europa.eu/energy/sites/ener/files/documents/EG3%20Final%20-%20January%202015.pdf)  
17 [%20January%202015.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/EG3%20Final%20-%20January%202015.pdf)
- 18 • CEER, “*Distribution Systems Working Group: Flexibility Use at Distribution Level*” 17 July  
19 2018. Available online: [https://www.ceer.eu/documents/104400/-/-/e5186abe-67eb-4bb5-](https://www.ceer.eu/documents/104400/-/-/e5186abe-67eb-4bb5-1eb2-2237e1997bbc)  
20 [1eb2-2237e1997bbc](https://www.ceer.eu/documents/104400/-/-/e5186abe-67eb-4bb5-1eb2-2237e1997bbc)
- 21 • INTERRFACE Consortium, “*INTERRFACE (TSO-DSO-Consumer INTERFACE*  
22 *aRchitecture) to provide innovative Grid Services for an efficient power system,*” 2020.  
23 Available online:  
24 [https://cadmus.eui.eu/bitstream/handle/1814/64505/INTERRFACE\\_D2.4\\_v1.0.pdf?sequence](https://cadmus.eui.eu/bitstream/handle/1814/64505/INTERRFACE_D2.4_v1.0.pdf?sequence=1&isAllowed=y)  
25 [=1&isAllowed=y](https://cadmus.eui.eu/bitstream/handle/1814/64505/INTERRFACE_D2.4_v1.0.pdf?sequence=1&isAllowed=y)

26 A refreshingly ‘matter of fact’ summary of many key concepts and mechanisms was (as usual)  
27 published by the Nordic Council of Ministers in the 2017 report “*Demand Side Flexibility in the*  
28 *Nordic Electricity Market from a Distribution System Operator Perspective*”, available online at:  
29 <http://norden.diva-portal.org/smash/get/diva2:1167837/FULLTEXT01.pdf> . A selection of

1 quotes follows (note that they refer to Electric Distribution Companies as Distribution System  
2 Operators, or “DSOs”):

3 *“Being a natural, regulated monopoly, the DSO cannot engage in services other than*  
4 *grid. Hence, to mobilise the full set of incentives to end users, the DSOs rely on other*  
5 *players taking a role towards end users – like energy service providers or aggregators.*  
6 *For DSOs, financial incentives are the most likely instruments. This may be in the form of*  
7 *grid tariffs, investment contributions or purchase of flexibility.*

8 *It is likely that many of the measures available to end users have a low marginal loss of*  
9 *utility. For example, EV home charging can in most cases be done during off-peak hours*  
10 *at night instead of during evening peak hours. Slow loads like hot water tanks or electric*  
11 *cables may be switched off during peak hours with no real loss of utility.*

12 *To incentivize load shifting, tariffs must include a load based element. We discuss several*  
13 *relevant models, and point out that dynamic models where the strength of the price signal*  
14 *depends on the system load, rather than the individual end user load, are more effective*  
15 *at producing network savings at low socio-economic costs than static models. Also, both*  
16 *findings from previous studies, as well as comments from DSOs, show that peak load*  
17 *problems in the grid can normally be addressed with targeted measures from a very*  
18 *limited number of end users – possibly only 10% or less than the total number of*  
19 *households. This means that targeted tariff and dynamic models will have significant cost*  
20 *efficiency advantages over static, general models.*

21 *Purchase of flexibility could be organized directly between the DSO and the end user, or*  
22 *via a third party. From a market perspective, the two models are very different. Direct*  
23 *purchase from the DSO may be the most efficient model in isolation, but will also affect*  
24 *market prices for flexibility and the possibility to develop market-driven models with*  
25 *third-party players. Hence, DSO direct purchase could be negative for developing DSR*

1           *for use in established and future system services markets at TSO level, or new market*  
2           *solutions at TSO/DSO level.”*

3 This provide the context to understand why:

- 4     • *“In CEER’s view, flexibility products should be developed in the markets, and the role of the*  
5       *DSOs would be as user of flexibility that benefits the grids, i.e. the DSO purchases flexibility*  
6       *from third parties, but does not provide it.”*<sup>24</sup>
- 7     • All four local flexibility market platforms currently deployed or under development in the  
8       EU across various member states (NODES, Piclo Flex, Enera, GOPACS) are operated by  
9       non-utility third parties to avoid the platform becoming “*monopolistic by nature*” and “*all*  
10      *projects engage or tend to engage with multiple DSOs*”.<sup>25</sup>
- 11    • Similarly, local flexibility market platforms deployed in Oceania are operated by third parties  
12      and designed to operate across multiple Electric Distribution Company territories.  
13      Greensync’s “Distributed Energy Exchange” (DeX) platform is one such example.<sup>26</sup>  
14      Designed in cooperation with 60+ stakeholders as a market platform spanning multiple  
15      Electric Distribution Companies and aggregators, I understand it to be in the early stages of  
16      deployment but apparently already managing ~500+ MW of DER and retail load flexibility  
17      (based upon somewhat dated conversations i.e. about a year ago).

18 These local flexibility market platforms are deployed, and thus evidently cost effective. Piclo  
19 Flex, to provide another example, reportedly has “200+ flexibility providers” offering “4.5 GWs  
20 of flexibility” at present.<sup>27</sup>

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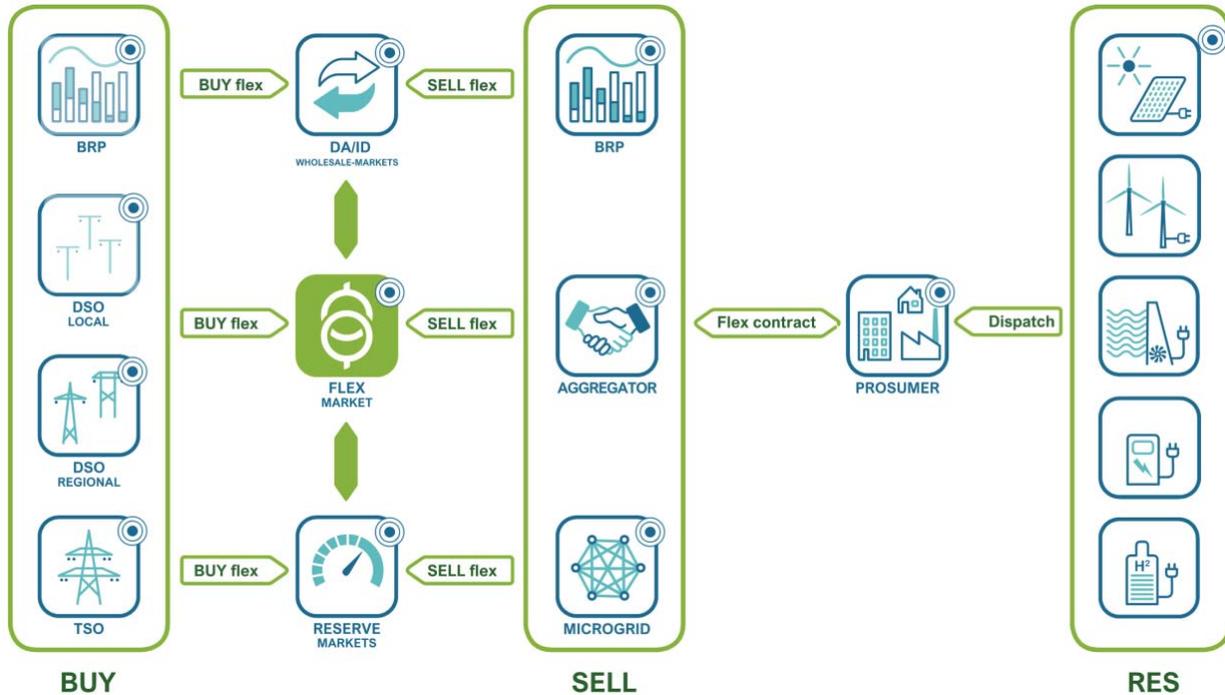
<sup>24</sup> CEER, “*Distribution Systems Working Group: Flexibility Use at Distribution Level*” 17 July 2018 at p. 10.  
Available online: <https://www.ceer.eu/documents/104400/-/-/e5186abe-67eb-4bb5-1eb2-2237e1997bbc>

<sup>25</sup> INTERFACE Consortium, “INTERFACE (TSO-DSO-Consumer INTERFACE aRchitecture) to provide  
innovative Grid Services for an efficient power system,” 2020, at page 43-44 and p. 50. Available online:  
[https://cadmus.eui.eu/bitstream/handle/1814/64505/INTERFACE\\_D2.4\\_v1.0.pdf?sequence=1&isAllowed=y](https://cadmus.eui.eu/bitstream/handle/1814/64505/INTERFACE_D2.4_v1.0.pdf?sequence=1&isAllowed=y)

<sup>26</sup> Refer online to: <https://arena.gov.au/projects/decentralised-energy-exchange/> and <https://greensync.com/>

<sup>27</sup> Refer online to: <https://picloflex.com/>

1 Whitepapers, status reports and background materials appear generally available off of each  
 2 platform’s websites. Here is a useful simplified market schema from the NORD platform:<sup>28</sup>



3  
 4 Note that these market platforms do not obviate the need for aggregators to self-provide DERMS  
 5 functionality.

6 **Request No. EU to LGC 1-062** Witness & Respondent: Samuel Nash Vautier Golding

7 **REQUEST:**

8 Page 65, lines 5-11: Please explain the following questions:

- 9 A. Should the utilities still offer energy supply for those customers who fall out of the
- 10 competitive energy market?
- 11 B. Who would coordinate the demand reduction and operation of the power system if the
- 12 distribution utilities only engage with customers for outage and interconnection requests?
- 13 C. Should regulators oversee these services outside “wires only” service?

14 **RESPONSE:**

<sup>28</sup> Refer online to: <https://nodesmarket.com/market-design/>

1 The LGC objects to this question as overly broad and beyond the scope of the testimony, as it  
2 asks the witness to undertake additional analysis and develop new information as part of a data  
3 request, which is not an appropriate use of discovery. Notwithstanding the objection, the witness  
4 provides the following responses:

5 A) Eventually, no. Fully restructured markets confine monopoly power to the domains of natural  
6 monopolies i.e. wires only. Refer to Bates p. 68.

7 B) Within a fully restructured market, demand management (“demand reduction” is an outdated  
8 concept, mind you) naturally falls to aggregators, which are entities with both the incentives  
9 and ability to do so under properly designed markets. Refer to section “*Do you expect that*  
10 *Community Power Aggregators will help to fully implement RSA 374-F?*” beginning on Bates  
11 p. 74. Electric distribution companies naturally maintain a role in the “operation of the power  
12 system”, which is a rather broad phrase. Refer to LGC 1-065 and LGC 1-061.

13 C) Yes, though in a manner that comports with Principle XIV of the New Hampshire Electric  
14 Restructuring Act i.e. primarily by ensuring the competitive market is functioning efficiently.  
15 Refer to “*How should the statewide, multi-use online energy data platform be governed?*”  
16 beginning on Bates page 82, “*What other metrics are used to track the maturity of retail*  
17 *energy markets?*” beginning on Bates page 57, and “*How are fully restructured markets*  
18 *governed in practice?*” beginning on Bates page 60.

19 **Request No. EU to LGC 1-063**                      **Witness & Respondent: Samuel Nash Vautier Golding**

20 **REQUEST:**

21 Page 77, line 4: Please elaborate on “intelligent management of distributed energy” and give  
22 examples of CPA’s currently offering these services.

23 **RESPONSE:**

24 The LGC objects to this question as overly broad and beyond the scope of the testimony, as it  
25 asks the witness to undertake additional analysis and develop new information as part of a data

1 request, which is not an appropriate use of discovery. Notwithstanding the objection, the witness  
2 provides the following responses:

3 The most advanced CPA market to date is California. The experience of municipalities there is  
4 encouraging. Nearly 200 communities have launched 15 separate agencies (most are joint action  
5 power agencies) that are self-funded and evolving rapidly while selling competitively priced  
6 electricity to 4+ million retail customers.

7 These agencies are collectively building more than 3,600 megawatts of renewable energy and  
8 storage. Several have creating comprehensive multi-sectoral decarbonization plans. Many are  
9 leveraging municipal authorities and collaborating with each other and with local and regional  
10 agencies, legislators, utilities, labor, developers and manufacturers to remove barriers to rooftop  
11 solar installations, electric vehicles and other retail innovations. One agency negotiated the siting  
12 of a new electric bus factory, creating local jobs and the nation's first all-electric bus fleet in  
13 partnership with their local transportation authority. Another submitted a lease application for  
14 California's first offshore wind project. Others are building renewable microgrids for critical  
15 facilities and business parks, and partnering with utilities and energy companies to replace a  
16 natural gas peaker plant, causing health problems in low-income communities, with storage and  
17 a virtual power plant of solar+storage deployed across low-income properties.

18 Below are a non-exhaustive variety of links regarding these CPA's current offerings and  
19 initiatives specifically pertaining to the "intelligent management of distributed energy" in  
20 operations, planning and codes and standards:

- 21 • <https://cal-cca.org/cca-programs/>
- 22 • <https://cal-cca.org/wp-content/uploads/2020/05/CCA-Resilience-Initiatives-August-2020.pdf>
- 23 • [https://www.greentechmedia.com/squared/dispatches-from-the-grid-edge/the-elusive-](https://www.greentechmedia.com/squared/dispatches-from-the-grid-edge/the-elusive-microgrid-tariff-begins-to-emerge-in-california)  
24 [microgrid-tariff-begins-to-emerge-in-california](https://www.greentechmedia.com/squared/dispatches-from-the-grid-edge/the-elusive-microgrid-tariff-begins-to-emerge-in-california)
- 25 • <https://cal-cca.org/calcca-launching-new-community-energy-innovation-webinar-series/>

- 1 • <https://cal-cca.org/ebce-launches-first-of-its-kind-home-battery-backup-program/>
- 2 • <https://cal-cca.org/inside-clean-energy-whats-a-virtual-power-plant-bay-area-consumers-will-soon-find-out/>
- 3
- 4 • <https://cal-cca.org/clean-power-alliance-approves-new-five-year-clean-energy-programs-plan/>
- 5
- 6 • <https://cal-cca.org/calchoice-associate-member-pico-rivera-innovative-municipal-energy-prime-launches-distributed-energy-resources-program/>
- 7
- 8 • <https://cal-cca.org/peninsula-silicon-valley-collaboration-recognized-for-advancing-electrification-in-building-codes-ev-infrastructure/>
- 9

10 Almost all of this progress in California has occurred since 2016. This is what rapid, cost-  
11 effective decarbonization and retail market innovation looks like in practice, in my opinion —  
12 and it is replicable, because we now know how to design Community Power Aggregations  
13 correctly, to a large extent based on the industry’s practical experience in California.

14 Community Power New Hampshire is being designed based on these proven best practices, and  
15 leveraging the insights of experts like Clifton Below and Dr. Amro M. Farid (e.g. Lebanon’s  
16 transactive energy pilot with Dartmouth College and Liberty Utilities).

17 Senate Bill 286 has given Community Power Aggregations in New Hampshire even greater  
18 authorities, and thus promises even greater ability to innovate and create value in new ways for  
19 communities going forward.

20 **Request No. EU to LGC 1-064**                      **Witness & Respondent: Samuel Nash Vautier Golding**

21 **REQUEST:**    Page 82, line 9:    Please explain who should oversee the “decentralized  
22 coordination” of the markets.

23 **RESPONSE:** I believe that the section “*How should the statewide, multi-use online energy data*  
24 *platform be governed?*” of my Direct Testimony, which starts on Bates p. 82, substantially  
25 addresses this question.

26 **Request No. EU to LGC 1-065**                      **Witness & Respondent: Samuel Nash Vautier Golding**

1   **REQUEST:** Page 83, line 19: With regard to “technical knowledge” referenced, please provide  
2   the qualifications of those with experience in power systems operation or electrical engineering  
3   who participated in the Joint Action Summit referenced on Bates Page 80.

4   **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
5   testimony, as it asks the witness to undertake additional analysis and develop new information as  
6   part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
7   objection, the witness provides the following responses:

8   Refer to Bates p. 89 through 93. There were over 80 elected officials, municipal staff and local  
9   energy committee members in attendance at the event; while I’m unsure of — let alone in  
10   possession of — all of their qualifications, among them were all the individuals that comprise  
11   this Local Government Coalition. The keynote speaker was the CEO of Silicon Valley Clean  
12   Energy Authority (a Community Choice Aggregator in California) Girish Balachandran, who is  
13   an electrical engineer with over three decades of executive leadership experience in the public  
14   power industry.

15   However, I would caution against what I perceive of as a fatal conceit within the question itself:  
16   namely, that “*technical knowledge*” at a conference for Community Power Aggregations refers  
17   solely to “*those with experience in power systems operation or electrical engineering*”.

18   The central challenge for New Hampshire and every other market going forward is as follows:

- 19   • The effective engagement of retail customers, in terms of the shaping of their load and use of  
20   intelligent end-use devices and other DERs in a manner that preserves the core mission of the  
21   industry through a period of unprecedented and interminable fundamental change for the  
22   system driven by variable renewable generation, fleet retirements and decarbonization policy.
- 23   • The effective engagement of communities, that is to say municipal governments and regional  
24   collaborations thereof and the diverse array of interest groups their decision-making naturally

1 and literally incorporates, in terms of re-orienting system planning under the aegis of these  
2 entities in their carrying out of multi-sectoral decarbonization activities.

3 In that context, I would remind all those with “*experience in power systems operation or*  
4 *electrical engineering*” of two considerations of paramount importance going forward that their  
5 domain of expertise often fails to consider:

- 6 • Customers are not meters; and
- 7 • Communities exercise a broader scope of democratic decision-making and relevant planning  
8 authorities that the electric utility industry needs to integrate into alignment with its own  
9 planning in order to effectuate multi-sectoral decarbonization.

10 The Community Power Aggregator construct is designed specifically to bridge these gaps for  
11 New Hampshire. With that in mind, refer to section “*Do you expect that Community Power*  
12 *Aggregators will help to fully implement RSA 374-F?*” beginning on Bates p. 74 and contrast its  
13 focus with that of section “*How would you characterize New Hampshire’s current retail market*  
14 *structure?*” beginning on Bates p. 68.

15 **Request No. EU to LGC 1-066**                      **Witness & Respondent: Samuel Nash Vautier Golding**

16 **REQUEST:** Page 84, line 4: How specifically do you recommend that the Commission  
17 structure governance based on the model in Texas? Who do you recommend as stakeholders in  
18 the governance process?

19 **RESPONSE:** The LGC objects to this question as overly broad and beyond the scope of the  
20 testimony, as it asks the witness to undertake additional analysis and develop new information as  
21 part of a data request, which is not an appropriate use of discovery. Notwithstanding the  
22 objection, the witness provides the following responses:

23 I believe that the section “*How should the statewide, multi-use online energy data platform be*  
24 *governed?*” of my Direct Testimony, which starts on Bates p. 82, along with the section “*How*

1 *are fully restructured markets governed in practice?”*, which starts on Bates p. 60, and the  
2 attachments from Bates p. 99 through 128, substantially addresses this question.

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

4 **A. Yes.**