

**STATE OF CONNECTICUT
PUBLIC UTILITIES REGULATORY AUTHORITY**

Docket No. 22-08-08
APPLICATION OF THE UNITED ILLUMINATING COMPANY
TO AMEND ITS RATE SCHEDULES

**DIRECT TESTIMONY OF
Elizabeth A. Stanton, PhD**

ON BEHALF OF THE
CONNECTICUT OFFICE OF CONSUMER COUNSEL

December 13, 2022

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EXHIBIT LIST

EAS-1	CV of Elizabeth A. Stanton, PhD
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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION.**

3 A. My name is Elizabeth A. Stanton, Ph.D. I am the Director and Senior Economist at the
4 Applied Economics Clinic. My business address is 1012 Massachusetts Avenue, Arlington,
5 MA 02476.

6 **Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.**

7 A. I am the founder and Director of the Applied Economics Clinic, a non-profit consulting
8 group. The Applied Economics Clinic (“AEC”) provides expert testimony, analysis,
9 modeling, policy briefs, and reports for municipalities and other public interest groups on
10 the topics of energy, the environment, consumer protection, and equity. AEC also provides
11 training to the next generation of expert technical witnesses and analysts through applied,
12 on-the-job experience for graduate students in related fields and works proactively to
13 support diversity among both student workers and professional staff.

14 As a researcher and analyst with over two decades of professional experience as a
15 political and environmental economist, I have authored more than 170 reports, policy
16 studies, white papers, journal articles, and book chapters as well as more than 50 expert
17 comments and oral and written testimonies in public proceedings on topics related to
18 energy, the economy, the environment, and equity. My articles have been published in
19 *Ecological Economics*, *Climatic Change*, *Environmental and Resource Economics*,
20 *Environmental Science & Technology*, and other journals. I have also published books,
21 including *Climate Change and Global Equity* (Anthem Press, 2014) and *Climate*
22 *Economics: The State of the Art* (Routledge, 2013), which I co-wrote with Frank
23 Ackerman. In addition, I am the co-author of *Environment for the People* (Political

1 Economy Research Institute, 2005, with James K. Boyce) and co-editor of *Reclaiming*
2 *Nature: Worldwide Strategies for Building Natural Assets* (Anthem Press, 2007, with
3 Boyce and Sunita Narain).

4 My recent work includes performing integrated resource plan and demand-side
5 management planning review, providing analysis and testimony regarding state climate
6 laws as they relate to proposed capacity additions, and working on other issues related to
7 consumer and environmental protection in the electric and gas sectors.

8 In my previous position as a Principal Economist with Synapse Energy Economics,
9 I provided expert testimony in electric and gas sector proceedings and led studies
10 examining environmental regulation, cost-benefit analyses, and the economics of energy
11 efficiency and renewable energy. Prior to joining Synapse, I was a Senior Economist with
12 the Stockholm Environment Institute's ("SEI") Climate Economics Group, where I was
13 responsible for leading the organization's work on the Consumption-Based Emissions
14 Inventory ("CBEI") model, water issues, and climate change in the western United States.
15 While at SEI, I led domestic and international studies commissioned by the United Nations
16 Development Programme, Friends of the Earth-U.K., and Environmental Defense Fund,
17 among others.

18 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL EXPERIENCE.**

19 A. I earned my Ph.D. in economics from the University of Massachusetts-Amherst and have
20 taught economics at Tufts University, the University of Massachusetts-Amherst, and the
21 College of New Rochelle, among other colleges and universities. My curriculum vitae is
22 attached to this testimony as Exhibit EAS-1.

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN ANY FORMAL HEARING BEFORE**
2 **REGULATORY BODIES?**

3 A. Yes. I have submitted expert testimony and comments in proceedings in the District of
4 Columbia, Florida, Illinois, Indiana, Louisiana, Massachusetts, Michigan, Minnesota, New
5 Hampshire, New York, Pennsylvania, Puerto Rico, South Carolina, and Vermont, as well
6 as several federal proceedings, including before the United States Environmental
7 Protection Agency (“EPA”).

8 **Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?**

9 A. I am submitting this testimony on behalf of the Connecticut Office of Consumer Counsel
10 (“OCC”) in response to The United Illuminating Company’s (“UI” or the “Company”) application to amend its rate schedules (“Application”) to the Public Utilities Regulatory
11 Authority of the State of Connecticut (“PURA” or the “Authority”).¹

13 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

14 A. Yes. I am sponsoring the following exhibits:

- 15 • Exhibit EAS-1 – Curriculum Vitae of Dr. Elizabeth A. Stanton
- 16 • Exhibit EAS-2 – Workpapers of Dr. Elizabeth A. Stanton

17 **Q. WAS YOUR TESTIMONY PREPARED BY YOU OR UNDER YOUR DIRECT**
18 **SUPERVISION AND CONTROL?**

19 A. Yes.

¹ Docket No. 22-08-08, *Application of The United Illuminating Company to Amend its Rate Schedules* (“Docket No. 22-08-08”), UI’s Application, Direct Testimony and Supporting Exhibits, filed September 9, 2022 (“UI Application”).

1 **II. SCOPE AND SUMMARY OF TESTIMONY**

2 **Q. WHAT IS THE SCOPE OF YOUR TESTIMONY IN THIS PROCEEDING?**

3 A. I have been retained by OCC to provide an expert opinion to PURA on whether UI's
4 Application and proposed Clean Energy Transformation initiatives in this proceeding are
5 consistent with Connecticut's climate and clean energy policies, plans, and targets and in
6 the best interest of ratepayers.

7 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

8 A. Section III provides an overview of Connecticut's regulatory landscape with respect to
9 climate and clean energy as well as its progress and plans for achieving greenhouse gas
10 emission reductions in the electric sector. Section IV discusses the role of UI in meeting
11 the State's climate and clean energy targets. Section V summarizes UI's clean energy
12 transformation planning and the related initiatives for which the Company is seeking cost
13 recovery in this proceeding. Section VI provides a preliminary assessment of UI's proposed
14 Clean Energy Transformation initiatives. Section VII reviews UI's process for measuring
15 and tracking the performance of its programs and initiative. Section VIII includes my
16 findings and recommendations for PURA's consideration in this proceeding.

17 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.**

18 A. Based upon my review of UI's Application, I conclude that UI has not provided enough
19 information to adequately assess its proposed cost recovery for clean energy transformation
20 initiatives, and I recommend the following:

- 21
- 22 • PURA should require Electric Distribution Companies (EDCs)—including UI—to
23 submit benefit-cost assessments (BCAs) as part of their Clean Energy
Transformation proposals for ratepayer funding. Without BCA assessment, it is not

1 possible to determine whether the proposed programs are the most cost-effective—
2 or the most beneficial to ratepayers—among programs that could achieve the same
3 greenhouse gas emission reduction and clean energy goals.

- 4 • PURA should require EDCs—including UI—to present comparative information
5 when other utility programs exist bearing strong similarities to a proposed Clean
6 Energy Transformation program. Such comparative assessments make it more
7 likely that unnecessary and costly investments can be avoided based on the
8 experiences of similar programs in other jurisdictions.

- 9 • PURA should require EDCs—including UI—to engage in public stakeholder
10 engagement in advance of program proposal, and to report on the findings of this
11 engagement and changes to program design resulting from this engagement as a
12 part of EDCs' Clean Energy Transformation program proposals. Without
13 stakeholder engagement, it is more likely that important cost and benefit
14 information will be omitted and more likely that disproportionate costs and benefit
15 allocation across different communities will go unidentified by decision makers.

- 16 • PURA should require EDCs' proposed Clean Energy Transformation programs—
17 including UI's—to include specific commitments to metrics and reporting. Without
18 these metrics, it is more difficult to evaluate program performance relative to
19 expectations, particularly as it relates to greenhouse gas emission impacts and
20 ratepayer impacts.

21 **III. OVERVIEW OF CONNECTICUT'S ELECTRIC SECTOR PLANNING**

22 **Q. WHAT IS CONNECTICUT'S REGULATORY LANDSCAPE WITH RESPECT TO**
23 **GREENHOUSE GAS EMISSIONS, CLIMATE, AND CLEAN ENERGY?**

1 A. As established by Public Act No. 18-82 – An Act Concerning Climate Change Planning
2 and Resiliency, the State of Connecticut aims to achieve an 80 percent reduction in
3 greenhouse gas emissions by 2050 from 2001 levels, with an intermediary goal of a 45
4 percent reduction by 2030.² In 2022, Governor Ned Lamont signed into law Public Act
5 No. 22-5 – An Act Concerning Climate Change Mitigation, which expands upon Public
6 Act No. 18-82 to include a provision that requires greenhouse gas emissions from
7 electricity supplied to electric customers to be reduced to zero by 2040.³

8 As directed by Governor Lamont in Executive Order No. 3,⁴ the Connecticut
9 Department of Energy and Environmental Protection (DEEP) issued an Integrated
10 Resource Plan (IRP) in October 2021 that analyzes pathways and recommends strategies
11 for achieving the State’s zero carbon target for the electric sector by 2040.⁵

12 In addition, Governor Lamont signed into law Public Act No. 22-14 – *An Act*
13 *Concerning Clean Energy Tariff Programs*, which strengthens the State’s clean energy
14 programs originally established by Public Act No. 18-50 – *An Act Concerning*
15 *Connecticut’s Energy Future*.⁶ Public Act No. 22-14 expands the State’s clean energy
16 programs by creating more pathways for low-income communities to transition to clean
17 energy. In 2018, Public Act No. 18-50 amended the State’s renewable portfolio standard

² Connecticut Public Act No. 18-82. Approved June 6, 2018. *An Act Concerning Climate Change Planning and Resiliency*. Available at: <https://www.cga.ct.gov/2018/ACT/pa/pdf/2018PA-00082-R00SB-00007-PA.pdf>

³ Connecticut Public Act No. 22-5. Approved May 10, 2022. *An Act Concerning Climate Change Mitigation*. Available at: <https://www.cga.ct.gov/2022/ACT/PA/PDF/2022PA-00005-R00SB-00010-PA.PDF>

⁴ Connecticut Governor Ned Lamont. September 3, 2019. *Executive Order No. 3*. Available at: <https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-3.pdf>

⁵ Connecticut Department of Energy and Environmental Protection (DEEP). October 2021. *2020 Integrated Resources Plan: Pathways to achieve a 100% zero carbon electric sector by 2040*. Available at: <https://portal.ct.gov/-/media/DEEP/energy/IRP/2020-IRP/2020-Connecticut-Integrated-Resources-Plan-10-7-2021.pdf>

⁶ Connecticut Public Act No. 22-14. Approved May 10, 2022. *An Act Concerning Clean Energy Tariff Programs*. Available at: <https://www.cga.ct.gov/2022/ACT/PA/PDF/2022PA-00014-R00SB-00176-PA.PDF>

1 (RPS) to require 40 percent of the State’s energy to come from Class I renewable energy
2 resources by 2030 and up to an additional 4 percent from Class II resources (i.e., waste-to-
3 energy).⁷

4 **Q. DOES THE STATE OF CONNECTICUT MAINTAIN A GREENHOUSE GAS**
5 **EMISSIONS INVENTORY TO TRACK ITS PROGRESS TOWARDS THESE**
6 **TARGETS?**

7 A. Yes. DEEP has maintained a greenhouse gas inventory that tracks the State’s progress
8 towards achieving its greenhouse gas emission reduction targets since 1990.⁸

9 **Q. HOW HAVE THE STATE’S GREENHOUSE GAS EMISSIONS CHANGED**
10 **SINCE ITS INVENTORY BASELINE YEAR OF 2001?**

11 A. Connecticut’s greenhouse gas emissions have fallen from 51.4 million metric tons (MMT)
12 of carbon dioxide equivalents (CO₂e) in 2001 down to 42.2 MMT CO₂e in 2018 (the last
13 year for which emissions inventory data are available)⁹—a 17.8 percent reduction (see
14 Figure 1). Nearly half of this decline was accomplished by reducing emissions from the
15 state’s electric consumption, with another 22 percent attributable changes in the state’s
16 transportation sector.¹⁰ Connecticut’s electric sector reduced emissions from 12.3 MMT
17 CO₂e in 2001 down to 8.1 MMT CO₂e in 2018, a 34.6 percent reduction.¹¹

⁷ Connecticut Public Act No. 18-50. Approved May 24, 2018. *An Act Concerning Connecticut’s Energy Future*. Available at: <https://www.cga.ct.gov/2018/act/pa/pdf/2018PA-00050-R00SB-00009-PA.pdf>

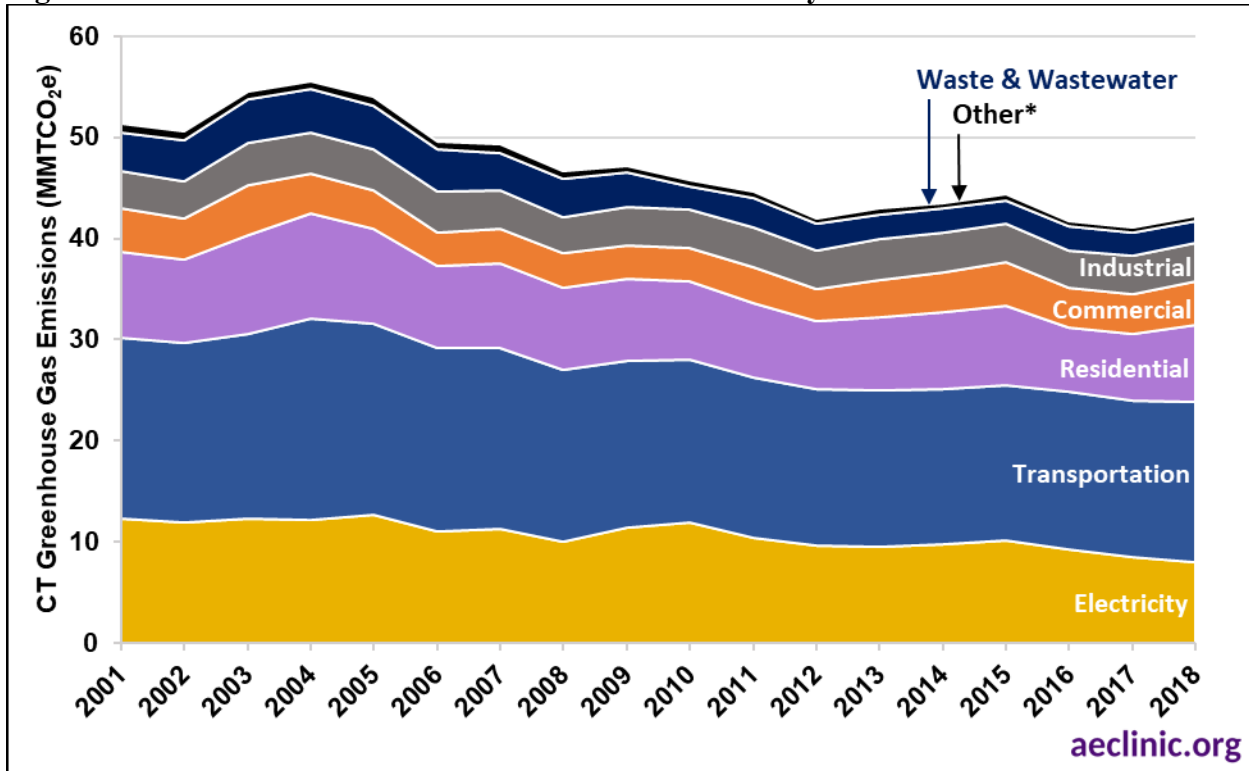
⁸ Connecticut DEEP. Updated October 2021. *Connecticut Greenhouse Gas Reduction Progress Reports*. Available at: <https://portal.ct.gov/DEEP/Climate-Change/CT-Greenhouse-Gas-Inventory-Reports>

⁹ Connecticut DEEP. 2021. *2018 Connecticut Greenhouse Gas Emissions Inventory* [Excel File]. Available at: <https://portal.ct.gov/DEEP/Climate-Change/CT-Greenhouse-Gas-Inventory-Reports>

¹⁰ Ibid.

¹¹ Ibid.

1 **Figure 1. Connecticut Greenhouse Gas Emissions Inventory Results 2001-2018**



2
3 Data source: Connecticut DEEP. 2021. 2018 Connecticut Greenhouse Gas Emissions Inventory [Excel File].
4 Available at: <https://portal.ct.gov/DEEP/Climate-Change/CT-Greenhouse-Gas-Inventory-Reports>. See Exhibit
5 EAS-2 for calculations.

6 **Q. WHAT ARE CONNECTICUT'S PLANS FOR ACHIEVING FURTHER**
7 **GREENHOUSE GAS EMISSION REDUCTIONS IN THE ELECTRIC SECTOR?**

8 A. Through Public Act No. 22-5, Connecticut aims to reduce electric sector greenhouse gas
9 emissions to zero by 2040. To facilitate this transition, Governor Lamont issued Executive
10 Order No. 3 in 2019, which directed DEEP to prepare, in consultation with the EDCs, an
11 IRP examining the state's resources and potential pathways to meet its emission reduction
12 targets for the electric sector. DEEP's IRP, released in October 2021, provides a total of 16

1 strategies to achieve the State's 2040 zero carbon electric sector target and outlines six
2 main objectives:¹²

- 3 1) Decarbonizing the electricity sector;¹³
- 4 2) Securing the benefits of competition and minimizing ratepayer risk;
- 5 3) Ensuring energy affordability and equity for all ratepayers;
- 6 4) Optimal siting of generation resources;
- 7 5) Upgrading the grid to support and integrate variable and distributed energy
8 resources; and
- 9 6) Balancing decarbonization and other public policy goals.

10 Because Connecticut shares a grid with other New England states, the State must
11 consider regional implications of the transition to a zero-carbon electric sector. DEEP's
12 zero carbon scenarios show that the State's 2040 decarbonization goal is achievable with
13 increased contributions from offshore wind and a steady rate of natural gas plant
14 retirement.¹⁴ The scenarios also highlight the importance of expanding battery storage to
15 support the transition to zero carbon emissions in the electric sector. DEEP also identifies
16 plans to evaluate transmission infrastructure needed to support a clean energy grid while
17 minimizing ratepayer impacts.¹⁵ In addition, Connecticut's adoption of Public Act No. 22-

¹² Connecticut DEEP. October 2021. *2020 Integrated Resources Plan: Pathways to achieve a 100% zero carbon electric sector by 2040*. p. 16

¹³ The legislature has specifically acknowledged the role to be played by EDCs in ensuring that energy resources are procured, "in a manner that minimizes the cost of all energy resources to customers over time and maximizes consumer benefits consistent with the state's environmental goals and standards, including, but not limited to, the state's greenhouse gas reduction goals established in section 22a-200a. The Integrated Resources Plan shall seek to lower the cost of electricity while meeting such environmental goals and standards in the most cost-effective manner." Conn. Gen. Stat. § 16a-3a(a).

¹⁴ Ibid. p. 175

¹⁵ Ibid.

1 14 expands existing programs supporting distributed renewable generation (small,
2 renewable generation that is located on-site). The bill expands programs to distribute
3 renewable energy infrastructure and expands customer access through the auctioning of
4 Class I renewables to commercial customers and on-bill credits to approved residential
5 customers.¹⁶

6 **Q. HOW DO CONNECTICUT'S DECARBONIZATION REGULATIONS AND**
7 **PLANNING APPLY TO THE STATE'S ELECTRIC DISTRIBUTION**
8 **COMPANIES?**

9 A. Actions taken by Connecticut's EDCs are essential to the State's achievement of its
10 renewable energy and greenhouse gas reduction targets. At a minimum, electric
11 distribution companies can be assessed in terms of whether their actions are consistent with
12 the State's achievement of its legal mandates and/or whether their actions introduce or
13 exacerbate obstacles to the State's achievement of its legal mandates. Connecticut law
14 requires emissions from electric sales to be eliminated by 2040. Actions by electric
15 distribution companies that increase emissions or delay emission reductions are not
16 consistent with the State achieving its targets. While Connecticut's EDCs do not own
17 electric generation (with a limited exception for storage resources), they nonetheless play
18 a significant role in meeting State emission reduction targets through energy procurement,
19 their participation in new clean energy transition programs, the Renewable Portfolio
20 Standard, and energy efficiency programs. Decarbonization cannot be achieved without
21 transformative actions in the electric sector; to this end, PURA regulation and decisions

¹⁶ Connecticut Public Act No. 22-14. Approved May 10, 2022. *An Act Concerning Clean Energy Tariff Programs.*

1 regarding approval of rate cases need to continue to support and amplify the EDCs' role in
2 decarbonization.

3 **Q. WHAT REGULATORY ACTIONS HAS PURA TAKEN TO MOVE**
4 **DECARBONIZATION EFFORTS FORWARD?**

5 A. Several open dockets at PURA relate to decarbonization efforts, including (but not limited
6 to):

- 7 • Investigations into distribution system planning by EDCs,¹⁷ including specific
8 investigations into energy affordability, advanced metering infrastructure, electric
9 vehicles, energy storage, interconnection standards, non-wires alternatives, resilience
10 and reliability standards, clean and renewable energy resources analysis, resource
11 adequacy, and rate design;¹⁸
- 12 • Dockets to assess the current state of regulation implementation and compliance, such
13 as with Connecticut's Renewable Energy Portfolio Standard,¹⁹ Public Acts 17-3 (*An*
14 *Act Concerning Zero Carbon Solicitation and Procurement*),²⁰ 18-50 (*An Act*
15 *Concerning Connecticut's Energy Future*),²¹ 19-35 (*An Act Concerning a Green*
16 *Economy and Environmental Protection*),²² and 22-55 (*An Act Concerning Energy*
17 *Storage Systems and Electric Distribution System Reliability*),²³

¹⁷ PURA Docket 17-12-03.

¹⁸ PURA Dockets 17-12-03RE01 through 17-12-03RE11.

¹⁹ PURA Dockets 18-06-28, 19-06-01, 20-06-01, 21-06-01 and 22-06-01.

²⁰ PURA Docket 18-05-04.

²¹ PURA Docket 18-08-33.

²² PURA Dockets 20-07-01 and 20-07-01RE01.

²³ PURA Docket 22-06-05.

- 1 • Studies on decarbonization efforts such as distributed energy resources,²⁴ community
2 choice aggregation,²⁵ and performance-based regulation of EDCs,²⁶ and
3 • Reports regarding Connecticut’s energy efficiency programs²⁷ and clean and renewable
4 energy programs²⁸ and annual reviews of community access support,²⁹ residential and
5 non-residential tariff programs,³⁰ statewide shared clean energy facilities,³¹ energy
6 storage programs,³² and electric vehicle programs.³³

7 **IV. UI’S ROLE IN MEETING CONNECTICUT’S CLEAN ENERGY TARGETS**

8 **Q. WHAT PORTION OF CONNECTICUT’S ELECTRIC SECTOR DOES UI’S**
9 **SERVICE TERRITORY REPRESENT?**

10 A. UI’s service territory covers 335 square miles across 17 municipalities in southwestern
11 Connecticut (including greater Bridgeport and New Haven). In 2021, UI delivered 2,415
12 GWh to roughly 341,000 customers across its service territory, representing nearly 9
13 percent of Connecticut’s electric sales.^{34,35}

14 **Q. HOW MUCH GREENHOUSE GAS EMISSIONS ARE ATTRIBUTABLE TO UI’S**
15 **ELECTRIC SALES?**

²⁴ PURA Docket 19-06-29.

²⁵ PURA Docket 20-05-13.

²⁶ PURA Docket 21-05-15.

²⁷ PURA Dockets 18-01-28, 21-01-30 and 21-12-08.

²⁸ PURA Docket 22-08-01.

²⁹ PURA Dockets 18-01-32 and 21-01-09.

³⁰ Including PURA Dockets 22-08-02 and 22-08-03.

³¹ Including PURA Docket 22-08-04.

³² Including PURA Docket 22-08-05.

³³ Including PURA Docket 22-08-06.

³⁴ UI’s Response to Interrogatory No. OCC-262 (Attachment 1).

³⁵ Note that Interrogatory No. OCC-262’s 2,415 GWh in 2021 differs somewhat from the values given on UI’s website (2,032 GWh) and in EIA’s Form 861 data (2,122 GWh in 2021). UI’s share of Connecticut sales (9 percent of 27,738 GWh) is based on the EIA Form 861 2021 data. Available at: <https://www.eia.gov/electricity/data/eia861/>.

1 A. Based on UI's response to Interrogatory No. OCC-262, UI's emissions totaled 568,968
2 metric tons CO₂ in 2017 and 645,729 metric tons CO₂ in 2020—a 13.5 percent increase.³⁶
3 Connecticut's greenhouse gas emission inventory reports electric sector emissions of 8.1
4 million metric tons CO₂ in 2018;³⁷ UI's emissions were 630,851 metric tons CO₂ in 2018,
5 making UI's share of the total electric sector emissions in Connecticut equal to 7.8 percent.

6 **Q. WHAT ARE CONNECTICUT'S GREENHOUSE GAS EMISSIONS GOALS FOR**
7 **THE ELECTRIC SECTOR?**

8 A. Connecticut aims to eliminate greenhouse gas emissions from the electric sector by 2040.³⁸

9 **Q. ARE UI'S GREENHOUSE GAS EMISSIONS CONSISTENT WITH**
10 **CONNECTICUT'S GREENHOUSE GAS EMISSIONS GOALS FOR THE**
11 **ELECTRIC SECTOR?**

12 A. No. According to UI's response to Interrogatory No. OCC-262, UI's greenhouse gas
13 emissions from fossil fuels combusted to generate electricity that is purchased by UI on
14 behalf of customers have *increased* by more than 13 percent between 2017 and 2020. This
15 direction of travel is inconsistent with Connecticut's goal to reduce electric sector
16 emissions to zero by 2040. Over this same period, UI's annual sales increased 5.6 percent
17 per year (from 1,839 GWh to 2,414 GWh)³⁹ while UI's number of customers increased just
18 0.5 percent per year (from 333,000 to 342,100).⁴⁰ UI's increase in sales is outpacing its

³⁶ UI's Response to Interrogatory No. OCC-262 (Attachment 1).

³⁷ Connecticut DEEP. 2021. 2018 Connecticut Greenhouse Gas Emissions Inventory [Excel File]. Available at: <https://portal.ct.gov/DEEP/Climate-Change/CT-Greenhouse-Gas-Inventory-Reports>.

³⁸ Connecticut Public Act No. 22-5. Approved May 10, 2022. *An Act Concerning Climate Change Mitigation*. Available at: <https://www.cga.ct.gov/2022/ACT/PA/PDF/2022PA-00005-R00SB-00010-PA.PDF>

³⁹ UI's Response to Interrogatory No. OCC-262(e).

⁴⁰ UI's Response to Interrogatory No. OCC-262 (Attachment 1).

1 increase in customers by an order of magnitude, indicating that average customer energy
2 use is on the rise.

3 **Q. WHAT IS UI'S PROGRESS TOWARDS ACHIEVING THE RENEWABLE**
4 **ENERGY TARGETS REQUIRED BY STATE REGULATIONS?**

5 A. Connecticut's Renewable Portfolio Standard (RPS) mandates that, by 2030, at least 40
6 percent of the state's energy must come from Class I renewable energy resources. UI's
7 2021 compliance filing indicates that Class I renewable energy resources accounted for
8 543,264 MWh,⁴¹ equal to approximately 22.5 percent of its 2021 total electric sales—
9 Connecticut's 2021 target level for EDCs. UI must increase its share of renewable sales by
10 18.5 percentage points between 2022 and 2030 in order to comply with Connecticut's
11 RPS.⁴²

12 **Q. WHAT ARE UI'S CURRENT ENERGY EFFICIENCY TARGETS AND HOW DO**
13 **THEY RELATE TO HISTORICAL ENERGY EFFICIENCY SAVINGS?**

14 A. As presented in Connecticut's *2022-2024 Conservation & Load Management Plan*, UI
15 intends to achieve 106.2 GWh in total energy efficiency savings in 2022-2024 (38.6, 34.8,
16 and 32.8 GWh, respectively), equal to 0.76 percent of forecasted electric sales in the same
17 period.⁴³ In previous three-year periods, UI achieved 170.4 GWh (2019-2021), 233.0 GW

⁴¹ Docket No. 22-06-01, *Annual Review of Connecticut's Electric Suppliers' and Electric Distribution Companies' Compliance with Connecticut's Renewable Energy Portfolio Standards in the Year 2021* ("Docket No. 22-06-01"). UI Annual RPS Compliance Report Exhibit B. Available at: [https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/ade4c19a498ba9a7852588db006bcb7b/\\$FILE/2022-10-14%20UI%20Annual%20RPS%20Compliance%20Report%20-%20RPS%20Template%20Exhibit%20B%20%2322-06-01.xlsx](https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/ade4c19a498ba9a7852588db006bcb7b/$FILE/2022-10-14%20UI%20Annual%20RPS%20Compliance%20Report%20-%20RPS%20Template%20Exhibit%20B%20%2322-06-01.xlsx).

⁴² Connecticut Public Act No. 18-50. Approved May 24, 2018. *An Act Concerning Connecticut's Energy Future*. Available at: <https://www.cga.ct.gov/2018/act/pa/pdf/2018PA-00050-R00SB-00009-PA.pdf>

⁴³ Eversource Energy, United Illuminating, Connecticut Natural Gas Corporation, and Southern Connecticut Gas. March 1, 2022. "2022-2024 Conservation & Load Management Plan: Connecticut's Energy Efficiency and Demand Management Plan." Available at: <https://portal.ct.gov/-/media/DEEP/energy/ConserLoadMgmt/Final-2022-2024-Plan-to-EEB-1112021.pdf>. Figure 1-F.

1 (2016-2018), and 212.1 GWh (2013-2015) in energy efficiency savings.⁴⁴ As compared to
2 previous three-year periods, UI's 2022-2024 energy efficiency savings target is 38-54
3 percent lower than historically achieved energy efficiency savings.

4 **Q. WHAT ARE THE CLIMATE COMMITMENTS OF AVANGRID, UI'S PARENT**
5 **COMPANY?**

6 A. Avangrid aims to achieve carbon neutrality by 2035 by reducing greenhouse gas emissions
7 from any sources owned or controlled by Avangrid, including UI.⁴⁵

8 **Q. DO EMISSION REDUCTIONS ACHIEVED BY UI BENEFIT AVANGRID AND**
9 **ITS SHAREHOLDERS?**

10 A. Yes. UI's emission reductions benefit Avangrid by moving the company closer to its 2035
11 carbon neutrality target. Studies indicate correlations between a company's positive ESG
12 performance and benefits to its shareholders.⁴⁶

13 **Q. WHAT ACTIONS DOES UI NEED TO TAKE WITH REGARD TO**
14 **CONNECTICUT'S GREENHOUSE EMISSIONS, CLIMATE, AND CLEAN**
15 **ENERGY STATUTE AND REGULATIONS?**

16 A. To support Connecticut in achieving its greenhouse gas emissions, climate and clean
17 energy targets, UI must, at a minimum, meet statewide targets (in percentage terms) with

⁴⁴ Ibid. Table D2.

⁴⁵ Avangrid. April 21, 2022. "Reducing Our Emissions." Available at: <https://avanewsblog.com/2022/04/reducing-our-emissions/>.

⁴⁶ e.g., stock price volatility of companies with good ESG performance is lower than that of companies with poor performance. Zhou, D., & Zhou, R. (2021). *ESG Performance and Stock Price Volatility in Public Health Crisis: Evidence from COVID-19 Pandemic*. International Journal of Environmental Research and Public Health, 202. <https://doi.org/10.3390/ijerph19010202>. The majority of companies studied indicate a positive correlation between ESG metrics and financial performance. See Clark, C., Whelan, T. & Atz, U. (2021). *ESG and Financial Performance: Uncovering the Relationship by Aggregating Evidence from 1,000 Plus Studies Published between 2015 – 2020*. Rockefeller Asset Management & NYU Stern Center for Sustainable Business, https://rcm.rockco.com/insights_item/esg-and-financial-performance/

1 respect to its own sales. To do otherwise would be inconsistent with Connecticut's
2 achievement of its mandated targets. To support the State's emission reduction target, UI
3 must reduce greenhouse gas emissions from customer sales at a pace consistent with
4 reaching zero emissions by 2040.

5 **Q. DO CHOICES MADE IN THIS RATE CASE IMPACT THE STATE'S ABILITY**
6 **TO MEET ITS GREENHOUSE GAS EMISSIONS, CLIMATE, AND CLEAN**
7 **ENERGY TARGETS AND, IF SO, HOW?**

8 A. Yes. UI accounts for 9 percent of Connecticut's electric sales and, therefore, 9 percent of
9 renewable, storage, energy efficiency, electric vehicle and charging and greenhouse gas
10 reduction obligations. UI's proposals in this rate case, and PURA's decisions regarding
11 these proposals, are a critical element of the State's success in achieving these targets.

12 **V. BACKGROUND ON UI'S CLEAN ENERGY TRANSFORMATION PLANNING**

13 **Q. HOW DOES UI'S APPLICATION ADDRESS CONNECTICUT'S GREENHOUSE**
14 **GAS EMISSIONS, CLIMATE, AND CLEAN ENERGY TARGETS?**

15 A. In its Application, UI states that one of its primary objectives in serving its customers is to
16 "serve as a catalyst to cost-effectively advance Connecticut's clean energy policy."⁴⁷ UI
17 also states that its proposed three-year rate plan will serve "[t]o advance these objectives
18 for customers."⁴⁸ In addition, UI expresses its support for and commitment to align with
19 the State's climate and clean energy targets:

20 UI is strongly supportive of Connecticut's national
21 leadership in carbon reduction, distributed generation,
22 energy efficiency, electric vehicles, battery storage, and the
23 other objectives of PURA's grid modernization efforts. In

⁴⁷ UI's Application Filing Letter at 1.

⁴⁸ Ibid.

1 its rate application, UI is requesting the resources necessary
2 to adapt, change, and innovate its business to align with
3 Connecticut's and PURA's evolving climate and energy
4 policies and goals.⁴⁹

5 UI's Clean Energy Transformation Panel proposes several activities aimed at
6 aligning UI's operations with Connecticut's climate and clean energy targets:

7 Each initiative included in this testimony advances the
8 Company's efforts to enable Connecticut's clean energy
9 goals and targets by supporting transportation electrification,
10 developing future electric distribution company ('EDC')
11 capabilities, enhancing situational awareness and visibility
12 into grid operations, and advancing future planning of the
13 system as the Company accommodates higher levels of
14 [distributed energy resources] and understands how to
15 prepare the electric system for electric vehicle and heating
16 deployment and integration of flexible technologies, such as
17 energy storage, which will be required to support
18 transformation of the grid.⁵⁰

19 **Q. WHAT ACTIVITIES HAS UI ENGAGED IN OR PLANS TO ENGAGE IN TO**
20 **FURTHER CONNECTICUT'S GREENHOUSE GAS EMISSIONS, CLIMATE,**
21 **AND CLEAN ENERGY TARGETS?**

22 A. UI proposes to implement several clean energy transformation initiatives that "are designed
23 to support the State of Connecticut's clean energy goals."⁵¹ UI's proposed initiatives fall
24 into one of the four following categories: (1) Transportation Electrification; (2) Energy
25 Storage; (3) Innovative Collaborations, Partnerships, and Pilots; and (4) Grid
26 Modernization.⁵² In this proceeding, UI is seeking cost recovery of \$48.1 million to support
27 the proposed clean energy transformation initiatives outlined in its three-year rate plan—

⁴⁹ Exhibit UI-1 at 6:16-19 to 7:1-2.

⁵⁰ Exhibit UI-CETP-1 at 6:3-9.

⁵¹ Exhibit UI-CETP-1 at 3:9-10.

⁵² Exhibit UI-CETP-1 at 3:14-17.

1 of which \$34.6 million is for Transportation Electrification initiatives, \$7.5 million for
2 Energy Storage, \$0.6 million for Innovative Collaborations, Partnerships, and Pilots, and
3 \$3.4 million for Grid Modernization (see Table 1).⁵³

4 **Table 1. Cost Recovery for UI’s Clean Energy Transformation Initiatives**

Clean Energy Transformation Initiatives	Capital Expenditures	O&M Expenses	Regulatory Assets	Deferred to Future Case
Transportation Electrification				
Light-Duty Make-Ready Program	✓			✓
Managed Charging Program				✓
MHD Vehicle Make-Ready Program	✓		✓	
Municipal Curbside Charging Pilot ^(A)	—	—	—	—
EV Charging Hub Initiative	✓			
EV Studies, Analysis, and Outreach		✓		
Energy Storage				
Electric Storage Program ^(B)	—	—	—	—
Battery Energy Storage System (BESS) Pilots	✓			
Solar-plus-BESS Project	✓	✓		
Innovative Collaborations, Partnerships, and Pilots				
Innovative Initiatives	✓	✓		
Grid Modernization				
Integrated Distribution System Plan (IDSP) Initiatives	✓	✓		

5
6 Notes: (A) UI’s Municipal Curbside Charging Pilot will be fully funded within the existing budget for its Light-
7 Duty Make-Ready Program and will not require additional cost recovery in this case.
8 (B) Costs for UI’s Electric Storage Program will be recovered through the Company’s annual review of the Rate
9 Adjustment Mechanisms and will not require cost recovery in this case.

10 UI explains that “[t]hese initiatives include the support and promotion of electric
11 vehicles (‘EVs’), energy storage, innovative partnerships, and continued evolution of the
12 grid into a two-way platform that enables the interconnection of [distributed energy
13 resources], including solar photovoltaic (‘PV’), thereby optimizing the value for
14 customers.”⁵⁴

⁵³ UI’s Response to Interrogatory No. OCC-261 (Attachment 1).

⁵⁴ Exhibit UI-CETP-1 at 3:10-14.

1 **Q. IS UI SEEKING COST RECOVERY ON CAPITAL EXPENDITURES FOR SOME**
2 **OF ITS CLEAN ENERGY TRANSFORMATION INITIATIVES THAT ARE STILL**
3 **UNDER DEVELOPMENT?**

4 A. Yes. UI is seeking cost recovery on capital expenditures for several different clean energy
5 transformation initiatives that are still in the planning stage and not yet in service.

6 **Q. IN YOUR EXPERT OPINION, IS IT COMMON PRACTICE TO SEEK COST**
7 **RECOVERY FOR EXPENDITURES THAT HAVE NOT YET OCCURED?**

8 A. It is my understanding that in Connecticut, it is a foundational principle of ratemaking that
9 costs should not be included in rate base until such time as the associated plant or service
10 is “used and useful in the provision of service to the public.”⁵⁵ It is also my understanding
11 that PURA, and the DPUC before it, have historically required that all costs recovered from
12 ratepayers “must be known and measurable and incorporated into rates in the appropriate
13 manner.”⁵⁶ Given that the Clean Energy Transformation expenditures for which UI seeks
14 recovery appear to be based upon cost projections (that are not yet known or measurable)
15 for projects that do not yet exist, and for which the benefits to ratepayers are therefore
16 currently immeasurable (and hence are not yet used or useful), it seems to me that it is
17 unusual for UI to include these expenditures in rate base at this time.

18 **Q. PLEASE DESCRIBE THE PROPOSED TRANSPORTATION**
19 **ELECTRIFICATION INITIATIVES ASSOCIATED WITH UI’S CLEAN**
20 **ENERGY TRANSFORMATION PLANNING.**

⁵⁵ DPUC Docket No. 97-05-12, *Re Connecticut Light and Power Company*, Decision (Dec. 31, 1997).

⁵⁶ DPUC Docket No. 03-06-17, *Re Connecticut Natural Gas Corporation*, Decision (Nov. 26, 2003).

1 A. UI’s Transportation Electrification initiatives were constructed to play a crucial role in
 2 helping Connecticut meet its EV deployment targets: “A critical component of reaching
 3 the State’s goal is supporting market growth by ensuring there is sufficient charging
 4 infrastructure that will eliminate range anxiety, build driver confidence, and meet charging
 5 needs.”⁵⁷ (Connecticut aims to have 150,000 EVs on the road by 2025).⁵⁸ UI is proposing
 6 the following Transportation Electrification initiatives:

- 7 • Light-Duty Make-Ready Program
- 8 • Managed Charging Program
- 9 • Medium- and Heavy-Duty (MHD) Vehicle Make-Ready Program
- 10 • Municipal Curbside Charging Pilot
- 11 • EV Charging Hub Initiative
- 12 • Additional EV studies, analysis, and outreach

13 In total, UI is seeking \$34.58 million in cost recovery through this proceeding to
 14 support its proposed Transportation Electrification initiatives (see Table 2).

15 **Table 2. Cost Recovery Amounts for UI’s Transportation Electrification Initiatives**

Transportation Electrification	Cost Recovery (\$M)			TOTAL
	Rate Year 1	Rate Year 2	Rate Year 3	
Capital Expenditures	\$1.43	\$4.09	\$11.17	\$16.69
Operation & Maintenance Expenses	\$0.18	\$0.35	\$0.35	\$0.88
Regulatory Assets	\$1.70	\$5.10	\$10.21	\$17.01
TOTAL	\$3.30	\$9.55	\$21.73	\$34.58

16
 17 *Data source: UI’s Response to Interrogatory No. OCC-261 (Attachment 1). See Exhibit EAS-2 for calculations.*

18 **Q. WHAT IS UI’S LIGHT-DUTY MAKE-READY PROGRAM?**

⁵⁷ Exhibit UI-CETP-1 at 7:23 to 8:3.

⁵⁸ UI’s Response to Interrogatory No. OCC-248(f).

1 A. UI's Light-Duty Make-Ready Program was first established and approved by PURA in
2 Docket No. 17-12-03RE04, PURA Investigation into Distribution System Planning of the
3 Electric Distribution Companies – Zero Emission Vehicles. Since its formal launch on
4 January 1, 2022, “[t]he Company is implementing this program in accordance with
5 PURA’s decision in Docket Nos. 17-12-03RE04 and 21-08-06.”⁵⁹ As described by UI’s
6 Clean Energy Transformation Panel, the Light-Duty Make-Ready Program aims to provide
7 incentives for the installation of light-duty EV charging infrastructure, including up to
8 \$40,000 for each Level 2 charging site and up to \$150,000 for each direct current fast
9 charging (DCFC) site.⁶⁰ The program will also cover up to 100 percent of eligible costs
10 needed for charging site preparation and 50 percent of the costs for EV charging
11 equipment.⁶¹

12 Within the first three years, UI anticipates that the program will “support up to 864
13 level 2 and 27 [DCFC] that are needed to support Connecticut’s goal of having 150,000
14 EVs by 2025.”⁶² By 2030, the Company aims for the program to “support up to 2,500 Level
15 2 plugs and 95 DCFC plugs within UI’s service territory.”⁶³

16 UI is requesting recovery of \$1.4 million in this case for the capital costs needed to
17 support its Light-Duty Make-Ready Program over the three-year period covered in its
18 proposed rate plan.⁶⁴ According to UI, funds needed for “[i]ncentives toward customer-

⁵⁹ UI’s Response to Interrogatory No. OCC-248.

⁶⁰ Exhibit UI-CETP-1 at 9:11-12.

⁶¹ Exhibit UI-CETP-1 at 9:6-8.

⁶² UI’s Response to Interrogatory No. OCC-248(f).

⁶³ Exhibit UI-CETP-1 at 9:9-11.

⁶⁴ Exhibit UI-CETP-1 at 9:22-23.

1 owned equipment and program administration costs will be deferred as a regulatory asset
2 and reviewed in a future base rate proceeding”.⁶⁵

3 **Q. WHAT IS UI’S MANAGED CHARGING PROGRAM?**

4 A. Launched in January 2022, UI’s Managed Charging Program “provides ongoing, event-
5 based incentives” that “are available to EV owners who agree to participate in demand
6 response events, which can help EV drivers avoid costly, peak-time energy use and helps
7 the grid respond to changing conditions.”⁶⁶ The Company’s Managed Charging Program
8 was also established and approved by PURA in Docket No. 17-12-03RE04 and continues
9 to follow PURA’s guidance as outlined in Docket No. 21-08-06.

10 UI goes on to explain that, based on feedback from external stakeholders,
11 “participation incentives will shift away from demand response participation and instead
12 will be structured around a passive managed charging approach where customers will be
13 incentivized when a minimum of 80 percent of charging occurs during off-peak periods.”⁶⁷
14 In addition, the program will offer rebates to eligible customers to cover a portion of the
15 costs associated with the installation of new, qualified Smart Chargers and wiring
16 upgrades.⁶⁸

17 UI is not requesting recovery of any incremental costs for its Managed Charging
18 Program in this case. Instead, UI will defer program costs as a regulatory asset to be
19 reviewed in a future rate proceeding.⁶⁹

⁶⁵ Exhibit UI-CETP-1 at 9:23 to 10:1.

⁶⁶ Exhibit UI-CETP-1 at 10:6-9.

⁶⁷ Exhibit UI-CETP-1 at 10:10-13.

⁶⁸ Exhibit UI-CETP-1 at 10:4-6.

⁶⁹ Exhibit UI-CETP-1 at 10:16-18.

1 **Q. WHAT IS UI'S MEDIUM- AND HEAVY-DUTY (MHD) VEHICLE MAKE-READY**
2 **PROGRAM?**

3 A. UI's MHD Vehicle Make-Ready Program has not been approved by PURA in a previous
4 proceeding but is currently presented to PURA for consideration in Docket No. 21-09-17:

5 The Company believes that time is of the essence with
6 respect to transportation electrification, has and will
7 continue to engage in Docket No. 21-09-17 and ultimately
8 will modify its program design as appropriate to align with
9 any decisions made by the Authority in that proceeding.⁷⁰

10 The Company's Make-Ready Program for MHD vehicles follows a similar
11 structure to its existing light-duty vehicle program but offers customer incentives on a per-
12 plug basis rather than a per-site basis, with up to \$6,000 for Level 2-related infrastructure
13 and up to \$55,000 for DCFC-related infrastructure.⁷¹ The program will also cover up to
14 100 percent of make-ready costs for public sector fleets (i.e., school buses, transit, and
15 municipal vehicles) and up to 50 percent for private fleet operators, including delivery
16 vehicles, among others.⁷²

17 UI aims to support approximately 1,000 MHD vehicles by providing make-ready
18 infrastructure incentives through this proposed program to install 400 Level 2 EV ports and
19 375 DCFC ports.⁷³

20 UI estimates a total budget of \$21.6 million for its proposed, three-year MHD
21 Vehicle Make-Ready Program.⁷⁴ UI is requesting recovery for \$4.6 million in capital costs
22 needed to support its MHD Vehicle Make-Ready Program case over the three-year period

⁷⁰ Exhibit UI-CETP-1 at 12:5-8.

⁷¹ Exhibit UI-CETP-1 at 11:2-5.

⁷² Exhibit UI-CETP-1 at 11:7-11.

⁷³ Exhibit UI-CETP-1 at 11:6-7.

⁷⁴ Exhibit UI-CETP-1 at 11:14-15.

1 (similar to the Company’s Light-Duty Make-Ready Program).⁷⁵ Unlike its Light-Duty
2 Program, UI seeks to recover the remaining \$17 million—to cover incentives toward
3 customer-owned electrical infrastructure—as a regulatory asset in this proceeding rather
4 than deferring to a future one.⁷⁶

5 **Q. WHAT DEPLOYMENT TARGETS DOES UI’S PROPOSED MHD VEHICLE**
6 **MAKE-READY PROGRAM ADDRESS?**

7 A. Deployment targets for UI’s proposed MHD Vehicle Make-Ready Program have yet to be
8 established by PURA in Docket No. 21-09-17, PURA Investigation into Medium and
9 Heavy-Duty Electric Vehicle Charging, which is still under consideration and awaiting
10 PURA’s decision on what strategies would optimize the integration of MHD vehicles to
11 meet Connecticut’s goals.

12 **Q. IN YOUR EXPERT OPINION, IS UI’S PROPOSED MHD VEHICLE MAKE-**
13 **READY PROGRAM IN THE BEST INTEREST OF RATEPAYERS?**

14 A. Because UI has not provided sufficient information regarding program costs and benefits
15 in either this docket or in Docket No. 21-09-17, it is not possible for me to make an
16 assessment of whether or not UI’s Proposed MHD Vehicle Make-Ready Program is in the
17 best interest of ratepayers. In order to accurately make this assessment, UI would need to
18 (1) conduct a benefits-cost analysis (BCA)—which to my knowledge has not been
19 completed to date—to demonstrate if and how the program provides any benefits to
20 ratepayers, and (2) conduct a stakeholder engagement process.

⁷⁵ Exhibit UI-CETP-1 at 11:17-18.

⁷⁶ Exhibit UI-CETP-1 at 11:19-21.

1 In addition, without a final order from PURA in Docket No. 21-09-17, it is
2 premature to include UI's MHD Vehicle Make-Ready Program in rates proposed in this
3 docket as the program design and deployment targets are still subject to change. It is also
4 unclear how UI intends to "modify its program design"⁷⁷ after expenditures related to the
5 program are included in UI's revenue requirement and the Company has already begun to
6 recover those costs from ratepayers.

7 **Q. WHAT IS UI'S MUNICIPAL CURBSIDE CHARGING PILOT?**

8 A. As a part of its existing Light-Duty Make-Ready Program, UI is proposing to implement a
9 Municipal Curbside Charging Pilot to "assist municipal partners in planning, developing,
10 and installing EV charging infrastructure for residents that are considered 'garage orphans,'
11 meaning they do not have a designated parking location to charge their vehicle."⁷⁸ Through
12 this pilot program, UI will "investigate the opportunities and barriers for municipalities to
13 deploy wide-scale curbside charging in neighborhoods with higher rates of multi-family
14 dwellings and, therefore, limited residential off-street parking."⁷⁹ UI will also collaborate with
15 its municipal partners (leveraging existing incentives through the Light-Duty Make-Ready
16 Program) to deploy up to 100 Level 2 curbside charging ports.⁸⁰ UI plans to fully fund the pilot
17 using the existing budget for its Light-Duty Make-Ready Program and is not requesting
18 recovery of additional funds in this proceeding.

⁷⁷ Exhibit UI-CETP-1 at 12:5-8.

⁷⁸ Exhibit UI-CETP-1 at 12:10-12.

⁷⁹ Exhibit UI-CETP-1 at 12:19-21.

⁸⁰ Exhibit UI-CETP-1 at 13:12-13.

1 **Q. WHAT IS UI'S EV CHARGING HUB INITIATIVE?**

2 A. UI is proposing to construct an EV Charging Hub to create “large-scale, purpose-built
3 infrastructure that will serve corridor charging needs for light-duty, medium-duty, and
4 heavy-duty EVs.”⁸¹ UI’s proposed EV Charging Hub project would have the capacity to
5 charge up to 80 vehicles at a time (assuming an average charging power level of 250 kW).⁸²
6 UI explains that the proposed EV Charging Hub will enable corridor fast charging
7 infrastructure to scale as EV market penetration grows:

8 A key premise of the EV charging hub concept is that the
9 current approach of deploying corridor fast chargers with
10 each site containing approximately 4 to 12 DC fast chargers
11 works in an environment with only one or two percent EV
12 market penetration, but the current approach will not scale
13 as market adoption scales.⁸³

14 UI estimates a total capital budget of \$31.2 million for its proposed EV Charging
15 Hub in this three-year rate plan, and the Company is planning to use its existing make-
16 ready program incentives for the EV Charging Hub but will also seek out federal funding
17 to reduce the amount of funds needed through cost recovery.⁸⁴

18 **Q. HOW WILL THE ESTIMATED \$31.2 MILLION BUDGET FOR UI'S PROPOSED**
19 **EV CHARGING HUB BE DISTRIBUTED ACROSS ITS SERVICE TERRITORY?**

20 A. The entire \$31.2 million budget will be concentrated on the development of a single EV
21 charging hub project, which will only serve EV owners that are in close proximity to its
22 eventual location. This “central facility” approach focuses a large portion of UI’s efforts
23 and resources (including ratepayer funds) into a single location instead of distributing EV

⁸¹ Exhibit UI-CETP-1 at 13:18-19.

⁸² Exhibit UI-CETP-1 at 13:23 to 14:1.

⁸³ Exhibit UI-CETP-1 at 14:20-23.

⁸⁴ Exhibit UI-CETP-1 at 15:7-11.

1 charging services geographically across its service territory and/or among different
2 communities within its service territory.

3 **Q. IN YOUR EXPERT OPINION, IS UI'S PROPOSED EV CHARGING HUB IN THE**
4 **BEST INTEREST OF RATEPAYERS?**

5 A. Because UI has not provided sufficient information regarding program costs and benefits,
6 it is not possible for me to make an assessment of whether or not UI's proposed EV
7 Charging Hub is in the best interest of ratepayers. In order to accurately make this
8 assessment, UI would need to (1) conduct a BCA—which to my knowledge has not been
9 completed to date—to demonstrate if and how the program provides any benefits to
10 ratepayers, and (2) conduct a stakeholder engagement process.

11 **Q. PLEASE DESCRIBE THE PROPOSED ENERGY STORAGE INITIATIVES**
12 **ASSOCIATED WITH UI'S CLEAN ENERGY TRANSFORMATION PLANNING.**

13 A. UI's Energy Storage initiatives were constructed to support the State's goal of deploying
14 1,000 MW of energy storage by the end of 2030.⁸⁵ The statewide Electric Storage Program
15 (jointly administered by Connecticut Green Bank, Eversource Energy, and UI) is part of
16 the Company's proposed Energy Storage initiatives. In addition, UI is proposing to
17 implement three battery energy storage systems (BESS) pilots and a solar-plus-BESS
18 project that "will provide innovative and resilient back-up solutions" and "enable the
19 Company to develop BESS microgrid safety and operational procedures including
20 coordination with local communities to support customers during outage and emergency
21 scenarios."⁸⁶

⁸⁵ Exhibit UI-CETP-1 at 17:5-6.

⁸⁶ Exhibit UI-CETP-1 at 25:23

1 In total, UI is seeking \$7.47 million in cost recovery through this proceeding to
2 support its proposed Energy Storage initiatives (see Table 3).

3 **Table 3. Cost Recovery Amounts for UI’s Energy Storage Initiatives**

Energy Storage	Cost Recovery (\$M)			TOTAL
	Rate Year 1	Rate Year 2	Rate Year 3	
Capital Expenditures	\$0.53	\$0.96	\$5.96	\$7.45
Operation & Maintenance Expenses	-	-	\$0.02	\$0.02
Regulatory Assets	-	-	-	-
TOTAL	\$0.53	\$0.96	\$5.98	\$7.47

4
5 *Data source: UI’s Response to Interrogatory No. OCC-261 (Attachment 1). See Exhibit EAS-2 for calculations.*

6 **Q. WHAT IS UI’S ELECTRIC STORAGE PROGRAM?**

7 A. The Electric Storage Program was first established and approved by PURA in Docket No.
8 17-12-03RE03, PURA Investigation into Distribution System Planning of the Electric
9 Distribution Companies – Electric Storage, as a “statewide program to be administered
10 jointly by the Connecticut Green Bank, Eversource Energy, and UI.”⁸⁷ The jointly
11 administered program has a “nine-year target of achieving a total of 580 MW of storage
12 deployments for Residential and Commercial and Industrial (‘C&I’) customers by 2030.”⁸⁸
13 Although the nine-year target does not meet the State’s energy storage goal of 1,000 MW
14 by the end of 2030, UI “anticipates the remaining 420 MW will be met by DEEP
15 procurements and third-party and utility-owned energy storage projects.”⁸⁹ UI is proposing
16 some of its own utility-owned energy storage projects in this proceeding (see discussion of
17 these energy storage pilots and projects below).

⁸⁷ Exhibit UI-CETP-1 at 17:6-9.

⁸⁸ Exhibit UI-CETP-1 at 17:11-13.

⁸⁹ Exhibit UI-CETP-1 at 18:10-11.

1 To date, the program has received several applications for energy storage systems
2 in UI's service territory amounting to 0.506 MW for residential and 3 MW for commercial
3 and industrial, with the anticipation that the first energy storage system enrolled in the
4 program will be operational by November 2022.⁹⁰ According to a recent filing by the
5 Program Administrators, a total of three residential projects have been installed in UI's
6 territory as of December 6, 2022.⁹¹

7 UI anticipates that "all costs for the Electric Storage Program will be recovered
8 through the Company's annual review of the Rate Adjustment Mechanisms ('RAM')."⁹²

9 **Q. WHAT ARE UI'S PROPOSED ENERGY STORAGE PILOTS AND PROJECTS?**

10 A. By signing Public Act No. 22-55 into law, the State of Connecticut required its "two
11 electric distribution companies (EDCs) to develop energy storage pilot projects that
12 provide enhanced reliability and resiliency for utility customers and demonstrate other grid
13 efficiency benefits."⁹³ UI is proposing to implement three Battery Energy Storage Systems
14 (BESS) pilots (to be part of microgrid systems) for a total energy storage capacity of 6.3
15 MW in support of Section 2 of Public Act No. 22-55, which states the following:

16 The Public Utilities Regulatory Authority shall direct each
17 electric distribution company, as defined in section 16-1 of
18 the general statutes, to submit on or before January 1, 2023,
19 no more than three proposals to the authority for a pilot
20 program for the company to build, own and operate energy
21 storage systems, as defined in section 16-1 of the general
22 statutes, for the purpose of demonstrating and investigating
23 how energy storage systems can improve resiliency of

⁹⁰ Exhibit UI-CETP-1 at 18:1-5.

⁹¹ Docket No. 22-08-05, *Annual Energy Storage Solutions Program Review – Year 2*, Letter in Lieu of Exceptions filed by the Connecticut Green Bank (Dec. 9, 2022).

⁹² Exhibit UI-CETP-1 at 18:14-15.

⁹³ Exhibit UI-CETP-4 at 2.

1 critical infrastructure and improve reliability of the electric
2 distribution system.⁹⁴

3 UI's proposed Bridgeport, New Haven, and North Haven BESS pilots were
4 identified "in areas that could provide resiliency and reliability benefits to critical facilities
5 as well as demonstrate the potential of battery energy storage systems (BESS) to
6 intelligently support critical infrastructure."⁹⁵ UI is proposing "to own the three BESS
7 projects as part of Public Act 22-55, in which the EDCs are required to submit for the
8 Authorities review, three pilot program proposals for the Company to build, own, and
9 operate energy storage systems to demonstrate the ability of energy storage systems to
10 improve resiliency and reliability of critical infrastructure."⁹⁶

11 UI is also proposing to implement a solar-plus-BESS project (210 kW solar PV
12 system paired with 315 kWh of battery storage) as "an innovative energy solution for two
13 customers on Pleasure Beach Island ('PBI') in the City of Bridgeport (the 'PBI Project')."⁹⁷
14 The proposed solar-plus-BESS project will replace a "failure-prone" submerged transmission
15 cable to maintain reliable electric service to the customers of PBI.⁹⁸

16 UI estimates a total capital budget of \$14.7 million for its three BESS pilots and the
17 PBI solar-plus storage project. In this three-year rate plan, UI is seeking recovery of \$7.45
18 million in capital expenditures for all projects and an additional \$0.02 million for operation
19 and maintenance (O&M) expenses for the PBI project.

⁹⁴ Connecticut Public Act No. 22-55. Approved May 23, 2022. *An Act Concerning Energy Storage Systems and Electric Distribution System Reliability*. Available at: <https://www.cga.ct.gov/2022/act/pa/pdf/2022PA-00055-R00HB-05327-PA.pdf>

⁹⁵ Exhibit UI-CETP-4 at 2.

⁹⁶ Exhibit UI-CETP-1 at 21:15-19.

⁹⁷ Exhibit UI-CETP-1 at 22:18-20.

⁹⁸ Exhibit UI-CETP-1 at 23:5-6.

1 **Q. IN YOUR EXPERT OPINION, ARE UI'S PROPOSED ENERGY STORAGE**
2 **PILOTS IN THE BEST INTEREST OF RATEPAYERS?**

3 A. Because UI has not provided sufficient information regarding program costs and benefits,
4 it is not possible for me to make an assessment of whether or not UI's proposed Energy
5 Storage Pilots are in the best interest of ratepayers. In order to accurately make this
6 assessment, UI would need to (1) conduct a BCA specifically addressing these proposals—
7 which to my knowledge has not been completed to date—to demonstrate if and how the
8 program provides any benefits to ratepayers, and (2) conduct a stakeholder engagement
9 process.

10 **Q. PLEASE DESCRIBE THE PROPOSED INNOVATIVE COLLABORATIONS,**
11 **PARTNERSHIPS, AND PILOTS ASSOCIATED WITH UI'S CLEAN ENERGY**
12 **TRANSFORMATION PLANNING.**

13 A. To advance Connecticut's Equitable Modern Grid initiative, UI is proposing to implement
14 several initiatives as a part of its Innovative Energy Solutions (IES) Program as well as
15 additional innovation efforts, including demonstration projects and pilots that "enable the
16 Company to test concepts, ideas and approaches, along with emerging technologies under
17 highly controlled settings, to evaluate, filter emergent issues, identify opportunities for
18 additional research and development, and compile lessons learned."⁹⁹ UI is also proposing
19 to partner with academic institutions, such as the University of Connecticut, to conduct
20 interdisciplinary research to support the State in achieving its clean energy strategy.

21 In total, UI is seeking \$0.61 million in cost recovery through this proceeding to
22 support its proposed Innovative Collaborations, Partnerships and Pilots (see Table 4).

⁹⁹ Exhibit UI-CETP-1 at 28:12 to 29:2.

1 **Table 4. Cost Recovery Amounts for UI’s Innovative Collaborations, Partnerships and Pilots**

Innovative Collaborations, Partnerships, and Pilots	Cost Recovery (\$M)			TOTAL
	Rate Year 1	Rate Year 2	Rate Year 3	
Capital Expenditures	\$0.08	\$0.08	\$0.08	\$0.23
Operation & Maintenance Expenses	\$0.12	\$0.13	\$0.13	\$0.38
Regulatory Assets	-	-	-	-
TOTAL	\$0.20	\$0.20	\$0.21	\$0.61

2
 3 *Data source: UI’s Response to Interrogatory No. OCC-261 (Attachment 1). See Exhibit EAS-2 for calculations.*

4 **Q. HOW DOES UI INTEND TO ALLOCATE THE REQUESTED RATEPAYER**
 5 **FUNDS TO ITS INNOVATIVE COLLABORATION EFFORTS?**

6 A. UI does not provide a specific breakdown of how the Company plans to allocate the \$0.61
 7 million of ratepayer funds to its innovative collaboration efforts. In response to
 8 Interrogatory No. OCC-261, UI provided a cost summary indicating that these requested
 9 funds will fall into two categories: (1) Academic Institution Collaboration, and (2) Global
 10 Innovation Challenge—but offering no additional details regarding what these funds will
 11 go towards or how they will benefit ratepayers.¹⁰⁰

12 **Q. IN YOUR EXPERT OPINION, IS THIS THE BEST USE OF RATEPAYER**
 13 **FUNDS?**

14 A. Again, UI has not provided sufficient information regarding program costs and benefits,
 15 and it is therefore not possible for me to make an assessment of whether or not UI’s
 16 proposed Innovative Collaboration program is in the best interest of ratepayers. In order to
 17 accurately make this assessment, UI would need to (1) conduct a BCA—which to my
 18 knowledge has not been completed to date—to demonstrate if and how the program
 19 provides any benefits to ratepayers, and (2) conduct a stakeholder engagement process.

¹⁰⁰ UI’s Response to Interrogatory No. OCC-261 (Attachment 1).

1 **Q. WHAT IS UI'S INNOVATIVE ENERGY SOLUTIONS (IES) PROGRAM?**

2 A. As part of the Innovative Energy Solutions (IES) Program, UI will collaborate with PURA
3 and other program stakeholders to support, administer, and implement the IES functions
4 outlined in Docket No. 17-12-03RE05, PURA Investigation into Distribution System
5 Planning of the Electric Distribution Companies – Innovative Technology Applications
6 and Programs. PURA established the IES Program “to encourage development of novel
7 programs, technologies, products, and services.”¹⁰¹ As part of the IES Program, UI will be
8 involved in the following initiatives:¹⁰²

- 9 1) act as a member of the Innovation Advisory Council (“IAC”);
- 10 2) develop and deliver the Phase 1 – Ideation and Screening documentation;
- 11 3) develop concept proposals for Pathway 2 – EDC-Led projects and Pathway
12 3 – Collaborative EDC/Third Party projects;
- 13 4) work with the IAC to prioritize and select projects;
- 14 5) deploy selected pilot projects;
- 15 6) assess and scale successful projects; and
- 16 7) submit final project and annual reports.

17 In addition, UI proposes to implement additional innovation initiatives such as
18 “collaborating with academic institutions and other innovation collaborators and start-ups
19 to test new technologies as a normal course of doing business by executing a portfolio of
20 innovation initiatives and efforts, including demonstrations and pilots.”¹⁰³

21 **Q. WHAT IS UI'S CLEAN EARTH LAB INITIATIVE?**

¹⁰¹ Exhibit UI-CETP-1 at 28 (footnote 12).

¹⁰² Exhibit UI-CETP-1 at 28:1-6.

¹⁰³ Exhibit UI-CETP-1 at 28:9-12.

1 A. UI is seeking to create a partnership with the University of Connecticut (UConn) to
2 facilitate research and development efforts “that will support and accelerate the
3 achievement of the State’s clean energy strategy, while improving the Company’s ability
4 to continue to operate a safe, reliable, resilient and increasingly decarbonized power grid
5 for its customers and communities.”¹⁰⁴ Through this partnership, UI proposes to establish
6 the Co-Laboratory of Environmental Action, Net-zero-carbon And Renewable
7 Technologies or “CLEAN EARTH Lab” initiative. The CLEAN EARTH Lab initiative
8 will undertake research and development efforts related to (A) climate change impact
9 modeling, (B) outage and flooding forecasting, (C) transmission and distribution planning,
10 (D) distributed energy resource (DER) adoption analysis and strategy, (E) clean hydrogen
11 and offshore wind integrations, and (F) state-of-the-art weather and climate information.¹⁰⁵
12 UI’s Witness James Rincon outlines the Company’s goals associated with the CLEAN
13 EARTH Lab initiative:

14 Through interdisciplinary research, CLEAN EARTH will
15 provide fundamental insights, advanced analytical tools and
16 methodologies to support decarbonization pathways, climate
17 adaptation and grid modernization by providing needed data,
18 use of innovative technologies and science-based solutions,
19 and analytical support for effective decision making toward
20 the mitigation of the risks posed to the power grid by
21 extreme weather and the integration of increasingly high
22 levels of intermittent renewable power generation. The
23 initiative will accelerate research collaboration with regional
24 universities. It will study the effects of climate change on the
25 energy system, including reliability and resilience of energy
26 infrastructure to storms and the sustainability of renewable
27 energy generation, storage, and integration in the power
28 grid.¹⁰⁶

¹⁰⁴ Exhibit UI-CETP-1 at 29:7-10.

¹⁰⁵ Exhibit UI-JR-1 at 10-12.

¹⁰⁶ Exhibit UI-JR-1 at 4:2-11.

1 UI’s CLEAN EARTH Lab proposal “was informed by Docket No.12-07-06,
2 Application of The Connecticut Light and Power Company for Approval of its System
3 Resiliency Plan, and the associated reopener, Docket No. 12-07-06RE01, resulting in the
4 2015 establishment of the Eversource Clean Energy Center at UConn.”¹⁰⁷ Since its
5 inception, the Eversource Energy Center has produced “innovative R&D that supports grid
6 resiliency and efficient grid operation.”¹⁰⁸ Witness Rincon highlights that “[t]he proposed
7 costs for establishing the Avangrid-UConn CLEAN EARTH Lab is less than one-tenth the
8 total cost of the funding approved by PURA to establish the [Eversource Energy Center],
9 one-fourth the relative cost per customer, and includes 10 percent cost share by
10 Avangrid.”¹⁰⁹

11 **Q. PLEASE DESCRIBE THE PROPOSED GRID MODERNIZATION INITIATIVES**
12 **ASSOCIATED WITH UI’S CLEAN ENERGY TRANSFORMATION PLANNING.**

13 A. UI is proposing to implement two grid modernization projects related to Integrated System
14 Planning Tools that were informed by decisions in previous PURA dockets, including: (1)
15 the Advanced DER and Load Forecasting project; and (2) the CYME Server project. UI’s
16 Advanced DER and Load Forecasting project “is a planned collaboration to gain additional
17 insights into the drivers of electro-technology and DER adoption to aid in the development
18 of more granular load and DEP forecasts in terms of time and location.”¹¹⁰ UI’s CYME
19 Server project “is the commissioning of hardware and the real-time capabilities of the

¹⁰⁷ UI’s Response to Interrogatory No. OCC-259(a).

¹⁰⁸ Exhibit UI-JR-1 at 8:7-8.

¹⁰⁹ Exhibit UI-JR-1 at 8:15-18.

¹¹⁰ Exhibit UI-CETP at 31:1-4.

1 Company’s distribution engineering analysis software to automate some of the distribution
 2 system modeling and analysis processes.”¹¹¹

3 UI is also proposing to expand its membership to the Electric Power Research
 4 Institute (EPRI) “to facilitate research and industry collaboration around clean energy”
 5 related to energy storage and distributed generation, DER integration, electric
 6 transportation, and electrification.¹¹²

7 In total, UI is seeking \$3.42 million in cost recovery through this proceeding to
 8 support its proposed Grid Modernization initiatives (see Table 5).

9 **Table 5. Cost Recovery Amounts for UI’s Grid Modernization Initiatives**

Grid Modernization	Cost Recovery (\$M)			TOTAL
	Rate Year 1	Rate Year 2	Rate Year 3	
Capital Expenditures	\$0.08	\$0.83	\$1.06	\$1.97
Operation & Maintenance Expenses	\$0.45	\$0.14	\$0.86	\$1.45
Regulatory Assets	-	-	-	-
TOTAL	\$0.53	\$0.97	\$1.92	\$3.42

10
 11 *Data source: UI’s Response to Interrogatory No. OCC-261 (Attachment 1). See Exhibit EAS-2 for calculations.*

12 **VI. ASSESSMENT OF UI’S APPLICATION FROM A CLIMATE**
 13 **PERSPECTIVE**

14 **Q. IN YOUR EXPERT OPINION, HOW DO ELECTRIC DISTRIBUTION**
 15 **COMPANIES PLAN FOR PROGRAMS AND INITIATIVES THAT ARE IN THE**
 16 **BEST INTEREST OF THEIR CUSTOMERS?**

17 A. In my experience, electric distribution companies plan to include findings from one, or
 18 often all, of three methods to assess whether planned programs and initiatives are in the
 19 best interest of their customers: benefits-cost analysis (BCA), comparison to similar

¹¹¹ Exhibit UI-CETP-1 at 31:4-6.

¹¹² Exhibit UI-CETP-1 at 31:7-10.

1 programs run elsewhere, and findings from stakeholder processes. BCAs are used to
2 estimate expected customer benefits and costs from specific programs and initiatives using
3 the best available data and assumptions. The National Standard Practice Manual (NSPM)
4 for BCAs of distributed energy resources provides a detailed methodology of best practices
5 for developing and conducting such an assessment.¹¹³ Comparisons to similar existing
6 programs run elsewhere permit the distribution company to incorporate a wealth of existing
7 knowledge in the design of new programs and initiatives, and also aid the regulatory body
8 in measuring the extent to which associated costs are necessary and useful, as compared to
9 established and emerging industry standards. Stakeholder processes allow for more
10 information regarding context, customer impacts, and the results of analysis by third-party
11 experts to be included in utility plans and proposals. While BCA provides a generic, high-
12 level comparison of expected costs and benefits of a project/program, open dialogue with
13 communities, and their representatives, that are actually impacted by the project/program
14 can bring to light more specific, real-world details regarding the application of a project or
15 program in a particular point place and time.

16 **Q. HAS UI EMPLOYED, OR DOES IT PLAN TO EMPLOY A BENEFIT-COST**
17 **ANALYSIS (BCA) TO EVALUATE ITS CLEAN ENERGY TRANSFORMATION**
18 **PROGRAMS AND INITIATIVES?**

19 A. No. UI's responses to Interrogatory Nos. OCC-248 through 260 indicate that the Company
20 has not used BCAs to evaluate its Clean Energy Transformation programs and initiatives

¹¹³ National Energy Screening Project (NESP). August 2020. *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources (NSPM for DERs)*. Available at: <https://www.nationalenergyscreeningproject.org/national-standard-practice-manual/>

1 (with the exception that a BCA was conducted by The Connecticut Green Bank for the
2 jointly administered Electric Storage Program).

3 **Q. WHAT VALUE DOES CONDUCTING A BENEFIT-COST ANALYSIS (BCA) ON**
4 **PROGRAMS AND INITIATIVES PROVIDE?**

5 A. BCAs compare program benefits and costs to identify programs that provide ratepayers
6 with greater benefits than costs. A thorough BCA will include a clear assessment of who
7 receives which benefits and who pays which costs. In UI's case, to identify programs that
8 are in the best interest of ratepayers, program BCAs should include assessment of benefits
9 to its parent company's Avangrid's shareholders (as required by its corporate climate
10 goals). In Connecticut, BCAs of EDC programs can be used as tool to identify or select
11 programs that are the most cost effective for ratepayers among all programs that meet State
12 climate requirements.

13 **Q. HAS UI COMPARED, OR DOES IT PLAN TO COMPARE ITS CLEAN ENERGY**
14 **TRANSFORMATION PROGRAMS AND INITIATIVES TO THOSE IN OTHER**
15 **JURISDICTIONS?**

16 A. When asked in Interrogatory Nos. OCC-248 through 260, UI provided comparisons to its
17 MHD Vehicle Make-Ready Program and CLEAN EARTH Lab Initiative, but stated that
18 no comparable programs exist for its remaining Clean Energy Transformation programs
19 and initiatives.

20 **Q. WHAT VALUE DOES COMPARING PROGRAMS AND INITIATIVES TO**
21 **THOSE IN OTHER JURISDICTIONS PROVIDE?**

22 A. Comparisons to similar programs and initiatives in other jurisdictions allows for the wealth
23 of experience collected elsewhere to benefit UI's ratepayers. Examining—and making

1 available to stakeholders—a thorough comparison of a proposed program to similar
2 programs planned and conducted elsewhere has the potential to reduce exposure to costly
3 mistakes and locate opportunities for cost savings and other efficiency gains.

4 **Q. HAS UI ENGAGED, OR DOES IT PLAN TO ENGAGE IN STAKEHOLDER**
5 **PROCESSES TO ASSESS ITS CLEAN ENERGY TRANSFORMATION**
6 **PROGRAMS AND INITIATIVES?**

7 A. I am unaware of any plan for UI to engage in stakeholder processes beyond the confines of
8 this rate case and the conversations already generally underway within PURA dockets as
9 referenced throughout this testimony. It is important to note that many of the projects
10 described in UI’s Clean Energy Transformation proposal have not been raised or discussed
11 within the PURA dockets that would logically consider such projects. For example, as
12 noted above, UI’s MHD proposal has not been evaluated within Docket 21-09-17. The
13 Charging Hub and Curbside Charging Pilot have not been discussed within Docket 17-12-
14 03RE04 or any of the subsequent EV Program Annual Review dockets. The BESS pilots
15 have not been discussed within Docket 17-12-03RE03 or any of the subsequent ESS
16 Program Annual Review dockets. Evaluating these proposals in this isolated and separate
17 context makes evaluating the overall benefits, impacts, and interoperability of these
18 projects within the wholistic Equitable Modern Grid framework difficult.

19 **Q. WHAT VALUE DOES STAKEHOLDER ENGAGEMENT ON PROGRAMS AND**
20 **INITIATIVES PROVIDE?**

21 A. Stakeholder engagement provides an opportunity for open dialogue with representatives
22 from communities that are—or will be—impacted by projects/programs and can provide

1 specific, real-world details regarding actual and/or anticipated impacts of a project or
2 program and community-specific context regarding project or program costs and benefits.

3 **Q. HAVE YOU REVIEWED AND FORMED A PRELIMINARY ASSESSMENT OF**
4 **THE INFORMATION PROVIDED BY UI REGARDING ITS TRANSPORTATION**
5 **ELECTRIFICATION PROGRAMS AND INITIATIVES?**

6 A. Yes.

7 **Q. WHAT IS YOUR PRELIMINARY ASSESSMENT?**

8 A. UI has not conducted a BCA of its Transportation Electrification programs, which means
9 that the relative costs versus benefits of these programs to customers are unknown: an
10 important gap in knowledge that makes any review of these programs fundamentally
11 incomplete. That being said, UI's Transportation Electrification programs are broadly
12 similar to programs offered by other utilities. However, my preliminary review of public
13 information regarding transportation electrification programs run by other utilities turned
14 up numerous examples of third-party, or public/private, partnerships with additional
15 market actors that UI's description of its EV Charging Hub initiative does not discuss.
16 These types of partnerships have the potential to both lower costs and reduce risks to
17 utility customers.

18 For example, Power Edison—a developer and provider of utility-scale mobile
19 energy storage—has partnered with Hugo Neu Realty Management and other
20 stakeholders to deploy a project comprised of more than 200 high-power fast chargers in
21 New Jersey. Power Edison's new charging hub will be built in Kearny Point Industrial
22 Park on property owned by Hugo Neu Realty Management; Hugo Neu has secured \$14.5

1 million in loans towards the Kearny Point project site.¹¹⁴ This charging hub is expected to
2 power thousands of light-, medium- and heavy-duty vehicles daily in the region, as well
3 as charge electric marine vessels, with more than 200 MW and 4,800 MWh of daily
4 capacity.¹¹⁵

5 Sacramento's Regional Transit District and Municipal Utility District are
6 partnering with the private developer GiddyUp EV to build a charging hub. The first
7 phase of construction will implement 10 high-speed charging stations that can host up to
8 20 light- and heavy-duty vehicles, including buses and trucks. The charging hub will also
9 include solar canopies, Wi-Fi and battery storage. GiddyUp EV will fund the purchase
10 and installation of DCFC ports, providing the fastest recharge for public, private and fleet
11 customers. GiddyUp EV is responsible for the market cost of the parking lot and full
12 management of the charging equipment including the purchase, installation, ownership
13 and maintenance of charging stations.¹¹⁶

14 An electric vehicle charging hub project led by Orlando Utility Commission has
15 been awarded a \$500,000 grant from the Florida Department of Environmental
16 Protection. The charging hub will be located in downtown Orlando to expand the State's
17 EV charging infrastructure. The site will feature up to 22 DCFC stations; including 16
18 Tesla superchargers and six universal chargers for a total capacity of up to 350 kilowatts.

¹¹⁴ Real Estate Weekly. March 11, 2020. "Hugo Neu adding Annex with latest loan package." Available at: <https://rew-online.com/hugo-neu-adding-annex-with-latest-loan-package/>

¹¹⁵ Business Wire. 2021. "Power Edison Partnership to Develop the Nation's Largest Electric Vehicle Charging Site in Metropolitan New York Area." *Business Wire*. Available at: <https://www.businesswire.com/news/home/20211111005277/en/Power-Edison-Partnership-to-Develop-the-Nation%E2%80%99s-Largest-Electric-Vehicle-Charging-Site-in-Metropolitan-New-York-Area>

¹¹⁶ Center for Innovation Finance Support. 2020. "Project Profile: Sacramento High-Speed Electric Vehicle Charging Hub Project, California." *U.S. Department of Transportation Federal Highway Administration*. Available at: https://www.fhwa.dot.gov/ipd/project_profiles/ca_sacramento_high_speed_ev_hub.aspx

1 Other partners in the project include the City of Orlando, Orange County, and Power
2 Electronics.¹¹⁷

3 **Q. HAVE YOU REVIEWED AND FORMED A PRELIMINARY ASSESSMENT OF**
4 **THE INFORMATION PROVIDED BY UI REGARDING ITS ENERGY STORAGE**
5 **PROGRAMS AND INITIATIVES?**

6 A. Yes.

7 **Q. WHAT IS YOUR PRELIMINARY ASSESSMENT?**

8 A. UI has not conducted a BCA of its Company-owned Energy Storage programs, which
9 means that the relative costs versus benefits of these programs to customers are unknown:
10 an important gap in knowledge that makes any review of these programs fundamentally
11 incomplete.

12 UI's proposed BESS pilot programs include the installation of 6.3 MW of battery
13 storage in the form of BESS microgrids at three sites, two of which are environmental
14 justice communities and Department of Energy Disadvantaged Communities.¹¹⁸ In
15 response to Interrogatory No. OCC-255, UI states that it "did not perform a systematic
16 comparison of like projects as part of the development of the three proposed projects."¹¹⁹

17 My preliminary review of similar programs found five examples of similar BESS
18 pilots:

¹¹⁷ Bentley, T. 2020. "OUC-led partnership receives grant to build EV charging station in downtown Orlando." *American Public Power Association*. Available at: <https://www.publicpower.org/periodical/article/ouc-led-partnership-receives-grant-build-ev-charging-station-downtown-orlando>

¹¹⁸ Exhibit UI-CETP-4 at 1.

¹¹⁹ UI's Response to Interrogatory No. OCC-255.

- 1 • In Borrego Springs, California, a utility-owned microgrid pilot combining
2 renewable energy and battery storage was executed by SDG&E.¹²⁰
- 3 • In 2016, Xcel Energy received approval for two utility-scale solar-plus-battery
4 microgrids in Colorado, and in 2020, Xcel received approval for 7 new
5 community microgrids in Colorado.¹²¹
- 6 • In Michigan, Consumers Energy installed a 500-kW battery as part of a microgrid
7 pilot program connecting 1,800 solar panels in Grand Rapids' Circuit West
8 district.¹²²
- 9 • In Florida, Tampa Electric recently received approval for its four-year pilot
10 program combining renewable energy with battery storage in a utility-owned,
11 residential microgrid.¹²³
- 12 • Hawaiian Electric is now seeking approval for the first-ever utility microgrid
13 based on storage in Hawaii, to be completed in November 2024 if approved; in
14 October 2021, the Company filed an RFP requesting 5 MW and 22 MWh of
15 standalone energy storage capacity for microgrid integration.¹²⁴

¹²⁰ San Diego Gas & Electric Company. N.d. "Microgrids Help Integrate Renewable Energy and Improve Community Resiliency." Available at: <https://www.sdge.com/more-information/environment/smart-grid/microgrids>

¹²¹ (1) Maloney, P. March 10, 2016. "Xcel to test battery storage, microgrid systems in Denver for solar." *Utility Dive*. Available at: <https://www.utilitydive.com/news/xcel-to-test-battery-storage-microgrid-systems-in-denver-for-solar/415336/>; (2) Wood, E. January 16, 2020. "Xcel Energy to Build 7 Community Microgrids." *Microgrid Knowledge*. Available at: <https://www.microgridknowledge.com/editors-choice/article/11429185/xcel-energy-to-build-7-community-microgrids-negotiating-with-siemens-and-fluence>

¹²² Consumers Energy. January 23, 2019. "Consumers Energy Dedicates First Ever Solar, Battery Storage Systems on Grand Rapids' West Side" [News Release]. Available at: <https://www.consumersenergy.com/news-releases/news-release-details/2019/01/23/consumers-energy-dedicates-first-ever-solar-battery-storage-systems-on-grand-rapids-west-side>

¹²³ Tampa Electric. N.d. "Microgrid Pilot Program." Available at: <https://www.tampaelectric.com/company/solar-energy/microgridpilotprogram/>

¹²⁴ Hawaiian Electric. N.d. "North Kohala Microgrid." Available at: <https://www.hawaiianelectric.com/about-us/our-vision-and-commitment/investing-in-the-future/north-kohala-microgrid>

1 Given the extensive landscape of recent and existing pilot programs for BESS
2 microgrids in other states, UI could benefit from studying and learning from prior pilots
3 such as the ones outlined above as it implements its own BESS microgrid pilot projects in
4 Connecticut.

5 In addition, utilities across the country are offering battery storage programs where
6 the utility—rather than the customer—pays for and owns behind-the-meter (BTM) battery
7 resources. For example, Liberty Utilities in New Hampshire¹²⁵ and Green Mountain Power
8 in Vermont¹²⁶ both offer utility-owned BTM battery storage programs where customers
9 can participate by paying either an upfront fee or a monthly payment for a ten-year contract
10 duration. Both programs include automatic dispatch algorithms that also allow the utility
11 to override the algorithm and discharge customer’s batteries at times of peak and have been
12 found to have reduced costs for participating customers.^{127,128} A comparison of the net
13 costs to ratepayers of customer-owned versus utility-owned BTM battery programs would
14 be valuable information in determining which projects best serve ratepayer needs.

15 **VII. UI’S PERFORMANCE METRICS**

16 **Q. DOES UI HAVE A SCORECARD OR OTHER SIMILAR INTERNAL**
17 **EVALUATION METHODS TO MEASURE AND TRACK THE COMPANY’S**
18 **PERFORMANCE OF ITS PROGRAMS, PROJECTS, AND INITIATIVES?**

¹²⁵ Guidehouse. 2021. *Battery Storage Pilot Program Quarterly Evaluation Report: Q3 2021*. Prepared for Liberty Utilities. p.1

¹²⁶ Green Mountain Power. 2020. *Energy Storage System Service*. Available at: <https://greenmountainpower.com/wp-content/uploads/2020/08/GMP-ESS-Tariff-2nd-Revision-6-1-20.pdf>. p.2

¹²⁷ Green Mountain Power. 2021. *Integrated Resource Plan*. p.1-11

¹²⁸ Liberty Utilities. n.d. “Battery Storage.” Available at: <https://new-hampshire.libertyutilities.com/bath/residential/smart-energy-use/electric/battery-storage.html>

1 A. No, UI does not have a scorecard or other similar internal evaluation method to measure
2 and track the Company’s performance of its programs, projects, and initiatives. In response
3 to Interrogatory No. OCC-267 asking for an evaluation method to measure and track
4 company performance, UI responded:

5 The Company does not currently keep or perform a
6 scorecard to internally evaluate and track performance of the
7 proposed Clean Energy Transformation programs, projects,
8 and initiatives.¹²⁹

9 **Q. WHAT METRICS DOES UI USE OR PLAN TO USE TO MEASURE AND TRACK**
10 **THE PERFORMANCE OF ITS CLEAN ENERGY TRANSFORMATION**
11 **PROGRAMS, PROJECTS, AND INITIATIVES?**

12 In its Application, UI proposes a total of five performance-based metrics—three of which
13 are associated with the Company’s clean energy transformation efforts:

- 14 • Distributed energy resource (DER) interconnection – UI has established annual
15 targets and proposes to track the total number of megawatts of DER
16 interconnected.¹³⁰
- 17 • Electric vehicle (EV) managed charging – UI proposes to “track and ultimately
18 develop a target for the percent of EV charging that can be moved to ‘off-peak’
19 periods (e.g. 10 PM to 5 AM) of electric demand.”¹³¹
- 20 • Electric storage adoption – UI proposes to track the “percentage of [active
21 demand response (ADR)] events during the summer and winter demand
22 response seasons that encompass the actual peak hour as reported by ISO-NE”

¹²⁹ UI’s Response to Interrogatory No. OCC-267.

¹³⁰ Exhibit UI-1 at 27:12-13.

¹³¹ Exhibit UI-1 at 29:2-4.

1 as well as “the percentage of total available capacity deployed during an ADR
2 event.”¹³²

3 In response to Interrogatory Request No. OCC-268 asking for the Company’s
4 metrics used to measure performance of its Clean Energy Transformation initiatives, UI
5 responded with a list of its “current or potential proposed metrics” for each initiative.¹³³ UI
6 listed current metrics for programs that have “metrics established under PURA” including:
7 Light-Duty Make-Ready Program, Managed Charging Program, and Energy Storage
8 Program. For the remaining nine Clean Energy Transformation programs, UI notes only
9 that it “plans to measure performance through metrics” or “plans to develop” project
10 metrics.¹³⁴

11 **Q. HAS UI MADE A COMMITMENT TO PROVIDE ANY INFORMATION OR**
12 **DATA ASSOCIATED WITH THESE METRICS TO PURA OR OTHER**
13 **STAKEHOLDERS?**

14 A. No, UI has made no commitment to provide information or data associated with its
15 performance relative to its proposed metrics in this docket.

16 **Q. IN YOUR EXPERT OPINION, WHAT PROGRAM MEASUREMENT AND**
17 **EVALUATION DO YOU EXPECT TO SEE IN A PUBLIC UTILITY DOCKET OF**
18 **THIS TYPE?**

19 A. I would expect to see well-defined metrics to objectively evaluate and track results across
20 all UI’s initiatives, including its Clean Energy Transformation initiatives. Metrics should
21 be clearly defined, transparently reported, and enable UI and third-party expert reviewers

¹³² Exhibit UI-1 at 29:12-15.

¹³³ UI’s Response to Interrogatory No. OCC-268.

¹³⁴ Ibid.

1 to evaluate its performance on an annual basis. In addition, there should be specific
2 commitments regarding the frequency of reporting on these metrics.

3 **Q. DOES UI PLAN TO MEASURE, TRACK, AND REPORT THE EMISSION**
4 **REDUCTIONS ACHIEVED BY ANY OF ITS CLEAN ENERGY**
5 **TRANSFORMATION INITIATIVES?**

6 A. No, based on the information provided in its Application and response to Interrogatory No.
7 OCC-268, UI makes no commitment to track or report on the emission reductions of its
8 Clean Energy Transformation initiatives or the contribution of these initiatives towards
9 Connecticut's decarbonization goals.

10 **Q. DOES UI PLAN TO MEASURE, TRACK, AND REPORT THE RATEPAYER**
11 **IMPACTS RESULTING FROM ANY OF ITS CLEAN ENERGY**
12 **TRANSFORMATION INITIATIVES?**

13 A. Based on my review of UI's Application and responses to Interrogatories, I have not seen
14 any information that suggests that UI plans to measure or track the ratepayer impacts of its
15 Clean Energy Transformation initiatives.

16 **Q. DO UI'S PERFORMANCE METRICS ADEQUATELY ADDRESS ISSUES**
17 **RELATED TO CLIMATE, DECARBONIZATION, EMISSION REDUCTIONS,**
18 **OR RATEPAYER IMPACTS?**

19 A. No, UI does not have well-defined metrics that enable the transparent, objective evaluation
20 of the results of its Clean Energy Transformation initiatives, nor does the Company make
21 any commitment to track or report on the emission reductions or on the ratepayer impacts
22 of these initiatives.

1 **VIII. CONCLUSION**

2 **Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS.**

3 B. Based upon my review of UI's Application, I conclude and recommend the following:

- 4 • UI has not provided benefit-cost assessment (BCA) of its Clean Energy
5 Transformation programs and initiatives. Without such assessment it is not possible
6 to determine whether the proposed programs are the most cost-effective programs
7 that could achieve the same goals, and whether ratepayers' costs have been
8 minimized within the context of taking actions consistent with the State's
9 achievement of its greenhouse gas reduction and other clean energy targets. BCA
10 findings—both in proposing programs and in evaluating them—are a bare
11 minimum for permitting stakeholder engagement, review by third party experts,
12 and good decision-making by PURA on behalf of ratepayers. PURA should require
13 EDCs to submit BCAs as part of their Clean Energy Transformation proposals for
14 ratepayer funding.
- 15 • UI has provided only limited comparisons to similar programs in other
16 jurisdictions. UI is not the first utility to design and propose electric transportation,
17 storage and other clean transition policies. An examination of the experience of
18 other utilities and jurisdictions is essential to avoiding unnecessary and costly
19 investments. PURA should require EDCs to present comparative information when
20 other utility programs exist bearing strong similarities to a proposed Clean Energy
21 Transformation program.
- 22 • UI appears not to have conducted any stakeholder engagement with regard to its Clean
23 Energy Transformation programs and initiatives. Stakeholder engagement—including

1 meetings with and feedback from ratepayers, towns, community groups, advocacy groups,
2 and State agencies—is an essential element of any public process. For example,
3 Connecticut DEEP conducted stakeholder engagement to prepare and implement the
4 State’s Comprehensive Energy Strategy (CES), including through public hearings,
5 technical meetings, and opportunities for written comments.¹³⁵ CES stakeholder
6 engagement helped the State to identify key research questions for CES analysis, compile
7 relevant modeling studies to consider, and provided input across all issues under
8 consideration like equity, affordability and resilience.¹³⁶ Engagement leads to improved
9 information regarding costs and benefits, both financial and social, and permits the
10 introduction of information regarding costs or benefits that are borne disproportionately
11 across different communities. PURA should require EDCs to engage in public stakeholder
12 engagement in advance of program proposal, and to report on the findings of this
13 engagement and changes to program design resulting from this engagement as a part of
14 EDC’s Clean Energy Transformation program proposals.

- 15 • UI has not proposed metrics that could assist with evaluation of success specific to
16 most of its Clean Energy Transformation programs and initiatives and has not
17 committed to a specific timetable for evaluating these programs. Ratepayer
18 investments should be evaluated regularly to ensure that programs’ real world
19 applications match or exceed net benefits expected in their design phase. PURA
20 should require EDCs’ proposed Clean Energy Transformation programs to include

¹³⁵ Connecticut DEEP. September 2022. “Comprehensive Energy Strategy (CES).” Available at: <https://portal.ct.gov/DEEP/Energy/Comprehensive-Energy-Plan/Comprehensive-Energy-Strategy>.

¹³⁶ Hoffman, L.D. and Feinn, L. January 2022. “Connecticut DEEP Announces a New Comprehensive Energy Strategy For 2022.” Available at: <https://www.pullcom.com/newsroom-publications-Connecticut-DEEP-Announces-New-Comprehensive-Energy-Strategy-2022>.

1 specific commitments to metrics and reporting. These metrics should include
2 greenhouse gas emission impacts and ratepayer impacts reported by program and
3 by time period.

4 **Q. DOES THIS COMPLETE YOUR PREFILED DIRECT TESTIMONY?**

5 A. Yes, it does.