

STATE OF NEW HAMPSHIRE
before the
PUBLIC UTILITIES COMMISSION

Public Service Company of New Hampshire d/b/a Eversource Energy

DE 19-057

**PETITION FOR ELECTRIC VEHICLE MAKE-READY AND DEMAND CHARGE
ALTERNATIVE PROPOSALS**

Pursuant to New Hampshire Code Admin. Rules Puc 203.06 and Order No. 26,433 (December 15, 2020), Public Service Company of New Hampshire d/b/a Eversource Energy ("Eversource" or the "Company") hereby petitions for the New Hampshire Public Utilities Commission ("Commission") to approve Eversource's proposal for its make-ready investments supporting Electric Vehicle ("EV") charging infrastructure in New Hampshire and a proposal for an alternative to demand charges for EV charging rates, and to find that both proposals present a reasonable course of action for EV adoption in New Hampshire. In support of this Petition, Eversource states the following:

1. In section 16.2 of the comprehensive settlement agreement in Eversource's distribution rate case, Docket No. DE 19-057, the Company agreed that "[w]ithin four months following the Commission's approval of this Settlement Agreement, [the Company] shall file a proposal for make-ready investments supporting electric vehicle charging infrastructure in New Hampshire and request that the Commission open a new docket to consider the proposal;" and that included with the filing of the proposal for make-ready investments the Company would "include a proposal for an alternative to demand charges for electric vehicle charging rates." (Order 26,433 at 32). This petition and the supporting testimony and exhibits comprise both of the above-mentioned proposals for the Commission's consideration and approval.

2. As described in the included joint testimony of Edward A. Davis, Brian J. Rice and Kevin M. Boughan, Eversource’s “Make-Ready EV Charging Infrastructure Program” (“Make-Ready”), would support the development of a Direct Current Fast Charging (“DCFC”) corridor throughout New Hampshire, by investing approximately two million dollars in electrical infrastructure to support DCFC stations and by doing so, significantly expand New Hampshire’s network of travel corridor EV charging stations by reducing the cost burden of site hosts seeking to install EV charging equipment.

3. The Company’s Make-Ready investment will directly support sites in Eversource’s service territory that are chosen through the New Hampshire Volkswagen Environmental Mitigation Trust (“NH Trust”) Request for Proposal (“RFP”) competitive solicitation process. The Company estimates that the RFP process will result in approximately five DCFC locations being deployed throughout Eversource’s service territory. Under this proposal, the Company will not own the chargers themselves. Instead, financing for the Electric Vehicle Service Equipment (“EVSE”) will come from the NH Trust. The EVSE will then be owned and operated by a third party (either an EVSE charging vendor or customer site host) who is selected through the NH Trust RFP process. Eversource proposes to provide new service connections for each new charging service location as well as the requisite new infrastructure both in front of and behind the meter. Of this work, internal Eversource resources will install the front of the meter infrastructure, while work behind the meter will be contracted with third-party electrical contractors selected by the NH Trust awardees.

4. Eversource is proposing this DCFC infrastructure program to support the State’s disbursement of NH Trust funds consistent with the New Hampshire Beneficiary Mitigation Plan. In the Company’s assessment, the disbursement of the NH Trust funds alone will not be sufficient to enabling the development of a DCFC travel corridor along the State’s major

roadways and pairing the NH Trust funding with a utility-administered electrical infrastructure program will help to ensure that New Hampshire Department of Environmental Services is able to successfully deploy this network of DCFC.

5. Eversource's proposed "Demand Charge Alternative" is a response to significant stakeholder concerns in both the Company's distribution rate case, Docket No. DE 19-057, as well as the Commission's proceeding in both Docket Nos. IR 20-004 and DE 20-170 over the impact of demand charges on EV charging facilities, which characteristically have a high demand draw but low utilization. General service rates are designed around the demand and energy characteristics for a given class and include demand rates appropriate for that class.

6. Eversource's Demand Charge Alternative would provide an alternative to Eversource's Rate GV, to account for the fact that public EV charging stations are expected to have relatively low energy utilization during at least the first few years of station deployment, which makes the demand charges of Rate GV a high-cost barrier to EV charging hosts. Eversource's proposed approach of addressing Rate GV demand charges effectively reduces the demand charge barrier where utilization is the lowest, while addressing concerns over rate equity. This rate is being presented as an optional alternative to the otherwise applicable Rate GV. Customers will continue to be eligible to take service under Rate GV, including if they initially elected to take service under the alternative rate.

7. At this stage of the Demand Charge Alternative's development, the Company does not have proposed tariff language, as it is likely to be determined by the adjudicative proceeding in which it will be considered. Accordingly, the Company has not included specific proposed tariff language in this initial filing and will work with the parties to the proceeding to determine the most appropriate language to implement the proposed Demand Charge Alternative, which will be presented to the Commission for its review and approval in the course of the proceeding.

WHEREFORE, based upon the above and the included testimony, exhibits and information,

Eversource respectfully requests that the Commission:

1. Open a new docket to consider Eversource's "Make-Ready EV Charging Infrastructure Program" and "Demand Charge Alternative";
2. Approve both Eversource's "Make-Ready EV Charging Infrastructure Program" and "Demand Charge Alternative", finding that both proposals offer reasonable courses of action for EV adoption in New Hampshire; and
3. Order such further relief as may be just and equitable.

Respectfully,

Public Service Company of New Hampshire d/b/a Eversource
Energy By Its Attorney

Date: 4/15/21

By: 

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

JOINT TESTIMONY OF EDWARD A. DAVIS, BRIAN J. RICE

AND KEVIN M. BOUGHAN

**PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
D/B/A EVERSOURCE ENERGY**

**ELECTRIC VEHICLE PUBLIC CHARGING MAKE-READY INFRASTRUCTURE
AND DEMAND CHARGER ALTERNATIVE PROPOSAL**

Docket No. DE 19-057

1 **Q. Mr. Davis, please state your name, business address and position.**

2 A. My name is Edward A. Davis. My business address is 107 Selden Street, Berlin, CT
3 06037. My position is Director, Rates at Eversource Energy Service Company and in that
4 position I provide service to the operating companies of Eversource Energy including
5 Public Service Company of New Hampshire d/b/a Eversource Energy (“Eversource” or
6 “the Company”).

7 **Q. Have you previously testified before the New Hampshire Public Utilities**
8 **Commission?**

9 A. Yes. I have on many occasions testified before the New Hampshire Public Utilities
10 Commission (“Commission”) on behalf of Eversource, and at the state utility

1 commissions in Connecticut and Massachusetts on behalf of other Eversource Energy
2 affiliates on rate related matters.

3 **Q. Please describe your educational background and professional experience.**

4 A. I graduated from the University of Hartford with a Bachelor of Science degree in
5 Electrical Engineering in 1988 and from the University of Connecticut with a Master of
6 Business Administration in 1997. I joined Northeast Utilities, now Eversource Energy, in
7 1979 and have held various positions in the areas of consumer economics, engineering
8 and operations, wholesale and retail marketing and rate design, regulation and
9 administration.

10 **Q. Mr. Rice, please state your name, business address and position.**

11 A. My name is Brian J. Rice. My business address is 247 Station Drive, Westwood, MA
12 02090. My position is Manager, Regulatory Projects at Eversource Energy Service
13 Company and in that position I provide service to the operating companies of Eversource
14 Energy including the Company.

15 **Q. Have you previously testified before the Commission?**

16 A. No, but I've submitted testimony pertaining to development of utility Low-Moderate
17 Income solar programs in Docket No. DE 19-104 and development of a statewide Data
18 Platform in Docket No. DE 19-197. I have also testified before the Massachusetts
19 Department of Public Utilities and Connecticut Public Utilities Regulatory Authority in

1 several proceedings related to utility program design, revenue requirements and cost
2 recovery.

3 **Q. Please describe your educational background and professional experience.**

4 A. I graduated from Union College in Schenectady, NY in 2004 with a Bachelor of Science
5 degree in Industrial Economics and received a Master of Business Administration degree
6 with a concentration in corporate finance in 2011 from the Boston College Carroll
7 Graduate School of Management in Chestnut Hill, Massachusetts. I've held positions in
8 different functions at Eversource since 2011. My present responsibilities include
9 managing analysis and projects in support of enterprise-wide regulatory initiatives across
10 Eversource's operating businesses. Prior to joining Eversource I held consulting
11 positions covering various segments of the energy and utility industries.

12 **Q. Mr. Boughan, please state your name, business address and position.**

13 A. My name is Kevin M. Boughan. My business address is 107 Selden Street, Berlin, CT
14 06037. My position is Manager, Research and Business Development at Eversource
15 Energy Service Company and in that position I provide service to the operating
16 companies of Eversource Energy including the Company.

17 **Q. Have you previously testified before the Commission?**

18 A. No. However, I have testified before the Massachusetts Department of Public Utilities
19 and Connecticut Public Utilities Regulatory Authority in several proceedings related to

1 utility electric vehicle (“EV”) infrastructure program design, cost recovery, and EV
2 specific rates.

3 **Q. Please describe your educational background and professional experience.**

4 A. I graduated from Davidson College in 1997 with a Bachelor of Arts degree in History. In
5 2006 I earned a Master of Business Administration from Yale School of Management with
6 a concentration in marketing and strategy. From 2006 to 2017 I held several positions at
7 Praxair, Inc., an industrial gases company in Danbury, Connecticut, in strategy and energy
8 business development, ending my tenure in the position of Director, Global Market
9 Strategy and Competitive Assessment. My experience includes evaluating and
10 commercializing new energy products, auditing internal and project controls, evaluating
11 management strategy and advising on corporate acquisitions. In 2017, I left my position
12 at Praxair, Inc. to join Eversource Energy as Manager, Research & Business Development
13 in the Strategic Planning group, where I am responsible for development strategies
14 including the development of EV charging programs across Eversource Energy.

15 **Q. What is the purpose of this testimony?**

16 A. The purpose of our testimony is to describe the Company’s proposal for make-ready
17 investments supporting EV charging infrastructure in New Hampshire and a proposal for
18 an alternative to demand charges for EV charging rates. Eversource is filing these
19 proposals pursuant to the Settlement Agreement on Permanent Distribution Rates
20 approved by the Commission in Docket No. DE 19-057. Eversource originally proposed
21 a \$2.0M investment for a public-private partnership to develop an EV fast charging
22 corridor for New Hampshire within the Company’s petition for permanent rates in

1 Docket No. DE 19-057. As part of the approved Settlement Agreement in the docket, the
2 Company agreed to separately file a proposal for make-ready investments supporting
3 electric vehicle charging infrastructure in New Hampshire and request that the
4 Commission open a new docket to consider the proposal. The Company further agreed to
5 include a proposal for an alternative to demand charges for electric vehicle charging
6 rates. In accordance with the Settlement Agreement, the Company met with settling
7 parties and interested stakeholders in the course of developing its proposals and has
8 included information on the costs and benefits of proposed EV make-ready infrastructure
9 within this testimony.

10 Eversource has also worked to develop separately-metered EV time-of-use (“TOU”) rate
11 proposals for residential and commercial charging applications pursuant to Commission
12 Order No. 26,394 issued in Docket No. IR 20-004. With the exception of discussion
13 regarding TOU rates for public Direct Current Fast Charging (“DCFC”) applications,
14 those proposals are not the subject of this testimony or the Company’s petition in this
15 docket. They will be filed separately by the Company in Docket No. DE 20-170.

16 **Q. How is your testimony organized?**

17 A. Section I of this testimony begins with a description of the proposed design, funding and
18 cost recovery of an EV charging infrastructure program. Section II provides a description
19 of a proposed EV public charging rate that would be an alternative to the Company’s
20 otherwise applicable rates structures that include demand charges.

1 **I. MAKE-READY EV CHARGING INFRASTRUCTURE PROGRAM**

2 **Q. How was the need for EV Charging infrastructure in New Hampshire determined?**

3 A. As part of the effort to assess the need for electric vehicle charging infrastructure in New
4 Hampshire, the Electric Vehicle Charging Stations Infrastructure Commission (“the EV
5 Commission”) was established via Senate Bill 517, adopted in the 2018 legislative
6 session. On pages 2-3 of its final report issued in November 2020¹, the EV Commission
7 reached the following conclusions:

8 The Electric Vehicle Charging Infrastructure Commission recommends
9 prioritizing EV charging infrastructure initial investment from the
10 Volkswagen Settlement and other potential sources along the interstate
11 highway system, the NH turnpike system, and other roadways; and
12 prioritized as deemed suitable as determined by OSI, NHDES, and
13 NHDOT in consultation with the commission.

14 The EV Commission spent a significant amount of time discussing the need for DCFC on
15 New Hampshire corridors and the need to utilize the Volkswagen Settlement funds to
16 support such investment. In June 2019, OSI provided a high-level overview of a planned
17 Request for Proposals (“RFP”) for installation of DCFC and co-located Level 2 charging
18 infrastructure. In response to this overview the EV Commission developed the following
19 public statement on page 4 of its Final Report:

- 20
- 21 • Adequate electric vehicle supply equipment (EVSE) in New
22 Hampshire, and in particular direct current fast chargers (DCFC) along
23 major travel corridors in the state, is necessary to enable electric
24 vehicle (EV) travel within and through New Hampshire; and
 - 25 • Availability of adequately spaced EVSE along the state’s major travel
26 corridors is essential to overcome “range anxiety” and enable and
27 encourage broader adoption of EVs by New Hampshire residents and
residents throughout the Northeast; and

¹ <https://www.des.nh.gov/sites/g/files/ehbemt341/files/inline-documents/2020-12/20201030-final-report.pdf>

- 1 • Manufacturers continue to introduce a wider variety of EV models
2 which will be available to consumers in the coming years and that
3 drivers will be best served if New Hampshire’s EV charging market
4 supports multiple business models, generates new jobs, and
5 encourages innovation and competition in equipment and network
6 services; and
- 7 • New Hampshire’s Volkswagen Beneficiary Mitigation Plan provides
8 funding for the support of EVSE development within the state.

9 The EV Commission’s primary conclusion (page 6 of its Final Report) was that VW
10 Settlement funding would be properly spent on enabling a DC Fast Charging corridor in
11 New Hampshire to “support economic development in areas of the state dependent on
12 tourism, lower lifetime costs of owning a vehicle for many drivers, and result in lower
13 emissions of criteria pollutants and greenhouse gas emissions that contribute to climate
14 change.”

15 **Q. Why is Eversource proposing this DCFC infrastructure program?**

16 A. Eversource is proposing this DCFC infrastructure program to support the State’s
17 disbursement of New Hampshire Volkswagen Environmental Mitigation Trust (“NH
18 Trust”) funds consistent with the New Hampshire Beneficiary Mitigation Plan. The
19 disbursement of the NH Trust funds alone will not be sufficient to enable the
20 development of a DCFC travel corridor along the State’s major roadways. Pairing the NH
21 Trust funding with a utility-administered electrical infrastructure program will help to
22 ensure that the New Hampshire Department of Environmental Services (“NHDES”) is
23 able to successfully deploy this network of DCFC. This investment will directly support
24 sites in Eversource’s service territory that are chosen through the NH Trust RFP
25 competitive solicitation process, which the Company expects to be released by the New
26 NHDES, serving as solicitor on behalf of the Office of Strategic Initiatives (“OSI”) in

1 2021². The entire NH Trust contains approximately \$31 million, \$4.6 million of which
2 (or 15%) has been allocated to support the deployment of Electric Vehicle Supply
3 Equipment (“EVSE”) throughout the State. NHDES has previously indicated that
4 approximately \$2 million from the NH Trust is available for this solicitation, and that
5 OSI reserves the right to increase or decrease the amount of funds available under the
6 competitive solicitation³. The Company’s proposed investment would be in addition to
7 the amount coming from the NH Trust.

8 **Q. Please summarize the proposed EV charging infrastructure program.**

9 A. By investing in EV charging infrastructure, Eversource proposes to support the
10 development of a DCFC² corridor throughout New Hampshire. The EV fast charging
11 corridor will advance in-state economic development by creating a multi-site DCFC
12 corridor across New Hampshire’s most thoroughly traveled roadways. This proposal will
13 support the State in its efforts to provide a strategic network of EVSE and associated
14 operations, maintenance and management services along specified corridors in New
15 Hampshire. This network will ensure that sufficient DCFC infrastructure exists to attract
16 tourists from nearby states and provinces with aggressive EV adoption policies, and to
17 support EV drivers who live and/or work in the State. The intent of the Company’s
18 proposal is to significantly expand New Hampshire’s network of travel corridor EV

² A DC fast charging station provides charging through a 480V AC plug and can deliver 60 to 80 miles of range in 20 minutes of charging. Source: https://afdc.energy.gov/fuels/electricity_infrastructure.html

1 charging stations by reducing the cost burden of site hosts seeking to install EV charging
2 equipment.

3 The Company estimates that the competitive solicitation process will result in
4 approximately five DCFC locations being deployed throughout Eversource's service
5 territory. The Company further anticipates that the EVSE configuration at each of these
6 sites will include two 150 kw DCFC, with a complementary Level 2³ charger. The
7 Company's proposal is to provide approximately \$2 million to fund certain portions of
8 this infrastructure, as described in more detail below, in order to support the
9 infrastructure buildout consistent with the EV Commission report described above.

10 Under this proposal, the Company will not own the chargers themselves. Instead,
11 financing for the EVSE will come from the NH Trust. The EVSE will then be owned and
12 operated by a third party (either an EVSE charging vendor or customer site host) who is
13 selected via competitive bid through the NH Trust procurement process.

14 **Q. What infrastructure is Eversource proposing to include as part of this program?**

15 A. The Company is proposing to provide new service connections for each charging
16 location. Each host site will be served by a new meter that is separate from any existing
17 meter(s) at the selected site. For each site, the following infrastructure will be installed
18 through the program: a primary lateral service feed from the existing circuit, any
19 necessary transformer and transformer pad, a new meter, a new service panel, and the
20 associated conduit and conductor to connect the electrical equipment to the EV

³ A Level 2 charging station provides charging through a 240V or 208V plug and can deliver 10 to 20 miles of range per hour of charging. Source: https://afdc.energy.gov/fuels/electricity_infrastructure.html

1 chargers. Of this work, internal Eversource resources will install the front of the meter
2 infrastructure, including the distribution primary lateral service feed, transformer and
3 pad, and the new meter. For installation work behind the meter, the NH Trust awardees
4 will contract with third-party electrical contractors to complete the installation of any
5 required transformer vaults, new service panels, and the connection to the EVSE.

6 **Q. Where will the Company locate the proposed EV infrastructure improvements?**

7 A. EVSE sites will be determined through the NH Trust RFP process. For a map of all
8 travel corridors that NHDES has identified as primary targets, please see “FIGURE 1 –
9 Target Corridors for RFP # NH-VW-2019-03 (page 9)” of the “New Hampshire VW
10 Environmental Mitigation Trust Direct Current Fast Charging Infrastructure Request for
11 Proposals RFP # NH-VW-2019-03 New Hampshire Electric Vehicle Supply Equipment
12 Grant Program – Round 1 November 22, 2019.”⁴

13 **Q. What funding does the Company propose to provide through the program?**

14 A. The Company proposes to provide approximately \$2.0 million towards the cost of new
15 service connections and electrical equipment for EV charging locations. This includes
16 investment in front of meter distribution infrastructure as well as one-time rebates of
17 comparable funding for the installation of electrical equipment behind the meter that will
18 be owned by the customer. The Company also expects to incur an additional \$50,000 for

⁴ <https://www.nh.gov/osi/energy/programs/documents/dcfc-corridor-rfp-112219.pdf>

1 associated program administration and other expenses. The estimated total budget is
 2 described in more detail below in Figure 1.

Figure 1			
Cost Elements		Total Program Investment	
Front of Meter Infrastructure	Capital	\$	650,000
Behind the Meter Infrastructure	Expense	\$	1,400,000
Data Collection	Expense	\$	30,000
Program Evaluation	Expense	\$	20,000
		\$	2,100,000

3 The estimated budget was based upon several assumptions, and is subject to change
 4 based on any subsequent adjustments to these assumptions as a result of the NH Trust
 5 RFP process:

- 6 • Site configuration: two 150 kw DCFC, with a complementary Level 2 charger.
- 7 • Number of sites in Eversource service territory: five
- 8 • Average site cost: \$410 thousand (Front of Meter: \$130 thousand, Behind the
 9 Meter: \$280 thousand)

10 The Company recommends that the proposed \$2 million funding be distributed evenly
 11 across all NH Trust funding awardees in Eversource service territory. Eversource also
 12 anticipates that this program will be completed within 12 months from both the
 13 Commission approval and NH Trust award of the anticipated RFP, whichever occurs at a
 14 later date.

15 **Q. How does the Company propose to recover its capital investment associated with the**
 16 **program?**

17 A. The Company is not seeking any special ratemaking treatment for its anticipated capital
 18 investment through the program. Eversource estimates it may invest approximately
 19 \$650,000 for front of the meter distribution equipment. The Company proposes that it

1 would include the net value of that investment in rate base as part of its next base
2 distribution rate proceeding. The Company does not seek to recover amounts associated
3 with estimated capital investment through any other rate mechanism at this time. The
4 Company is, however, requesting that the Commission find that the capital investment for
5 EV charging infrastructure made pursuant to this proposal is reasonable and appropriate.
6 The Commission's authorization of these investments means that the Commission will
7 approve the decision to proceed with those investments as part of this proceeding, and in
8 the future would review the prudence of the implementation of these investments
9 pursuant to that authorization.

10 **Q. Why is the proposed make-ready capital investment reasonable?**

11 A. The Company believes the proposed capital investment is reasonable to include in rate
12 base given that public charging will produce incremental distribution revenue. As shown
13 in Attachment BJR-1 the net present value of potential long-term distribution revenues
14 from EV charging under applicable rates could be up to \$325,000 for a site with two 150
15 kW DCFC, or \$1.6 million for five sites.

16 **Q. Why does the Company ask the Commission to find proposed investment amounts
17 are reasonable in this docket, before they are incurred?**

18 A. Public EV charging is a new source of load that is not as predictable as that of other new
19 customers, particularly in New Hampshire with a limited adoption of EVs to date. It is
20 also anticipated that public EV charging may be more modest in the initial years of
21 DCFC site operations, but could grow over the useful life of the Company's investments.
22 The Company believes the proposed capital investment to enable EV charging sites is

1 appropriate given alignment with other state policies and the potential long-term benefits
2 of increased electrification of the transportation sector.⁵ Agreement from the
3 Commission that the investment is appropriate and in the public interest is an important
4 precondition for the Company to fund proposed make-ready capital investment.

5 **Q. Is the Company asking the Commission to determine costs are prudently incurred**
6 **in this docket, before they are actually incurred?**

7 A. No. The Company expects the prudence of the Company's management of the make-
8 ready program and resulting capital expenditures will be reviewed by the Commission in
9 the future. The Company only requests that the reasonableness of the decision to proceed
10 with the proposed make-ready program and associated capital investments be resolved in
11 this docket.

12 **Q. How does the Company propose to recover non-capital expense associated with the**
13 **program?**

14 A. Eversource expects the majority of funds provided to support the successful deployment
15 of DCFC corridors in its service territory will be non-capital expenditures for customer-
16 owned equipment located behind the utility meter. The proposed expenditures in such
17 equipment and other O&M for the program are associated with activities outside the
18 current normal course of electric distribution business, are incremental, and are also
19 expected to be non-recurring. Eversource recommends that prudently incurred O&M

⁵ For example, the 2018 New Hampshire State Energy Strategy, available at: <https://www.nh.gov/osi/energy/programs/documents/2018-10-year-state-energy-strategy.pdf>, states at page 49: "While publicly-funded EV charging stations only demonstrate viability when adders for non-economic values are incorporated into a cost-benefit analysis, seed funding for infrastructure may have a knock-on effect promoting private investment."

1 costs for the proposed program be recovered through a reconciling mechanism, so that
2 the costs of the program are reflected in rates on a timely basis. Alternatively, the
3 Company would request authorization to defer the proposed non-recurring costs to a
4 regulatory asset to be amortized following its next base rate proceeding.

5 **Q. What are the estimated benefits of the make-ready proposal?**

6 A. The primary benefit of the proposed make-ready infrastructure program is to support the
7 successful development of DCFC corridors and advance the New Hampshire Beneficiary
8 Mitigation Plan as discussed previously in this testimony. However, the Company also
9 expects the expansion of EV charging within its service territory will produce other
10 benefits for customers. As shown in Attachment BJR-1 the potential long-term revenue
11 from public EV charging is projected to exceed the revenue requirement of the Company
12 to support the program. Annual revenue could exceed the Company's annual cost by
13 Year 4 and the program is projected to ultimately achieve simple payback by Year 23.
14 The long-term benefits of distribution revenue in excess of costs would ultimately accrue
15 to customers where increased sales volume would serve to reduce base distribution rates
16 that would otherwise be charged to customers. Favorable rate impacts could be reflected
17 in rates approved in the Company's next rate case and/or on an ongoing basis through a
18 revenue decoupling mechanism. The Company has agreed to include a revenue
19 decoupling proposal in its next base rate proceeding pursuant to the Settlement
20 Agreement approved by the Commission in Docket No. DE 19-057. Eversource has not
21 estimated the impact of EV charging on reconciling rates for transmission, stranded costs
22 and other rate components, but additional customer benefits could emerge as costs

1 recovered through those rates are potentially spread across a larger volume of sales as
2 well.

3 **Q. Please describe what data the Company will collect as part of this program.**

4 A. The Company anticipates that NHDES will require awarded site hosts to collect and
5 report the following:

6 a. Date and time of usage (including start and stop time);

7 b. Utilization rates;

8 c. Total kWh and Total kW draw;

9 d. Total dollar amount charged to the user;

10 e. Station status and health in real time;

11 f. Equipment malfunctions and operating errors;

12 g. Percent of time vehicles connected to a charger are charging; and

13 h. Quarterly income from each station, net expenses.

14 The Company does not intend to propose redundant reporting requirements.

15 **Q. Please describe how the Company will report on program implementation progress.**

16 A. Upon completion of the proposed program, Eversource will provide a report detailing
17 actual site deployment costs and a comparison of actual costs to budget.

18 On an annual basis, the Company will report data on site host monthly electric bills to
19 capture sales revenue collected by Eversource as a result of this program.

1 **II. DEMAND CHARGE ALTERNATIVE**

2 **Q. Please describe the current rates that would apply to new public EV charging sites.**

3 A. The rates applicable to new public EV charging sites depend on the level of charging
4 capacity needed and other service requirements. A host site under the proposed make-
5 ready EV charging infrastructure program would be eligible for service under the
6 Company's Rate GV, which is designed for customers receiving primary distribution
7 service and have a peak demand of up to 1,000 kW.
8 Rate GV customer energy and demand are measured and billed on a monthly basis.
9 Metered demand is further differentiated between peak and off-peak periods, and the
10 charges for demand are based on the greater of the maximum demand during peak hours
11 or 50% of the maximum demand during off-peak hours.

12 Delivery service for Rate GV customers is provided through a combination of demand
13 and volumetric charges, while energy service is supplied and billed on a kWh basis by
14 either the Company or a competitive energy supplier.

15 Regarding rate structure, distribution service is provided under a combination of: (1) a
16 two-tier demand structure (with one rate for demand up to the first 100 kW and another,
17 slightly lower rate for demand greater than 100 kW); and (2) a two-tiered volumetric
18 structure (similarly, with one rate for the first 200,000 kWh of usage and a slightly lower
19 rate for usage above that level).⁶ A single demand charge applies to transmission service,
20 while stranded cost recovery is charged using both a demand and a volumetric rate.

⁶ Per the Company's recent distribution rate case settlement in DE 19-057, the differences between these declining blocks have been reduced, effective January 1, 2021, and will be completely eliminated in its next distribution rate case.

1 Monthly rates apply to all kWh for both the System Benefits Charge and Company-billed
2 energy service.

3 Attachment EAD-1 provides the rate structures and current pricing for the various
4 components of electric service provided under Rate GV. When rates for each component
5 are combined by charge type, the effective overall rates by charge type are a \$211.21
6 customer charge, \$17.82 per kW demand rate and \$0.08031 per kWh] volumetric rate.⁷

7 **Q. Why is the Company proposing an alternative rate for public EV charging?**

8 A. Stakeholders in both the Company's rate case (Docket No. DE 19-057) and the
9 Commission's proceeding in Docket No. IR 20-004 expressed significant concern over
10 the impact of demand charges on EV charging facilities which characteristically have a
11 high demand draw but low utilization. General service rates are designed around the
12 demand and energy characteristics for a given class and include demand charges
13 appropriate for that class. Compared with these classes, public EV charging stations are
14 expected to have relatively low energy utilization during at least the first few years of
15 station deployment, with increasing levels of both demand and energy utilization
16 anticipated over time. Under the Company's proposal, EV charging stations will
17 potentially have monthly peak demands of over 300 kW (e.g., for a host site consisting of
18 two 150 kW DCFCs and complementary level 2 charging). However, low utilization of
19 these stations (e.g., 3% or less) present limited opportunities for charging station hosts to
20 experience sufficient volume to recoup the costs of electric service, particularly where
21 demand charges apply (Figure 2 provides a projection of potential annual charging

⁷ For purposes of combining rates, an average of rates for the demand and energy tiers has been calculated, recognizing small differences in rates between tiers. See also note 1.

1 demand and utilization levels for EV charging facilities under this proposal).

2 Consequently, demand charges are viewed by potential EV charging hosts as an

3 uneconomic, high-cost “barrier” to deploying EVSE. The Company recognizes that

4 barriers based on these circumstances may exist and has considered several potential rate

5 design alternatives that address this concern, in balance with the potential cost shifting

6 effect of such alternatives.

Figure 2: Avg Monthly Billing Determinants per station, by year

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Station:										
Max kW	120	120	120	200	200	200	200	280	280	280
Total kWh	2,628	4,380	6,132	14,600	21,900	29,200	36,500	55,188	61,320	61,320
Per EV:										
Max kW	60	60	60	100	100	100	100	140	140	140
Total kWh	1,314	2,190	3,066	7,300	10,950	14,600	18,250	27,594	30,660	30,660
Assumptions										
Sites	5	5	5	5	5	5	5	5	5	5
Chargers/site	2	2	2	2	2	2	2	2	2	2
Annual LF	3%	5%	7%	10%	15%	20%	25%	27%	30%	30%
kW/Charger	60	60	60	100	100	100	100	140	140	140
MWh	158	263	368	876	1,314	1,752	2,190	3,311	3,679	3,679

7

8 **Q. Please describe the alternative rate proposed by the Company**

9 A. The Company has developed a proposed rate for public EV charging stations

10 participating in its proposed make-ready program that provides an alternative to Rate GV

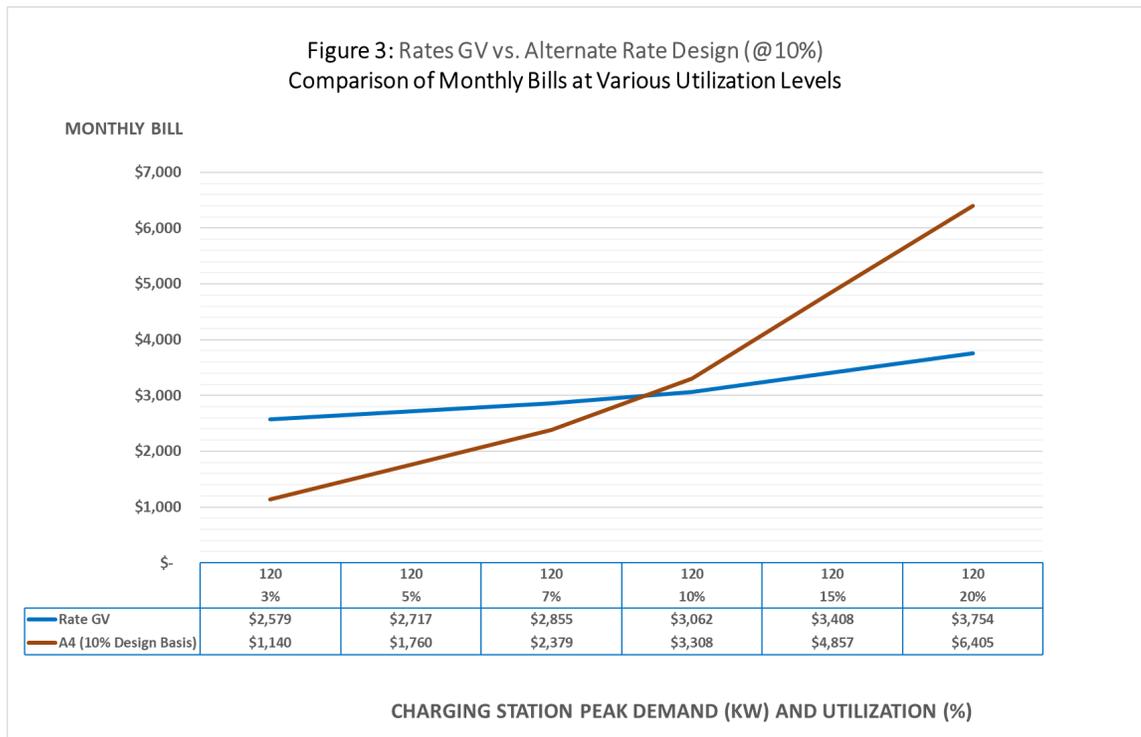
11 service in which a stated volumetric rate for a targeted range of utilization is applied in

12 lieu of demand charges. The rate is designed for utilization of up to 10%, where

13 utilization below 10% results in lower charges than would occur under Rate GV. Design

14 details are provided in Attachment EAD-2.

1 While simple in structure, this design operates across a range of utilization in the same
 2 way, for any level of peak monthly charging demand. The impact of demand charges is
 3 dynamically adjusted depending on the level of utilization. Figure 3 compares the
 4 monthly charges for a public EV charging facility participating in the Company’s
 5 proposed make-ready program under the alternative design and under Rate GV at various
 6 levels of utilization. As shown, for a given level of demand, the reduction in electric
 7 service charges relative to Rate GV is greatest at lower utilization levels and diminishes
 8 as utilization increases.



9
 10 This approach effectively reduces the demand charge barrier where utilization is the
 11 lowest, while addressing concerns over rate equity. As utilization increases so does the
 12 relative revenue contribution, thus providing increased contribution of revenue toward
 13 the fixed costs of providing service that otherwise would be recovered through Rate GV

1 demand charges. Furthermore, maintaining a fixed volumetric rate provides price
2 uniformity, stability and certainty for electricity delivered to the host, which in turn
3 provides a consistent basis on which the host may determine the price for consumers
4 charging their EV.

5 While this design is relatively simple in structure, its implementation will require some
6 billing changes. Necessary changes and associated costs will be determined by the
7 Company following approval of the proposed rate and completion of the NH Trust RFP
8 process.

9 **Q. Will public EV charging customers be required to enroll in the alternative rate or**
10 **continue service on it if they do enroll?**

11 A. No. This rate is being presented as an optional alternative to the otherwise applicable
12 rate. Customers will continue to be eligible to take service under an applicable general
13 service rate (Rate GV in this case), including if they initially elected to take service under
14 alternative rate. Given the design point (i.e., 10% utilization) it will be important for a
15 customer taking service under the alternative rate to monitor and evaluate whether
16 utilization levels will increase above the design point such that they would be better off
17 choosing to switch to the otherwise applicable rate. The Company will advise customers
18 on the relevant differences between rate options and will periodically review DCFC
19 customer accounts to determine if it may be appropriate for them to change rate options.

20 **Q. Did the Company evaluate other potential alternative rate designs?**

21 A. Yes. The Company reviewed a number of rate designs and methodologies in developing
22 the alternative proposed in this filing. As noted earlier, the Company sought to address

1 concerns with both the demand charge barrier and rate equity. The relative rate and bill
2 discount were among the considerations given to any potential alternative. This
3 comparison is expected to continue as the cost of providing service to not only public EV
4 charging stations but also other types of EV charging is better known through increased
5 deployment of EV chargers, and as different groupings or classes of charging are defined.
6 Significant consideration was given to requirements from the Settlement Agreement in
7 Docket No. DE 19-057 for developing a demand charge alternative in conjunction with
8 the make ready program, as submitted herein, as well as guidance and requirements from
9 the Commission's Order in Docket No. IR 20-004 ⁸, particularly regarding proposing an
10 alternative to a demand charge and assuring proposals do not include a declining block
11 rate structure. Other principles applied in evaluating potential alternatives included
12 minimizing rate discounts, the potential for cross-subsidization and assuring rate
13 simplicity and stability.

14 Alternative rate design approaches considered included variations of a scheduled demand
15 charge discount (a/k/a demand charge holiday); class average demand charge equivalent;
16 sliding scale load factor rate; and subscription rates.

17 On balance the Company believes its proposal will support the state's goals in the most
18 simple, equitable and cost effective manner. From a customer perspective, the proposed
19 design addresses the key concern with respect to demand charges for public charging
20 using a dynamic approach that relies on levels of utilization, is simple to apply and easy
21 to understand. Variations of this design or consideration of more complex approaches

⁸ IR 20-004, **Investigation into Rate Design Standards for Electric Vehicle Charging Stations and Electric Vehicle Time of Day Rates**, Order No. 26,394 (August 18, 2020).

1 may be more suited for development of next generation designs, following deployment
2 and growth of public EV charging applications in New Hampshire.

3 **Q. Why is the Company not proposing a TOU rate for public EV charging?**

4 A. In the Company's assessment, the timing of public EV charging is largely non-
5 discretionary. The stated concern being addressed in this filing is the demand charge.
6 While a TOU rate may be introduced for these types of charging applications, the
7 Company expects that consumers who charge their EVs at public stations would not
8 generally be in a position to defer or otherwise schedule charging to a different time.
9 Those who could shift charging might do so, but the design proposed here is particularly
10 for public DCFC applications where charging is expected to occur on demand, when
11 needed, independent of potential time-differentiated pricing alternatives.

12 **Q. Does the Company anticipate different rate structures for public EV charging could
13 be proposed in the future?**

14 A. Yes. Information on EV charging will expand as the market grows, and many
15 approaches are being tested across the country. The Company expects to learn from the
16 deployment and initial growth in EV charging and believes that during this early period
17 the Company's proposal provides a reasonable and targeted basis on which to implement
18 public charging solutions to meet customers' needs in a simple, understandable and
19 effective manner. While new rates could be proposed in the future, rate continuity for
20 existing customers would be an important consideration.
21 This proposed approach effectively reduces the demand charge barrier where utilization
22 is the lowest, while addressing concerns over rate equity. As utilization increases, so

1 does the relative revenue contribution, thus providing increased contribution of revenue
2 toward the fixed costs of providing service that otherwise would be recovered through
3 Rate GV demand charges. Furthermore, maintaining a fixed volumetric rate provides
4 price uniformity, stability and certainty for electricity delivered to the host, which in turn,
5 where applicable, provides a consistent basis on which to determine the price for
6 consumers charging their EV.

7 **III. CONCLUSION**

8 **Q. Please summarize your testimony and Eversource's proposal for an EV make-ready**
9 **program and demand charge alternative.**

10 A. Eversource is pleased to propose what it expects will be a successful set of policies to
11 encourage the development of DCFC stations in New Hampshire. The development of
12 DCFC corridors is an important step to support the anticipated electrification of the
13 transportation sector in New Hampshire and the broader New England region. To enable
14 the Company to effectively support New Hampshire EV policies, including the desired
15 use of NH Trust funding, Eversource requests that the Commission approve a suitable
16 framework with a finding of reasonableness for the recovery of Company investment in
17 EV make-ready infrastructure as well as a demand charge alternative that is expected to
18 mitigate current rate design barriers to private investment in DCFC stations.

19 **Q. Does this conclude your testimony?**

20 A. Yes. It does.

EV MAKE-READY INFRASTRUCTURE PROPOSAL
ESTIMATED DISTRIBUTION REVENUE

	Year 1 2022	Year 2 2023	Year 3 2024	Year 4 2025	Year 5 2026	Year 6 2027	Year 7 2028	Year 8 2029	Year 9 2030	Year 10 2031	Year 11 2032	Year 12 2033	Year 13 2034	Year 14 2035	Year 15 2036	Year 16 2037	Year 17 2038	Year 18 2039	Year 19 2040	Year 20 2041	Year 21 2042	Year 22 2043	Year 23 2044	Year 24 2045	Year 25 2046	Year 26 2047	Year 27 2048	Year 28 2049	Year 29 2050	Year 30 2051	Year 31 2052	Year 32 2053	Year 33 2054	Year 34 2055	Year 35 2056		
11 Maximum Charging Load (MW)	120	120	120	200	200	200	200	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	
12 Load Factor (%)	3%	5%	7%	10%	11%	20%	23%	27%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
13 Total EV Chaining (MWh)	31,536	52,560	73,584	175,200	262,800	350,400	438,000	475,040	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	735,840	
16 Rate GV																																					
17 Customer Charge	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	\$ 211	
18 Distribution Demand Charge (Max.)	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770	\$ 6,770
19 Distribution Energy Charge (Avg.)	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006	\$ 0.006
21 Alt. Distribution Energy Charge ¹	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298	\$ 0.1298
23 Annual Distribution Revenue																																					
24 Single Site	\$ 6,625	\$ 9,353	\$ 12,082	\$ 19,865	\$ 20,408	\$ 20,951	\$ 21,493	\$ 21,710	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838	\$ 29,838
25 Total (6 sites)	\$ 33,124	\$ 46,766	\$ 60,409	\$ 95,327	\$ 102,040	\$ 104,764	\$ 107,487	\$ 108,552	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	\$ 140,189	
26																																					
27 Annual Revenue Requirement	\$ 1,437,305	\$ 96,926	\$ 94,251	\$ 91,657	\$ 88,136	\$ 86,684	\$ 74,296	\$ 71,964	\$ 69,670	\$ 67,378	\$ 65,086	\$ 62,794	\$ 60,502	\$ 58,210	\$ 55,918	\$ 53,626	\$ 51,333	\$ 49,041	\$ 46,749	\$ 44,457	\$ 42,165	\$ 40,561	\$ 38,956	\$ 37,351	\$ 35,746	\$ 34,142	\$ 32,537	\$ 30,932	\$ 29,327	\$ 27,722	\$ 26,119	\$ 24,515	\$ 22,911	\$ 21,307	\$ 19,702	\$ 18,098	
28																																					
29 Cumulative Distribution Revenue	\$ 33,124	\$ 79,890	\$ 140,299	\$ 239,625	\$ 341,666	\$ 446,419	\$ 553,886	\$ 662,439	\$ 811,627	\$ 940,816	\$ 1,110,005	\$ 1,259,193	\$ 1,408,382	\$ 1,557,571	\$ 1,706,759	\$ 1,855,948	\$ 2,005,137	\$ 2,154,325	\$ 2,303,514	\$ 2,452,702	\$ 2,601,891	\$ 2,751,080	\$ 2,900,268	\$ 3,049,457	\$ 3,198,646	\$ 3,347,834	\$ 3,497,023	\$ 3,646,212	\$ 3,795,400	\$ 3,944,589	\$ 4,093,778	\$ 4,242,966	\$ 4,392,155	\$ 4,541,344	\$ 4,690,532	\$ 4,839,721	
30 Cumulative Revenue Requirement	\$ 1,437,305	\$ 1,134,311	\$ 1,029,483	\$ 929,828	\$ 829,215	\$ 728,560	\$ 627,905	\$ 527,250	\$ 426,595	\$ 325,940	\$ 225,285	\$ 124,630	\$ 23,975	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	\$ 2,320	
31 Difference	\$ (1,404,181)	\$ (1,454,342)	\$ (1,488,184)	\$ (1,480,514)	\$ (1,467,610)	\$ (1,449,540)	\$ (1,416,369)	\$ (1,379,783)	\$ (1,300,264)	\$ (1,218,453)	\$ (1,134,350)	\$ (1,047,953)	\$ (959,268)	\$ (868,289)	\$ (775,018)	\$ (679,455)	\$ (581,599)	\$ (481,452)	\$ (379,011)	\$ (274,282)	\$ (167,411)	\$ (58,801)	\$ 51,430	\$ 163,268	\$ 276,710	\$ 391,757	\$ 508,409	\$ 626,666	\$ 746,527	\$ 867,994	\$ 991,124	\$ 1,115,917	\$ 1,242,375	\$ 1,370,496	\$ 1,502,747		
32																																					
34 Single Site Revenue Credit (NPV)		\$ 55,019																																			
35																																					
36																																					
37																																					

1. Alternative charge assumed at load factor of 10% or less

EV MAKE-READY INFRASTRUCTURE PROPOSAL
 PRO FORMA REVENUE REQUIREMENT

	Year 1 2022	Year 2 2023	Year 3 2024	Year 4 2025	Year 5 2026	Year 6 2027	Year 7 2028	Year 8 2029	Year 9 2030	Year 10 2031	Year 11 2032	Year 12 2033	Year 13 2034	Year 14 2035	Year 15 2036	Year 16 2037	Year 17 2038	Year 18 2039	Year 19 2040	Year 20 2041	Year 21 2042	Year 22 2043	Year 23 2044	Year 24 2045	Year 25 2046	Year 26 2047	Year 27 2048	Year 28 2049	Year 29 2050	Year 30 2051	Year 31 2052	Year 32 2053	Year 33 2054	Year 34 2055	Year 35 2056	
Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)	(X)	(Y)	(Z)	(AA)	(AB)	(AC)	(AD)	(AE)	(AF)	(AG)	(AH)	(AI)	
11 Beginning Gross Capital																																				
12 Capital Investment Activity	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	
13 Ending Gross Capital	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000
14 Accumulated Depreciation	\$ (9,458)	\$ (29,373)	\$ (67,288)	\$ (105,203)	\$ (143,118)	\$ (181,033)	\$ (218,948)	\$ (256,863)	\$ (294,778)	\$ (332,693)	\$ (370,608)	\$ (408,523)	\$ (446,438)	\$ (484,353)	\$ (522,268)	\$ (560,183)	\$ (598,098)	\$ (636,013)	\$ (673,928)	\$ (711,843)	\$ (749,758)	\$ (787,673)	\$ (825,588)	\$ (863,503)	\$ (901,418)	\$ (939,333)	\$ (977,248)	\$ (1,015,163)	\$ (1,053,078)	\$ (1,090,993)	\$ (1,128,908)	\$ (1,166,823)	\$ (1,204,738)	\$ (1,242,653)	\$ (1,280,568)	
15 Current Net Capital Assets	\$ 640,543	\$ 620,627	\$ 602,713	\$ 584,798	\$ 566,884	\$ 548,969	\$ 531,055	\$ 513,141	\$ 495,227	\$ 477,313	\$ 459,398	\$ 441,484	\$ 423,569	\$ 405,655	\$ 387,741	\$ 369,827	\$ 351,913	\$ 333,998	\$ 316,084	\$ 298,169	\$ 280,255	\$ 262,341	\$ 244,427	\$ 226,513	\$ 208,598	\$ 190,684	\$ 172,769	\$ 154,855	\$ 136,941	\$ 119,027	\$ 101,113	\$ 83,198	\$ 65,284	\$ 47,369	\$ 29,455	\$ 11,541
16 Deferred Income Taxes	\$ 18,906	\$ 11,821	\$ 4,736	\$ (2,349)	\$ (9,464)	\$ (16,579)	\$ (23,694)	\$ (30,809)	\$ (37,924)	\$ (45,039)	\$ (52,154)	\$ (59,269)	\$ (66,384)	\$ (73,499)	\$ (80,614)	\$ (87,729)	\$ (94,844)	\$ (101,959)	\$ (109,074)	\$ (116,189)	\$ (123,304)	\$ (130,419)	\$ (137,534)	\$ (144,649)	\$ (151,764)	\$ (158,879)	\$ (165,994)	\$ (173,109)	\$ (180,224)	\$ (187,339)	\$ (194,454)	\$ (201,569)	\$ (208,684)	\$ (215,799)	\$ (222,914)	\$ (230,029)
17 Current Rate Base	\$ 632,037	\$ 610,006	\$ 588,478	\$ 566,950	\$ 545,422	\$ 523,894	\$ 502,366	\$ 480,838	\$ 459,310	\$ 437,782	\$ 416,254	\$ 394,726	\$ 373,198	\$ 351,670	\$ 330,142	\$ 308,614	\$ 287,086	\$ 265,558	\$ 244,030	\$ 222,502	\$ 200,974	\$ 179,446	\$ 157,918	\$ 136,390	\$ 114,862	\$ 93,334	\$ 71,806	\$ 50,278	\$ 28,750	\$ 7,222	\$ (14,306)	\$ (35,834)	\$ (57,362)	\$ (78,890)	\$ (100,418)	
18 Average Rate Base	\$ 318,251	\$ 623,252	\$ 597,229	\$ 572,122	\$ 547,865	\$ 524,392	\$ 501,645	\$ 479,570	\$ 457,871	\$ 436,224	\$ 414,878	\$ 392,932	\$ 371,286	\$ 349,639	\$ 327,993	\$ 306,347	\$ 284,701	\$ 263,054	\$ 241,408	\$ 219,762	\$ 200,079	\$ 184,323	\$ 170,531	\$ 156,739	\$ 142,946	\$ 129,154	\$ 115,362	\$ 101,570	\$ 87,777	\$ 73,985	\$ 60,193	\$ 46,401	\$ 32,608	\$ 18,816	\$ 5,024	
19 Pre-Tax WACC	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%		
20 Return on Capital Investment	\$ 27,848	\$ 54,326	\$ 52,250	\$ 50,062	\$ 47,739	\$ 45,285	\$ 42,805	\$ 40,300	\$ 37,774	\$ 35,229	\$ 32,674	\$ 30,100	\$ 27,506	\$ 24,893	\$ 22,261	\$ 19,610	\$ 16,949	\$ 14,278	\$ 11,597	\$ 8,906	\$ 6,205	\$ 3,494	\$ 739	\$ (1,172)	\$ (3,863)	\$ (6,554)	\$ (9,245)	\$ (11,936)	\$ (14,627)	\$ (17,318)	\$ (20,009)	\$ (22,700)	\$ (25,391)	\$ (28,082)	\$ (30,773)	
21 Depreciation Expense	\$ 9,458	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	\$ 18,915	
22 Property Taxes	\$ 13,476	\$ 13,476	\$ 13,076	\$ 12,680	\$ 12,280	\$ 11,884	\$ 11,488	\$ 11,092	\$ 10,696	\$ 10,299	\$ 9,903	\$ 9,507	\$ 9,111	\$ 8,715	\$ 8,319	\$ 7,923	\$ 7,527	\$ 7,131	\$ 6,735	\$ 6,339	\$ 5,943	\$ 5,547	\$ 5,151	\$ 4,755	\$ 4,359	\$ 3,963	\$ 3,567	\$ 3,171	\$ 2,775	\$ 2,379	\$ 1,983	\$ 1,587	\$ 1,191	\$ 795	\$ 399	\$ 0
23 O&M	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	
24 Annual Revenue Requirement	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	\$ 1,437,265	
25 Cumulative Revenue Requirement	\$ 1,437,265	\$ 2,874,530	\$ 4,311,795	\$ 5,749,060	\$ 7,186,325	\$ 8,623,590	\$ 10,060,855	\$ 11,498,120	\$ 12,935,385	\$ 14,372,650	\$ 15,809,915	\$ 17,247,180	\$ 18,684,445	\$ 20,121,710	\$ 21,558,975	\$ 23,000,240	\$ 24,441,505	\$ 25,882,770	\$ 27,324,035	\$ 28,765,300	\$ 30,206,565	\$ 31,647,830	\$ 33,089,095	\$ 34,530,360	\$ 35,971,625	\$ 37,412,890	\$ 38,854,155	\$ 40,295,420	\$ 41,736,685	\$ 43,177,950	\$ 44,619,215	\$ 46,060,480	\$ 47,501,745	\$ 48,943,010	\$ 50,384,275	\$ 51,825,540

EV MAKE READY INFRASTRUCTURE PROPOSAL

COST OF CAPITAL & PROPERTY TAX

Class of Capital	Principal (\$000s)	Percent of Capital	Cost	After Tax Weighted Rate of Return	Tax Gross-up on Equity	Before Tax Weighted Rate of Return
Col.A	Col.B	Col.C	Col.D	Col.E	Col.F	Col.G
Long Term Debt	\$ 1,036,203	43.15%	4.08%	1.76%		1.76%
Short Term Debt	\$ 58,640	2.44%	2.07%	0.05%		0.05%
Common Equity	\$ 1,306,436	54.41%	9.30%	5.06%	1.88%	6.94%
Total	\$ 2,401,279	100.00%		6.87%	1.88%	8.75%

Cost of Capital per Docket No. DE 19-057, Settlement Order No. 26,433 dated 12/15/2020

Income Tax Rates	Current Rate	
Taxable Income	100.000%	
Federal Corporate Income Tax	21.000%	
Taxable Income After Federal Tax	79.000%	Line 21 - Line 22
New Hampshire Business Tax	7.700%	
NH State Income Tax	6.083%	Line 23 * Line 24
Federal and NH State Income Tax (T)	27.083%	Line 21 + Line 25
Net Income After Taxes on Income (1 - T)	72.917%	Line 21 - Line 26
State and Federal Taxes / Net Income After Taxes on Income (T / (1 - T))	0.3714	Line 26 / Line 27
Income Tax Gross-Up (1 / (1 - T))	1.3714	Line 21 / Line 27

Tax Rates per Dec 2017 Tax Cut and Jobs Act legislation effective January 1, 2018 and NH Business Tax Rate

After Tax Return used for discounting	After Tax Cost	Weighted Return
Long Term Debt	2.98%	1.28%
Short Term Debt	1.51%	0.04%
Common Equity	9.30%	5.06%
Total After Tax		6.38%

Other assumptions

Property Tax Rate 2.10%

Property Tax Rate calculated per Docket No. DE 19-057 Step 2 Adjustment

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Rate GV

	Rates by Component of Service
Customer Charge	\$ 211.21
<u>Demand 1-100 kW</u>	
Distribution	\$ 6.90
Transmission	10.40
Stranded Cost Recovery Charge	0.65
Total	<u>\$ 17.95</u>
<u>Demand > 100 kW</u>	
Distribution	\$ 6.64
Transmission	10.40
Stranded Cost Recovery Charge	0.65
Total	<u>\$ 17.69</u>
<u>Energy Charge 1 - 200,000 kWh</u>	
Distribution	\$ 0.00656
Transmission	-
Stranded Cost Recovery Charge	0.00643
System Benefits Charge	0.00743
Energy Service Charge	0.06025
Total	<u>\$ 0.08067</u>
<u>Energy Charge >200,000 kWh</u>	
Distribution	\$ 0.00583
Transmission	-
Stranded Cost Recovery Charge	0.00643
System Benefits Charge	0.00743
Energy Service Charge	0.06025
Total	<u>\$ 0.07994</u>
<hr/>	
<u>Combined Rates by Charge Type:</u>	
Customer Charge (per month)	\$ 211.21
Average Combined Demand Rate (per kW)	\$ 17.82
Average Combined Energy Rate (per kWh)	\$ 0.08031

Demand Charge Alternative Rate Design Calculation

Rate GV: Rates Effective January 1, 2021

Class Load Factor: 55%

Customer Charge \$211.21 /month

	(A)	(B)	(C) = (A) / (B)	
	Revenue Requirement	Class Consumption	Average Class	Rate
Distribution *	\$ 39,303,773	1,665,675,827	\$ 0.02360	/kWh (1)
Transmission *	\$ 44,055,669	1,665,675,827	0.02645	(2)
SCRC (demand)	<u>2,753,479</u>	<u>1,665,675,827</u>	<u>0.00165</u>	(3)
Total Demand			\$ 0.05170	/kWh (4)=(1)+(2)+(3)
Total Other **			\$ 0.07411	(5)
Total			\$ 0.17751	/kWh (6)=(4)+(5)

* Demand and volumetric revenue requirement combined

** Volumetric Energy Supply, SBC and SCRC Rates, as follows:

		Other
	SCRC \$	0.00643 /kWh
	SBC \$	0.00743
	ES \$	0.06025
	Total Other	\$ 0.07411 /kWh

Revenue Neutral Rate Design

Customer Charge \$211.21

Station Utilization 10% (7)
Rate Parity Adjustment ** 5.5 (8)=(14) / (7)

	Volumetric Rate At Designated		
Demand Alternative	Distribution	\$ 0.12978	/kWh (9)=(1)*(8)
Demand Alternative	Transmission	\$ 0.14547	/kWh (10)=(2)*(8)
Demand Alternative	SBC	\$ 0.00909	/kWh (11)=(3)*(8)
Volumetric	Other*	\$ 0.07411	/kWh (12)=5
Total Alternative Rate	Total	\$ 0.35845	/kWh (13)=(9)+(10)+(11)+(12)

* See "Total Other"

** Ratio of class load factor to station utilization (i.e., target utilization level)

Class Load Factor: 55% (14)

Demand Charge Alternative Rate Summary

Customer Charge \$211.21
Volumetric Charge 35.845 cents/kWh