# UNITIL ENERGY SYSTEMS, INC.

**DIRECT TESTIMONY** 

**OF** 

KEVIN E. SPRAGUE

**EXHIBIT KES-1** 

New Hampshire Public Utilities Commission

Docket No. DE 22-\_\_\_\_

# **Table of Contents**

I.	INTRODUCTION	1
II.	PROJECT OVERVIEW AND OBJECTIVES	4
III.	OVERVIEW OF STATUTORY REQUIREMENTS	. 13
IV.	COMPLIANCE WITH STATUTORY REQUIREMENTS	. 17
V.	PROPOSAL FOR TWO-STAGE REGULATORY REVIEW PROCESS	. 30
VI.	CONCLUSION	. 33

#### I. INTRODUCTION

- 2 Q. Mr. Sprague, would you please state your name and business address?
- 3 A. My name is Kevin E. Sprague. My business address is 6 Liberty Lane West,
- 4 Hampton, New Hampshire 03842.
- 5 Q. What is your position and what are your responsibilities?
- 6 A. I am Vice President of Engineering for Unitil Service Corporation, which is a
- subsidiary of Unitil Corporation that provides managerial, financial, regulatory and
- 8 engineering services to Unitil Corporation's principal utility subsidiaries, including
- 9 Unitil Energy Systems, Inc. ("UES" or the "Company"). In this capacity, I manage
- all of the Company's engineering functions, including electric engineering, gas
- engineering, computer-aided design and drafting, Geographic Information Systems,
- and management of utility-owned land and property.
- 13 Q. Please describe your business and educational background.
- 14 A. I have been employed by Unitil Service Corporation for approximately 26 years. I
- was originally hired as an Associate Engineer in the Electric Distribution
- Engineering group. I have held the positions of Engineer, Distribution Engineer,
- Manager of Distribution Engineering, Director of Engineering and now Vice
- 18 President of Engineering. I accepted the Vice President of Engineering position in
- January of 2019. I hold a Bachelor of Science degree in Electric Power Engineering
- from Rensselaer Polytechnic Institute and a Master of Business Administration
- degree from the University of New Hampshire.

1 O. Do you have any licenses that qualify you to speak to issues related to 2 engineering? 3 A. Yes. I am a registered Professional Engineer in the State of New Hampshire and 4 the Commonwealth of Massachusetts. 5 Have you previously testified before the New Hampshire Public Utilities Q. 6 Commission (the "Commission"), or other regulatory agencies? 7 A. Yes, I have testified on several occasions before the Commission, the Maine Public 8 Utilities Commission, and the Massachusetts Department of Public Utilities. Most 9 recently, I testified in Docket No. DE 21-030, the Company's distribution rate case; 10 DE 22-026, the Company's Petition for Approval of Step adjustment; DG 21-104, 11 Northern Utilities Inc.'s distribution rate case; and DG 22-020, Northern Utilities 12 Inc.'s Petition for Approval of Step Adjustment. 13 Q. What is the purpose of your testimony, and how is it organized? 14 A. My testimony summarizes and supports the Company's proposed 4.99 megawatt ("MW") alternating current ("AC" or "ac") utility-scale photovoltaic ("PV" or 15 16 "solar") generating facility located in Kingston, New Hampshire (the "Kingston 17 Solar Project," or the "Project"). As discussed throughout this filing, the Company 18 seeks the Commission's approval of the proposed Project, which UES will 19 construct, operate, and own pursuant to New Hampshire Revised Statutes Annotated 20 ("RSA") 374-G. Specifically, UES requests:

1. A finding by the Commission that this filing meets the minimum

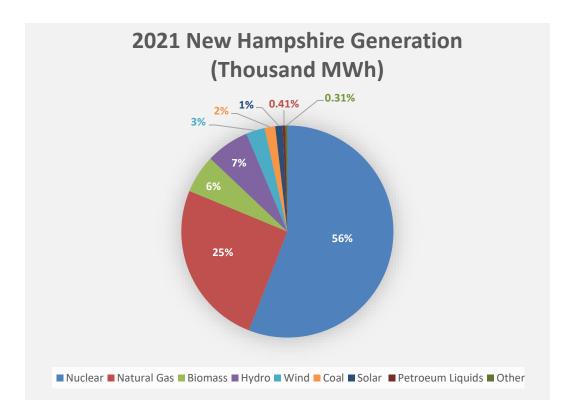
1		requirements set forth in RSA 374-G:5, I;
2 3		2. A finding that the proposed Kingston Solar Project is in the public interest pursuant to RSA 374-G:5, II; and
4 5		3. Approval of the Company's proposed two-stage regulatory review framework.
6		Section II of my testimony provides an overview of the proposed Kingston Solar
7		Project and the Company's purpose and objectives in undertaking this investment.
8		Section III provides an overview of RSA 374-G and its specific requirements.
9		Section IV explains how the Project meets the requirements of RSA 374-G. Section
10		V describes the Company's proposal for a two-stage regulatory review framework
11		for the Project and Section VI is the conclusion.
12	Q.	Please identify the witnesses presented by UES in this proceeding and the areas
13		that will be addressed by their testimony.
14	A.	In addition to my testimony, the Company is submitting testimony, with
17	Α.	in addition to my testimony, the company is satisficantly, with
15	A.	accompanying exhibits, by the following witnesses:
	A.	
15	A.	accompanying exhibits, by the following witnesses:
15 16	A.	accompanying exhibits, by the following witnesses:  Jacob S. Dusling (Exhibit JSD-1): Mr. Dusling is a Principal Engineer for Unitil
15 16 17	A.	accompanying exhibits, by the following witnesses:  Jacob S. Dusling (Exhibit JSD-1): Mr. Dusling is a Principal Engineer for Unitil Service Corporation. Mr. Dusling's testimony presents an overview of the Kingston
15 16 17 18	A.	accompanying exhibits, by the following witnesses:  Jacob S. Dusling (Exhibit JSD-1): Mr. Dusling is a Principal Engineer for Unitil Service Corporation. Mr. Dusling's testimony presents an overview of the Kingston Solar Project, a description of the process undertaken to select the proposed location
15 16 17 18 19	A.	accompanying exhibits, by the following witnesses:  Jacob S. Dusling (Exhibit JSD-1): Mr. Dusling is a Principal Engineer for Unitil Service Corporation. Mr. Dusling's testimony presents an overview of the Kingston Solar Project, a description of the process undertaken to select the proposed location for the facility, the competitively procured design, permitting, and construction

1 Andre J. Francoeur, Todd R. Diggins, Christopher J. Goulding, and Jeffrey M. Pentz 2 (Exhibit FDGP-1): Mr. Francoeur is the Manager of Financial Planning and 3 Analysis for Unitil Service Corporation. Mr. Diggins is the Treasurer and Director of Finance for Unitil Service Corporation. Mr. Goulding is the Director of Rates & 4 5 Revenue Requirements for Unitil Service Corporation. And Mr. Pentz is a Senior 6 Energy Analyst with Unitil Service Corporation. The joint testimony and exhibits 7 of Messrs. Francoeur, Diggins, Goulding, and Pentz present the Benefit-Cost Analysis for the Kingston Solar Project, a discussion of the Project's estimated costs 8 9 and direct benefits, and a calculation of the estimated bill impacts. 10 Carrie Gilbert and Kevin Pierce (Exhibit GPP-1): Ms. Gilbert is a Managing 11 Consultant with Daymark Energy Advisors ("Daymark") and Mr. Pierce is a Senior 12 Consultant with Daymark. The joint testimony and exhibits of Ms. Gilbert and Mr. 13 Pierce presents a detailed discussion of the estimated indirect benefits derived from 14 the Project and provides a quantification of those benefits. 15 II. PROJECT OVERVIEW AND OBJECTIVES 16 0. What is the current state of solar development in New Hampshire? 17 A. According to ISO New England ("ISO-NE") there was 157 MWs of solar generation capacity installed in New Hampshire in 2021. Of that amount, the vast majority 18

<sup>1</sup> ISO-NE, 2022 CELT Report, available at <a href="https://www.iso-ne.com/system-planning/system-plans-studies/celt">https://www.iso-ne.com/system-planning/system-plans-studies/celt</a>.

(136 MWs) was comprised of small capacity, behind-the-meter solar facilities.<sup>2</sup>

As shown in the chart below, solar generation currently represents only a very small portion (1.1 percent) of New Hampshire's electricity generation. Conversely, over half is generated by nuclear energy and approximately 25 percent is generated by natural gas.



Source: EIA, Electricity Data Browser<sup>3</sup>

Unsurprisingly, because most of the solar capacity installed in New Hampshire is comprised of small-capacity projects (as noted above), most solar electricity

1

2

3

4

5

6

7

8

<sup>&</sup>lt;sup>2</sup> I<u>d</u>.

<sup>&</sup>lt;sup>3</sup> https://www.eia.gov/electricity/data/browser/

generated (MWh) in the Granite State comes from them.

1

2

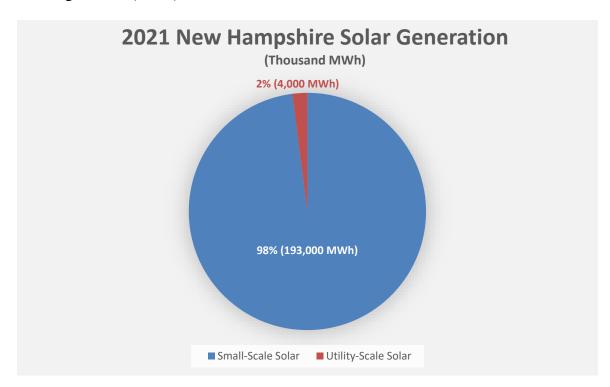
4

5

6

7

8



3 Source: EIA, Electricity Data Browser<sup>4</sup>

Taking a broader view, according to data from the United States Energy Information Administration, New Hampshire ranks 47th among all states (and Washington D.C.) in the amount of electricity produced by large capacity, utility-scale solar projects.<sup>5</sup> In short, New Hampshire has significant untapped potential in the utility-scale solar sector that remains to be unlocked for the benefit of customers.

<sup>&</sup>lt;sup>4</sup> https://www.eia.gov/electricity/data/browser/

<sup>&</sup>lt;sup>5</sup> EIA, Electricity Data Browser, <a href="https://www.eia.gov/electricity/data/browser/">https://www.eia.gov/electricity/data/browser/</a> (Net Generation for Utility-Scale Solar). EIA defines utility scale solar as installations with a capacity greater than 1 MW. Through Q2 2022, the Solar Energy Industries Association ("SEIA") ranks New Hampshire 40<sup>th</sup> out of all 50 states and Washington D.C., for solar development. SEIA, Solar State By State, <a href="https://www.seia.org/states-map">https://www.seia.org/states-map</a>.

Q. How does the cost of small capacity, behind-the-meter solar compare with large, utility scale projects?

1

2

11

12

13

14

15

16

17

18

3 One of the goals set forth in the Department of Energy's ("DOE") Ten-Year Energy A. 4 Strategy for New Hampshire ("Energy Strategy") is to achieve environmental protection that is cost-effective and promotes economic growth.<sup>6</sup> According to 5 DOE's Energy Strategy, the cost of new utility-scale solar has fallen by 90 percent 6 7 in the last 12 years. And as of 2021, the "all in" unsubsidized cost of utility-scale solar is significantly less than the estimated cost for small capacity rooftop solar 8 Thus, generally speaking, utility-scale PV projects are more cost-9 10 effective than small-scale solar installations.

### Q. Why is the Company undertaking the Project at this time?

A. The Kingston Solar Project supports Unitil Corporation's approach to developing a sustainable future. That approach encompasses a broad set of objectives, including providing superior customer service, affordable rates, and service to our communities; environmental stewardship; a steadfast commitment to safety; and the growth and well-being of our employees. The Company's proposal in this proceeding is an extension of that approach, and a meaningful long-term commitment to addressing New Hampshire's climate objectives in a manner that is

 $<sup>^6\,</sup>$  DOE, New Hampshire 10-Year Energy Strategy at 7, 18, 21-22 (July 2022)

<sup>&</sup>lt;sup>7</sup> DOE, New Hampshire 10-Year Energy Strategy at 47, 51 (July 2022).

<sup>&</sup>lt;sup>8</sup> DOE, New Hampshire 10-Year Energy Strategy at 46 (July 2022) <u>citing Lazard</u>, "Lazard's Levelized Cost of Energy Analysis – Version 15.0".

1 cost-effective and enables economic growth. 2 Utility-scale renewable energy projects provide tangible benefits to customers, the 3 electric distribution system, and the environment. These benefits include reductions 4 to purchased energy, peak demand and lines losses, and offsets to greenhouse gas 5 ("GHG") emissions that otherwise would be emitted from the burning of fossil fuels. 6 As I noted above, utility-scale solar is more cost-effective than small capacity, 7 residential PV installations. Also, solar projects developed and owned by regulated 8 utility companies provide transparency to regulators and other stakeholders in terms 9 of development and construction costs, and allow customers to receive benefits that 10 otherwise would flow to a private developer or a tax equity investor. 11 The Company has core competencies in engineering, electrical design, and 12 interconnection, which can all be brought to bear in the development of a utility-13 scale solar project for the benefit of customers. In addition, utility-owned solar is an 14 efficient way to deploy solar generation because the Company can cost-effectively 15 procure, finance, and construct large-scale PV facilities. 16 Lastly, utility-scale solar provides customers that might not otherwise have the 17 financial resources or access to the necessary space to develop a project of their own 18 with the benefits of solar generation. 19 In summary, the Company is in a unique position to provide customers with the 20 benefits of clean, renewable generation at a lower cost than small capacity,

1 residential installations—which have been the predominant source of solar 2 generation in the Granite State—and deliver benefits that would not otherwise be 3 available if the Project were developed by a private entity. 4 Q. Are there any specific factors contributing to the timing of this proposed 5 investment? 6 A. Yes. The Inflation Reduction Act ("IRA"), signed into law on August 16, 2022, 7 extends energy investment tax credit ("ITC") for solar electricity production facilities beginning construction before January 1, 2025. The ITC solidifies the 8 9 economics of utility-owned solar projects by increasing the overall benefit flowing 10 to customers. As discussed in the testimony of Messrs. Francoeur, Diggins, Goulding, and Pentz, 11 12 the Company has modeled the ITC as a credit to customers on a ratable basis over 13 the projected life the asset. However, the Company continues to explore options to 14 maximize the value of the ITC for customers. For example, the IRA authorizes 15 taxpayers to transfer the ITC to other taxpayers in exchange for cash. This structure 16 could potentially reduce the amount of capital that UES would otherwise include in 17 rate base, which in turn would increase the Project's already positive benefits to 18 customers. 19 Does the Company have experience in developing utility-scale solar projects? Q. 20 A. Yes. The Company has a demonstrated track record of developing utility-scale solar. 21 The Company's affiliate, Fitchburg Gas and Electric Light Company ("FG&E"),

2 on FG&E property located at 115 Sawyer Passway in Fitchburg Massachusetts (the 3 "Sawyer Passway Project"). 4 In August 2016, the Company petitioned the Massachusetts Department of Public 5 Utilities ("MDPU") for approval of the Sawyer Passway Project pursuant to G.L. c. 164, § 1A(f). FG&E, the Attorney General of Massachusetts, and the Low-Income 6 7 Weatherization and Fuel Assistance Program Network entered into a settlement 8 agreement for approval of the Sawyer Passway Project, which the MDPU approved 9 on November 9, 2016. The Sawyer Passway Project began generating electricity on 10 November 22, 2017 and the facility has been operating as designed, and providing 11 benefits to our Massachusetts customers since then. 12 Q. Please provide an overview of the Kingston Solar Project. 13 A. The proposed Project is a 4.99 MWac utility-scale solar generating facility that will

developed a 1.3 MW solar generating facility, consisting of over 3,700 solar panels,

٠

14

15

16

1

be located at 2 Mill Road in Kingston, New Hampshire. 10 This property is located

adjacent to the Company's Kingston substation. The Company plans to deploy

single axis tracking technology<sup>11</sup> and the Project's annual energy output is expected

<sup>&</sup>lt;sup>9</sup> The MDPU docketed this matter as D.P.U. 16-148.

<sup>&</sup>lt;sup>10</sup> As discussed in the testimony of Mr. Dusling, the estimated direct current capacity for the Kingston Solar Project is 6.15 MW.

<sup>&</sup>lt;sup>11</sup> Single-axis solar trackers rotate on a single point over the course of the day, adjusting the position of the solar modules to track the sun from east to west. Single axis tracker technology increases energy production, and the attendant benefits, compared to a fixed-tilt solar system.

to average 8,904 MWh over the life of the project, at an assumed capacity factor<sup>12</sup> of approximately 22 percent.

As demonstrated throughout this filing, the Project's benefits outweigh its costs, and it is in the public interest. The Project will generate revenues and credits from renewable energy certificates ("RECs") and the federal ITC, all of which will accrue to the Company's customers. The Project also will generate additional tax revenue for the local community and environmental benefits for all customers, and the State, in the form of reduced GHG emissions.

In addition, the Company plans to operate the Kingston Solar Project as a "load reducer," which means the Project's electric generation output will be delivered directly into the UES electric distribution system. In that respect, the Project will not participate in the ISO-NE wholesale market. <sup>13</sup> As a result, the Kingston Solar Project will yield benefits to customers by reducing energy received by UES from the transmission system for a given level of customer demand, thereby reducing overall supply and transmission costs. As such, the Kingston Solar Project will be a valuable asset in the context of the Company's overall transmission and

\_

<sup>&</sup>lt;sup>12</sup> As discussed in the testimony of Mr. Dusling, capacity factor is the ratio of actual electrical energy produced by a generating unit to the electrical energy that could have been produced at continuous full power operation during the same period.

<sup>&</sup>lt;sup>13</sup> ISO-NE's Operating Procedure No. 14 allows any generating facility with a nameplate capacity between one to five megawatts to operate as a load reducer in the region as long as the facility does not participate in any ISO-NE markets. ISO New England Operating Procedure No. 14 – Technical Requirements for Generators, Demand Response Resources, Asset Related Demands and Alternative Technology Regulation Resources (Effective May 13, 2022).

- distribution strategy. The Company provides a more detailed discussion of these transmission and distribution benefits in the testimony of Mr. Dusling and a quantification of these benefits in the testimony and accompanying exhibits of Messrs. Francoeur, Diggins, Goulding, and Pentz.
- 5 Q. Could this investment defer any distribution or transmission project investment?

A. Yes, the added capacity of the Project will have the effect of deferring the next capacity addition. However, in the short term, it is not designed to directly defer transmission or distribution investment. Siting a utility-scale PV facility involves balancing two competing interests: (1) constructing the facility closer to the source substation (thereby reducing interconnection costs), and (2) locating the facility further out on the distribution system where a capacity constraint may exist (thereby increasing interconnection costs). In this case, the Project is located directly adjacent to UES's Kingston Substation, which minimizes the cost for interconnection, and the costs of the Project overall. The Benefit-Cost Analysis presented in the joint testimony of Messrs. Francoeur, Diggins, Goulding, and Pentz does not include any estimated benefit for deferring capital investment.

- Q. Has the Company conducted a Benefit-Cost Analysis to determine whether the
- 2 benefits of the proposed investment are greater than the costs?
- A. Yes. As discussed in the joint testimony of Messrs. Francoeur, Diggins, and Goulding, and Pentz, and shown in Exhibit FDGF-2, Schedule 1, the present value of the project's direct benefits is approximately \$17.73 million and the present value of the costs is approximately \$16.31 million. This produces a Benefit-Cost ratio of 1.09, which demonstrates that this is a sound investment and in the best interest of customers. When indirect benefits are also considered, those (indirect) benefits further enhance the Project's viability.

#### 10 III. OVERVIEW OF STATUTORY REQUIREMENTS

- 11 Q. Would you please provide an overview of RSA 374-G.
- 12 A. The New Hampshire General Court enacted RSA 374-G to encourage public electric
  13 utilities to invest in Distributed Energy Resources ("DERs"), which can increase
  14 overall energy efficiency and provide energy security and diversity to New
  15 Hampshire's electricity supply by eliminating or displacing traditional fossil fuels. 14

The law permits utilities to own electric generation equipment, including solar generation, with a limit of 5 MW on individual projects and a total cap on deployments at 6 percent of the utility's peak load in megawatts. <sup>15</sup> RSA 374-G

-

<sup>&</sup>lt;sup>14</sup> RSA 374-G:1.

<sup>&</sup>lt;sup>15</sup> RSA 374-G:2(I)(b), (d); RSA 374-G:4.

1 further provides that the purposes of a solar generation project include, but are not 2 limited to, reducing line losses, supporting voltage regulation, or peak load shaving, as part of a strategy for minimizing transmission and distribution costs. <sup>16</sup> In addition, 3 4 the energy produced by a solar generation project must be used for one of the 5 following three purposes: (1) to benefit low-income customers, (2) as an offset to 6 distribution system losses or the utility's own use, or (3) any other use as approved by the Commission.<sup>17</sup> 7 8 Utilities are authorized to recover their investment in DERs through base 9 distribution rates, provided the Commission determines the investment is in the "public interest." 18 Utilities are also authorized to recover all reasonable costs 10 11 associated with filing for approval of a proposed DER project. 19 12 Q. Have there been any DER investments proposed and approved pursuant to 13 **RSA 374-G?** 14 A. Although the statute has been used sparingly, there are two examples of DER 15 projects that have been proposed and approved by the Commission pursuant to RSA 16 374-G. UES was the first public utility to propose DER projects pursuant to RSA 17 374-G.

<sup>&</sup>lt;sup>16</sup> RSA 374-G:2(I)(b). In accordance with this provision, the Company is seeking recovery for the costs associated with filing for approval of the Kingston Solar Project through Schedule EDC.

<sup>&</sup>lt;sup>17</sup> RSA 374-G:3, I.

<sup>&</sup>lt;sup>18</sup> RSA 374-G:5, II, III.

<sup>&</sup>lt;sup>19</sup> RSA 364-G:5, III.

1 In 2009, UES filed for approval to develop three DER projects pursuant RSA 374-2 G: (1) a solar water heating system; (2) a 39 kW solar PV facility; and (3) a combined 100 kW solar PV facility and 65 kW micro-turbine. <sup>20</sup> UES later withdrew 3 4 the proposed solar water heating system from the case and the 39 kW solar PV 5 facility was not approved because, among other things, its benefit/cost ratio (0.52) with only direct benefits and 0.84 including indirect benefits) was found to be too 6 7 low. 21 The Commission found the combined solar PV-micro-turbine project to be in the public interest and approved it.<sup>22</sup> 8 9 More recently, in 2017, Granite State Electric Corp. d/b/a Liberty Utilities 10 ("Liberty") filed the second proposal pursuant to RSA 374-G, and requested 11 approval of a battery storage pilot program designed to achieve customer savings 12 through peak load reductions. On January 17, 2019, the Commission approved 13 Liberty's proposal (subject to certain conditions and limitations) as part of a settlement agreement.<sup>23</sup> 14 15 Q. Does RSA 374-G provide specific criteria that the Commission must consider 16 to determine if a DER project is in the "public interest"? 17 Yes. Section II of RSA 374-G:5 provides that in determining whether a proposed A. 18 DER project is in the public interest, the Commission must give balanced

<sup>20</sup> DE 09-137, Order No. 25,111, at 7, 8, 11, 37.

<sup>&</sup>lt;sup>21</sup> DE 09-137, Order No. 25,111, at 11, 37.

DE 09-137, Order No. 25,111, at 37; Attachment 2 of 2. Unitil invested approximately \$200,000 in the 100 kW solar array located at a high-school in Exeter. *Unitil Invests in the Community through Exeter Solar Array*, https://unitil.com/news/unitil-invests-community-through-exeter-solar-array.

<sup>&</sup>lt;sup>23</sup> DE 17-189, Order No. 26,209, at 39-40.

1		consideration and proportional weight to the following nine factors:
2 3 4 5		<ul> <li>a. The effect on the reliability, safety, and efficiency of electric service;</li> <li>b. The efficient and cost-effective realization of the purposes of the renewable portfolio standards of RSA 362-F and the restructuring policy principles of RSA 374-F:3;</li> </ul>
6		c. The energy security benefits of the investment to New Hampshire;
7 8		<ul> <li>d. The environmental benefits of the investment to the state of New Hampshire;</li> <li>e. The economic development benefits and liabilities of the investment to New</li> </ul>
9		Hampshire;
10 11		f. The effect on competition within the region's electricity markets and the state's energy services market;
12 13 14		g. The costs and benefits to the utility's customers, including but not limited to a demonstration that the company has exercised competitive processes to reasonably minimize costs of the project to ratepayers and to maximize
15		private investment in the project;
16 17		h. Whether the expected value of the economic benefits of the investment to the utility's ratepayers over the life of the investment outweigh the economic
18 19		<ul><li>costs to the utility's ratepayers; and</li><li>i. The costs and benefits to any participating customer or customers.</li></ul>
20	Q.	Does RSA 374-G set forth any additional requirements for seeking rate
21		recovery for DER investments?
22	A.	Yes. Section I of RSA 374-G:5 provides that, at a minimum, the filing must include
23		the following seven elements:
24		a. A detailed description and economic and environmental evaluation of the
25		proposed investment;
26		b. A discussion of the costs, benefits, and risks of the proposal with specific
27		reference to the nine public interest factors, including an analysis of the
28 29		costs, benefits, and rate implications to the participating customers, to the company's default service customers, and to the utility's distribution
30		customers;
31		c. A description of any equipment or installation specifications, solicitations,
32		and procurements it has or intends to implement;
33		d. A showing that the utility has used a competitive bidding process to
34		reasonably minimize the costs of the project to its customers;
35		e. A showing that it has made reasonable efforts to involve local businesses in
		its program;

1 2 3		<ul> <li>f. Evidence of compliance with any applicable emission limitations; and</li> <li>g. A copy of any customer contracts or agreements to be executed as part of the program.</li> </ul>
4	IV.	COMPLIANCE WITH STATUTORY REQUIREMENTS
5	Q.	Does the Company's filing meet the minimum requirements set forth in RSA
6		374-G:5, I?
7	A.	Yes, as summarized below and described in the testimonies and exhibits submitted
8		with this filing, the Company's proposal meets each of the seven minimum filing
9		requirements set forth in Section I of RSA 374-G:5.
10 11		RSA 374-G:5, I(a), A detailed description and economic and environmental evaluation of the proposed investment.
12		The Company has conducted a detailed Benefit-Cost Analysis, which includes the
13		economic costs and benefits of the Kingston Solar Project as well as the expected
14		environmental benefits. Consistent with this statutory requirement, this "economic
15		and environmental evaluation" is described in Exhibit FDGP-1 and the quantitative
16		analysis is provided as Exhibit FDGP-2. In addition, the Company's consultant
17		(Daymark) has quantified the avoided CO2 and NOx benefits of the Project in
18		Exhibit GPP-1 and GPP-2.

1 2 3 4	RSA 374-G:5, I(b), A discussion of the costs, benefits, and risks of the proposal with specific reference to the nine public interest factors, including an analysis of the costs, benefits, and rate implications to the participating customers, to the company's default service customers, and to the utility's distribution customers.
5	As noted above, the Company provides a discussion of the costs and benefits of the
6	Kingston Solar Project in Exhibit FDGP-1 and the accompanying quantitative
7	analysis is presented in Exhibit FDGP-2. The Kingston Solar Project will benefit all
8	customers, including low-income customers who otherwise might not have the
9	means to access the benefits of solar energy.
10	With regard to risks, the Company has not identified any material risks to the
11	proposal. Utility-scale solar projects are well established and the technology is
12	mature, reliable, proven, and well understood. Also, as noted above, in recent years
13	solar costs have declined significantly.
14	The Company is aware that supply chain challenges and cost escalation could have
15	an impact on the Benefit-Cost Analysis (Exhibit FDGP-2). The Company has
16	attempted to minimize this risk by working through a competitive bidding process,
17	including a request for information and preliminary request for proposals, to gather
18	the most up to date pricing and schedule information for use in the Benefit-Cost
19	Analysis.
20	Regarding estimated bill impacts, those are discussed in Exhibit FDGP-1 in Section
21	V and the supporting calculations are presented in Exhibit FDGP-3.

1 2	RSA 374-G:5, I(c), A description of any equipment or installation specifications, solicitations, and procurements it has or intends to implement.
3	The Company conducted a competitive request for proposals ("RFP") process to
4	procure the services of a firm to assess potential development sites, conduct site due
5	diligence, obtain the necessary permits, and design a "pad-ready" site that will
6	include the specifications and construction requirements for tree clearing, access
7	road construction, drainage, and final site grading.
8	The Company issued a Request for Information ("RFI") in February 2022. In
9	response, several engineering, procurement, and contracting ("EPC") bidders
10	provided descriptions of equipment and installation examples of layout, design, and
11	construction packages. The Company used this information to perform a preliminary
12	analysis to determine the feasibility of the Project.
13	The Company then issued a Preliminary RFP in September 2022 to obtain updated,
14	detailed cost estimates for this filing, which are reflected in the testimony and
15	exhibits presented by Messrs. Francoeur, Diggins, Goulding, and Pentz.
16	The Company plans to issue a "Civil Construction RFP" for a contractor to make
17	the site "pad-ready," which includes tree clearing, access road construction,
18	drainage, and final site grading.
19	The Company will issue a Final RFP to select an EPC contractor to construct the
20	facility if the Commission finds that the Kingston Solar Project is in the public
21	interest in this first stage.

1	Mr. Dusling's testimony (Exhibit JSD-1) provides additional detail regarding both
2	completed and future, planned procurements and describes the equipment the
3	Company intends to install as part of the Kingston Solar Project.
4 5	RSA 374-G:5, I(d), A showing that the utility has used a competitive bidding process to reasonably minimize the costs of the project to its customers.
6	This factor overlaps with the preceding criterion in that both focus, in part, on
7	competitive solicitations. As summarized above, and discussed in detail in Mr.
8	Dusling's testimony, the Company conducted a competitive RFP process and
9	procured the services of a firm to assess potential development sites, conduct site
10	due diligence, obtain the necessary permits, and design a "pad-ready" site that will
11	include the specifications and construction requirements for tree clearing, access
12	road construction, a drainage facility, and final site grading. The Company will also
13	issue a "Civil Construction RFP" for a contractor to make the site "pad-ready" and
14	a final RFP for an EPC contractor to build the PV facility.
15 16	RSA 374-G:5, I(e), A showing that it has made reasonable efforts to involve local businesses in its program.
17	The Company has contacted the Town of Kingston Select Board to provide an
18	overview of the planned Kingston Solar Project and will continue to engage with
19	the Town of Kingston through design and permitting, and keep local officials
20	apprised of project status.
21	Through the competitive bidding process, the Company selected TF Moran, a New
22	Hampshire based firm, to assess potential development sites, conduct site due

1	diligence, obtain the necessary permits, and design a "pad-ready" site that will
2	include the specifications and construction requirements for tree clearing, access
3	road construction, drainage, and final site grading.
4	The Company intends to use local civil and land clearing contractors for the civil
5	portion (e.g., land clearing, grading, etc.) of facility construction. Further, the
6	Company will require all prospective EPC contractors to provide a plan to utilize
7	local employees, suppliers, and contractors to construct the facility.
8 9	RSA 374-G:5, I(f), Evidence of compliance with any applicable emission limitations.
10	Solar generation does not produce any emissions and therefore this requirement is
11	not applicable to the Company's planned Kingston Solar Project.
12 13	RSA 374-G:5, $I(g)$ , A copy of any customer contracts or agreements to be executed as part of the program.
14	There are no customer contracts to be executed as part of the Company's proposed
15	Project. The Company views this as a favorable structure because customers do not
16	need to affirmatively enter into contracts, and assume the attendant duties and
17	obligations, in order to receive the benefits produced by the Kingston Solar Project.
18	The Company plans to operate the Kingston Solar Project as a load reducer, meaning
19	the energy produced by the facility will be delivered directly into the Company's
20	electric distribution system and used to reduce energy received by UES from the
21	transmission system. The Project will generate RECs that will be used to meet
22	Electric Renewable Portfolio Standard ("RPS") obligations or sold into the

market.<sup>24</sup> As discussed in the joint testimony of Messrs. Francoeur, Diggins, 1 2 Goulding and Pentz, revenues received from the sale of the project's RECs will be 3 credited to all customers. 4 Q. Does the proposed Kingston Solar Project meet the public interest standard set 5 forth in RSA-G:5, II? 6 A. Yes, as summarized below, and presented in the other testimonies and exhibits in 7 the Company's filing, the Kingston Solar Project meets each of the nine public 8 interest factors set forth in Section II of RSA 374-G:5. 9 RSA 374-G:5, II(a), The effect on the reliability, safety, and efficiency of electric 10 service. One of the goals set-forth in DOE's Ten-Year Energy Plan is to ensure a secure, 11 reliable, and resilient energy system.<sup>25</sup> Consistent with this goal, the Company is 12 13 committed to ensure that its customers continue to receive high quality, safe, and 14 reliable electric service. As discussed in the testimony of Mr. Dusling, the Company 15 will take all appropriate steps to ensure the Kingston Solar Project does not adversely impact the reliability, efficiency, and safety of electric service. The 16 17 Company will complete a System Impact Study to identify any system 18 improvements required to ensure the safe and reliable interconnection of the Project 19 with the Company's distribution system. A System Impact Study is a standard

New Hampshire's RPS statute, RSA 362-F, requires each electricity provider to meet customer load by purchasing or acquiring certificates representing generation from renewable energy based on total megawatt-hours supplied.

<sup>&</sup>lt;sup>25</sup> DOE, New Hampshire 10-Year Energy Strategy at 47, 51 (July 2022).

1 approach for any facility of this size interconnecting with the Company's 2 distribution system. 3 The Company also intends to install protective devices at the point of 4 interconnection to determine whether any additional protection upgrades/relays are 5 necessary, and to ensure all system components are compliant with industry 6 standards, applicable codes and safety standards. 7 The Company is confident, through its experience with its utility scale solar 8 installation in Massachusetts as well as the many customer-owned solar facilities 9 connected to the distribution system, that the Kingston Solar Project will be operated 10 in a safe, reliable and efficient manner. 11 RSA 374-G:5, II(b), The efficient and cost-effective realization of the purposes of the renewable portfolio standards of RSA 362-F and the restructuring policy 12 principles of RSA 374-F:3. 13 14 The General Court described the objectives of the state's renewable portfolio 15 standard as "displac[ing] and thereby lower[ing] regional dependence on fossil 16 fuels," which "has the potential to lower and stabilize future energy costs by 17 reducing exposure to rising and volatile fossil fuel prices." RSA 362-F:1. The 18 General Court further stated that "employing low emission forms of such 19 technologies can reduce the amount of greenhouse gases, nitrogen oxides, and 20 particulate matter emissions transported into New Hampshire and also generated in 21 the state, thereby improving air quality and public health, and mitigating against the 22 risks of climate change." Id. The Kingston Solar Project is consistent with these 23 purposes because it will displace fossil fuel generation with clean renewable

1	electricity, reduce GHG emissions, and help mitigate against the risk of climate
2	change.
3	Also, with regard to RSA 362-F, and the state RPS in particular, the Project will
4	generate Class II RECs, which supports the REC market. As explained in the
5	testimony of Messrs. Francoeur, Diggins, Goulding, and Pentz, revenues from the
6	sale of RECs will be credited to all customers.
7	With regard to restructuring policy principles, the Kingston Solar Project plainly
8	advances the principles of environmental sustainability and improvement (RSA
9	374-F:3, VIII), and increased use of cost-effective renewable energy technologies
10	(RSA 374-F:3, IX). As proposed, the Project does not interfere with customer choice
11	(RSA 374-F:3, II), and benefits all consumers equitably (RSA 374-F:3, VI). The
12	Project is also, as discussed above, consistent with a strategy for minimizing
13	transmission and distribution costs (RSA 374-F:3, III).
14 15	RSA 374-G:5, II(c), The energy security benefits of the investment to New Hampshire.
16	Reduced reliance on fossil fuels furthers the objective of energy security because
17	solar generation—once constructed—is not subject to volatile fuel prices, such as
18	natural gas.
19	Natural gas is the predominant fuel used for electric generation in New England,

representing 53 percent of the electricity produced in 2021. 26 Consequently, the 1 2 price of natural gas sets the electricity market price most of the time in ISO-NE. 3 Volatile natural gas prices, particularly in the winter, have an immediate effect on 4 wholesale electricity prices, and due to constrained pipeline capacity into the New 5 England region and the resulting dependence on imported liquefied natural gas, 6 natural gas prices are likely to remain volatile unless and until regional supply and demand for natural gas comes more into balance.<sup>27</sup> 7 Furthermore, as I discussed above, more than 80 percent of New Hampshire's 8 9 generation fleet is comprised of nuclear and natural gas resources. The addition of 10 more solar generation capacity expands the Granite State's portfolio of renewables and enhances the fuel and technology diversity of the State's generation fleet.<sup>28</sup> 11 12 RSA 374-G:5, II(d), The environmental benefits of the investment to the state of 13 New Hampshire. 14 The New Hampshire legislature has recognized that renewable energy projects, like 15 the Kingston Solar Project, "reduce the amount of greenhouse gases, nitrogen

\_

<sup>&</sup>lt;sup>26</sup> ISO-NE, ISO Newswire, September 2, 2022, https://isonewswire.com/2022/09/02/monthly-wholesale-electricity-prices-and-demand-in-new-england-july-2022/#:~:text=Natural%20gas%20is%20the%20predominant,wholesale%20electricity%20in%20the%20r egion.

<sup>&</sup>lt;sup>27</sup> "The second half of 2021 and first half of 2022 saw dramatic increases in the price of natural gas for a variety of reasons, including lower US domestic production because of the COVID-19 pandemic, national energy policy, increased European demand due to lower than average reserves due to a longer and colder 2020 winter, poor performance of renewable resources due to weather, the Russian invasion of Ukraine, and increased demand from China as it shifts away from its reliance on coal. Taken all together, these factors are placing enormous upward pressure on natural gas prices. The US spot market price in May 2022 increased by 208% over the pre-pandemic May 2019 spot price." DOE, New Hampshire 10-Year Energy Strategy at 39 (July 2022) (citations omitted).

<sup>&</sup>lt;sup>28</sup> "Having a diverse resource mix can help ensure a secure, reliable, and resilient energy system." DOE, New Hampshire 10-Year Energy Strategy at 39 (July 2022).

oxides, and particulate matter emissions transported into New Hampshire and also generated in the state, thereby improving air quality and public health, and mitigating against the risks of climate change." RSA 362-F:1. The Company has quantified the expected environmental benefits from the Kingston Solar Project, and as discussed in the joint testimony of Ms. Gilbert and Mr. Pierce, the Project is expected to displace 57,300 tons of CO<sub>2</sub> emissions over the expected life of the Project. These are significant environmental benefits for the state of New Hampshire.

# RSA 374-G:5, II(e), The economic development benefits and liabilities of the investment to New Hampshire

The Kingston Solar Project will generate economic benefits for the state of New Hampshire in a variety of ways. First, as discussed in the testimony of Mr. Dusling, the Project has already generated economic benefits by virtue of the Company's engagement of several New Hampshire-based firms to assist in the development process: TF Moran Inc. (land planning, permitting, and civil engineering - Bedford, NH); Capital Appraisal Associates, Inc. (land appraisal — Concord, NH); and Ransmeier & Spellman, P.C. (title examinations — Concord, NH). Second, the Company has entered into a Purchase & Sale Agreement for property located in the town of Kingston, New Hampshire and the productive reuse of that land for purposes of the Kingston Solar Project will generate economic benefits for all UES customers. Third, the Project is expected to generate significant property tax revenues (approximately \$6.1 million over the life of the project) for the town of Kingston, and property taxes represent a major source of revenue for most New Hampshire

municipalities. Fourth, as Mr. Dusling explains in his testimony, UES intends to use
local civil and land clearing contractors for construction of the "pad-ready" site for
the project. Fifth, the Company expects to award the electrical interconnection work
to a local line contractor following an RFP process. Sixth, the Project will encourage
other utility-scale solar projects by demonstrating that a large-scale solar facility can
be cost-effectively constructed for the benefit of customers by a New Hampshire
utility company pursuant to RSA 374-G.
In addition to all of these economic benefits, the Company's consultant, Daymark,
has performed a quantitative analysis of the indirect economic benefits that will be
generated by the Kingston Solar Project, which is described in Exhibits GPP-1 and
GPP-2. As discussed in those Exhibits, the Project will generate approximately
\$11.2 million in direct, indirect, and induced economic impacts on a present value
basis. In addition, Daymark estimates the Project can be expected to support
approximately 87 direct, indirect, and induced jobs in the State through the projected
30-year operational life.
Apart from the costs of the project, which are outweighed by the benefits as shown
in Exhibit FDGP-2, the Company has not identified any liabilities associated with
the Kingston Solar Project.
RSA 374-G:5, II(f), The effect on competition within the region's electricity markets and the state's energy services market.
As discussed above, the Company plans to operate the Kingston Solar Project as a
"load reducer" and the electric generation output will be delivered directly into the

UES electric distribution system. By operating as a load reducer, the Project will not participate in the ISO-NE wholesale market. Therefore, the Kingston Solar Project will have no effect on competition in the region's electricity market. At the retail level, as explained in the testimony of Messrs. Françoeur, Diggins, Goulding, and Pentz, the benefits of reduced supply and transmission costs and the revenue from REC sales will accrue to all customers regardless of whether the customer relies on Default Service supply or purchases their supply from a Competitive Electric Power Supplier. Thus, the Project will have no negative impact on the State's energy services market. With regard to the competitive market for utility-scale solar, as I noted above there has been relatively little utility-scale solar development in the New Hampshire market to date. Therefore, the Kingston Solar Project will not impede the market for utility-scale solar generation and, in fact, may help stimulate additional solar development. RSA 374-G:5, II(g), The costs and benefits to the utility's customers, including but not limited to a demonstration that the company has exercised competitive processes to reasonably minimize costs of the project to ratepayers and to maximize private investment in the project. The joint testimony and exhibits presented by Messrs. Francoeur, Diggins, Goulding, and Pentz provide a comprehensive discussion and analysis of the projected costs and direct benefits of the project to the Company's customers. The testimony and exhibits presented by Ms. Gilbert and Mr. Pierce provide a

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17 18

19

20

21

1	comprehensive discussion and analysis of the estimated indirect benefits of the
2	Kingston Solar Project.
3	As discussed in Exhibit FDGP-1, the direct benefits of the project include avoided
4	energy costs, RECs, avoided capacity costs, and avoided costs of regional and local
5	transmission charges. As discussed in Exhibit GPP-1, the indirect benefits of the
6	Project include the avoided cost of CO <sub>2</sub> and NOx, demand reduction induced price
7	effects ("DRIPE"), and economic development benefits.
8	The costs of the Kingston Solar Project include the capital investment costs for the
9	PV facility installation and electric system upgrades, expenditures for site work and
10	permitting, and land costs.
11	As discussed in the testimony of Mr. Dusling, the Company has employed
12	competitive processes to reasonably minimize the costs of the Kingston Solar
13	Project. I summarized these processes above in discussing the Company's
14	compliance with RSA 374-G:5, I(c).
15 16 17	RSA 374-G:5, II(h), Whether the expected value of the economic benefits of the investment to the utility's ratepayers over the life of the investment outweigh the economic costs to the utility's ratepayers.
18	This factor overlaps with the preceding criterion in that they both focus on the
19	Benefit-Cost Analysis. As discussed in the joint testimony of Messrs. Francoeur,
20	Diggins, Goulding, and Pentz, the Company has estimated the costs and benefits of
21	the Kingston Solar Project over the 30-year projected life of the Project and
22	discounted those estimates to calculate their present value so they may compared
23	and a benefit-cost ratio can be calculated. As shown in Exhibit FDGP-2, the present

value of the project's direct benefits is approximately \$17.73 million and the present value of the costs is approximately \$16.31 million. This produces a Benefit-Cost ratio of 1.09, which demonstrates that this is a sound investment and in the best interest of customers. When indirect benefits are considered, the Project's economics are further improved. As discussed in Exhibits GPP-1 and GPP-2, Daymark has estimated, on an NPV basis, economic benefits of \$11.2 million, CO<sub>2</sub> and NOx savings of \$1.8 million, and DRIPE benefits of \$566,963. RSA 374-G:5, II(i), The costs and benefits to any participating customer or customers. This factor overlaps with the two preceding criteria (RSA 374-G:5, II(g) and RSA 374-G:5, II(h)), in their common focus on the Benefit-Cost Analysis. As noted earlier, the Company has provided a comprehensive description of its Benefit-Cost Analysis in Exhibit FDGP-1 and presented its Benefit-Cost Analysis as Exhibit FDGP-2. The Company's Benefit-Cost Analysis demonstrates the Kingston Solar Project is expected to result in an overall positive net present value over its life. The Company did not perform a Benefit-Cost Analysis for any particular subset of customers because the Kingston Solar Project is designed to benefit all UES customers. The Company has provided a Bill Impact analysis in Exhibit FDGP-3 for all customer classes.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

#### 1 V. PROPOSAL FOR TWO-STAGE REGULATORY REVIEW PROCESS

- Q. What direction does RSA 374-G provide with respect to the regulatory process
   the Commission should follow in its review of DER projects?
- 4 A. As noted above, Section I of RSA 374-G:5 establishes the minimum information 5 required in a utility filing and Section II sets forth the elements to be considered in 6 the Commission's public interest determination. Section III of RSA 374-G:5 7 provides that "authorized" and prudently incurred investments shall be recovered in 8 a utility's base distribution rates as a component of rate base, and cost recovery shall 9 include the recovery of depreciation, a return on investment, taxes, and other 10 operating and maintenance expenses directly associated with the investment, net of 11 any offsetting revenues received by the utility directly attributable to the investment.
- Q. Does the structure of RSA 374-G:5 suggest an efficient regulatory review process?
- 14 Yes. Because only "authorized" investments are recoverable through rates, it is A. 15 reasonable to bifurcate the "authorization" of the investment and the rate recovery 16 proceeding into separate stages. In Stage I (this proceeding), the Commission would 17 review the Company's petition to determine whether it meets the minimum filing 18 requirement of RSA 374-G:5, I and the public interest showing required by RSA 19 374-G:5, II. Assuming the Commission finds this petition meets the requirements 20 of RSA 374-G:5, the Company would to proceed with the Kingston Solar Project. 21 In Stage II, the Company would file to recover the cost of the Project in rates

pursuant to 374-G:5, III. As discussed in Exhibit FDGP-1, the Company plans to request rate recovery in the context of its next base distribution rate case or in a subsequent step adjustment.

#### Q. Is there precedent for a two-stage review process?

5 Yes. As I noted above, on August 5, 2009, UES filed the first proposal with the A. Commission pursuant RSA 374-G to develop three DER projects.<sup>29</sup> Similar to the 6 7 Company's proposal in the instant docket, UES petitioned the Commission for 8 approval of a two-stage regulatory review process. Stage I would focus on whether 9 the proposed DER projects were in the public interest (i.e., approval of the proposed 10 projects). And if the Commission found the projects to be in the public interest, 11 UES would file to recover the costs and expenses related to the DER projects in Stage II (i.e., review and approval of cost recovery). 30 The Commission approved 12 13 the two-stage regulatory review process proposed by UES, finding RSA 374-G does not preclude this framework and it is in the public interest.<sup>31</sup> 14

<sup>&</sup>lt;sup>29</sup> Unitil Energy Systems, Inc., DE 09-137, Order No. 25,111 (June 11, 2010).

<sup>&</sup>lt;sup>30</sup> In DE 09-137, UES proposed to recover costs and expenses through a fully reconciling distribution charge—the DER Investment Charge (or "DERIC")—billed to all customers taking delivery service. The Company proposed to establish the DERIC annually based on a forecast of costs and any over or under-recoveries in the prior year would be reconciled with interest. The Commission denied UES's proposed reconciling mechanism and adopted Staff's recommendation to recover actual project costs through an annual step adjustment to base distribution rates. Order No. 25,111 at 38.

<sup>&</sup>lt;sup>31</sup> Order No. 25,111, at 32.

## VI. CONCLUSION

2	Q.	Please restate what the Company is asking the Commission to approve in this
3		proceeding.
4	A.	Pursuant to RSA 374-G, it is the public policy of New Hampshire that utilities
5		should be encouraged to make investments in DERs. As demonstrated in this filing,
6		the Kingston Solar Project meets the minimum filing requirements and the public
7		interest standard set forth in RSA 374-G. Accordingly, the Company respectfully
8		requests that the Commission find:
9		1. The Company's filing meets the minimum requirements set forth in RSA
10		374-G:5, I;
11		2. The Kingston Solar Project is in the public interest pursuant to RSA 374-
12		G:5, II, and the Company is authorized to proceed with the project; and
13		3. The two-stage regulatory review framework proposed by the Company is in
14		the public interest and is approved.
15	Q.	Is the Company requesting a decision from the Commission within a certain
16		timeframe?
17	A.	Pursuant to RSA 374-G:5, V, the Commission must approve, disapprove, or approve
18		with conditions a utility filing within 90 days. However, the Commission may
19		extend this deadline to 6 months at its discretion for any filing involving an
20		investment in excess of \$1 million. In this case, the Company's proposed investment
21		is greater than \$1 million and therefore the Company respectfully requests approval

1 within the 6 month statutory timeframe. The Company further notes that time is of 2 essence as factors beyond the Company's control, such as market dynamics and 3 supply-chain issues may impact the Project's costs. 4 Q. Please confirm the Company will wait for a finding that the Project is in the 5 public interest before proceeding further with development? 6 A. Yes. The Company will not begin site work and construction until the Commission 7 issues an order finding the Kingston Solar Project is in the public interest. Does this conclude your testimony? 8 Q.

9

A.

Yes, it does.