STATE OF NEW HAMPSHIRE
NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities

Docket No. DE 19-064

Notice of Intent to File Rate Schedules

New Hampshire Department of Environmental Services Comments on the Stipulation and Settlement Agreement Regarding Permanent Rates

The New Hampshire Department of Environmental Services ("NHDES") has been an intervener in the Liberty Utilities rate case for the majority of the docket proceeding. During the development of the Stipulation and Settlement Agreement ("Agreement"), NHDES primarily asked clarifying questions, but also requested minor changes to the drafts in circulation. In each case, the questions were addressed and the changes were made. NHDES appreciates all the work that has occurred throughout the course of the rate case and the collaboration during the finalization of the Settlement Agreement. Ultimately, NHDES has decided to not sign on to the Agreement as a whole due to the fact that numerous issues addressed in the Settlement do not directly relate to the Department's mission, and/or NHDES staff lack sufficient expertise to take a position. Instead, via this filing NHDES offers supportive comment regarding specific issues in which the agency has a direct interest and significant understanding and takes no position on others.

Background

Rate cases, such as DE 19-064, are grounded in the cost-of-service ratemaking model and, therefore, are largely backward facing, are concerned with the safe, reliable delivery of electricity service, and are intended to balance the economic needs of ratepayers and utility shareholders alike. While NHDES recognizes the critical importance of each of these issues, none of them relate to NHDES's mission[1] or the expertise of its staff. NHDES' interests in electric utility distribution, and thus this rate case, are, as noted in its petition to intervene, energy efficiency (EE), distributed generation (DG), strategic electrification (SE),[2] and energy

[1] NHDES' mission is to help sustain a high quality of life for all citizens by protecting and restoring the environment and public health in New Hampshire.

[2] "Strategic electrification involves powering end uses with electricity instead of fossil fuels in a way that increases EE and reduces pollution, while lowering costs to customers and society, as part of an integrated approach to decarbonization."

This definition comes from: Navigant Consulting (2019). Energy Optimization through Fuel Switching Study, Prepared for: The New Hampshire Evaluation, Measurement, and Verification (EM&V) Working Group, pg. 28, https://www.puc.nh.gov/regulatory/docketbk/2017/17-136/letters-memos-tariffs/17-136_2019-10-31_staff_nh_energy_optimization_study.pdf, (Last accessed April 10, 2020) and was taken from: Northeast Energy Efficiency optimization (EO).[3] These important, interrelated strategies are vital for reducing the emission of criteria pollutants and greenhouse gases (GHG) and can be applied to the building sector, industrial facilities, and the transportation sector. NHDES submits that maximizing the emissions reduction potential through such strategies requires more forward facing processes that relate to the potential to modify the utility business model in order to better align ratepayer, environmental, and shareholder interests.

Such discussions are spread across multiple PUC dockets, including DE 15-137, *Energy Efficiency Resource Standard*, DE 17-136, *2018-20 New Hampshire Statewide Energy Efficiency Plan*, IR 15-296, *Investigation into Grid Modernization*, and IR 20-004, *Investigation into Rate Design Standards for Electric Vehicle Charging Stations and Electric Vehicle Time of Day Rates*. However, it has been observed numerous times that the rate cases are best suited to address many of these matters, because they directly influence utility revenues, and price signals for ratepayers.

NHDES' primary motivation for intervening in this docket was the inclusion of a time of use (TOU) electric vehicle (EV) tariff. TOU rates have been found to provide strong price signals to ratepayers that can help to reduce the overall electric rates and improve environmental quality by shifting overall electricity consumption to non-peak periods[4] when lower priced, cleaner energy sources prevail. [5] During the course of the proceeding, additional items related to the utility's business model and its capacity to incorporate EE, DG, SE, and EO, were addressed. These included decoupling, performance-based rate making, and advanced rate design.

To clarify which items NHDES supports, and on which NHDES takes no position on, each item included in the agreement is listed below, with comments deemed appropriate.

Partnerships (NEEP) (2017). "Strategic Electrification: An Energy Transformation." Available at: https://neep.org/blog/strategic-electrification-energy-transformation.

[3] "We interpret energy optimization as a strategy to minimize energy use and maximize customer benefits. Energy optimization considers efficiency and the mix of fuels used. Energy optimization measures are a subset of fuel switching measures, but the two are not synonymous because fuel switching does not necessarily account for efficiency. Similarly, energy optimization measures are a subset of EE measures, though EE measures do not necessarily consider the fuel mix. Beneficial or strategic electrification approaches may involve energy optimization, but these terms are not synonymous either. Beneficial or strategic electrification involves powering end uses with electricity instead of fossil fuels in a way that increases EE and reduces pollution, while lowering costs to customers and society, as part of an integrated approach to decarbonization, while energy optimization focuses on any strategy that minimizes energy use and maximizes customer benefits."

This definition comes from: Navigant Consulting (2019). Energy Optimization through Fuel Switching Study, Prepared for: The New Hampshire Evaluation, Measurement, and Verification (EM&V) Working Group, pg. 1, https://www.puc.nh.gov/regulatory/docketbk/2017/17-136/letters-memos-tariffs/17-136_2019-10-31_staff_nh_energy_optimization_study.pdf, (Last accessed April 10, 2020).

[4] Harper, C., McAndrews, G., and Sass Byrnett, D. (2019). Electric Vehicles: Key Trends, Issues, and Considerations for State Regulators, National Association of Regulatory Utility Commissioners, https://pubs.naruc.org/pub/32857459-0005-B8C5-95C6-1920829CABFE, (Last accessed May 1, 2020).

[5] ISO-NE (2020). Draft 2018 ISO New England Electric Generator Air Emissions Report, ISO New England Inc. System Planning, https://www.iso-ne.com/static-assets/documents/2020/04/2018_draft_air_emissions_report.docx, (Last accessed April 23, 2020).

II. TERMS OF AGREEMENT

A. Revenue Requirement and Rate of Return

NHDES takes no position.

B. Step Increases

NHDES takes no position.

C. Performance Based Ratemaking

NHDES supports the inclusion of this process and welcomes the opportunity to participate.

The current cost-of-service ratemaking model in which utilities earn a return based largely on the cumulative value of the prudently deployed infrastructure may exert an "infrastructure bias" towards capital-intensive solutions.[6] This bias, created by the regulatory framework rather than by the utility itself, may discourage utilities from seeking more efficient solutions that do not depend on large capital investments. Performance incentive mechanisms focused on specific topic areas may correct the infrastructure bias.[7]

Performance-based ratemaking (PBR) is recognized as having the potential to shift the utility business-model towards one that rewards utilities for performing well on key metrics, such as efficiency, customer service and greenhouse gas emissions reduction.[8] PBR can enable greater efficiency, and integration of distributed generation and energy storage, demand-side management measures, electric vehicles, and smart-grid technologies.[9] Further, PBRs can utilize performance incentives that encourage utilities to better align utility planning, investments, and operations with societal goals.[10]

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[6] HI PUC (2018). Order No. 3541 Instituting A Proceeding To Investigate Performance-Based Regulation, Docket No. 2018-0088 Instituting A Proceeding To Investigate Performance- Based Regulation, https://dms.puc.hawaii.gov/dms/documentviewer?pid=a1001001a18d18b60624j02464, (Last accessed April 28, 2020).

[7] RIDPU & RI OER, (2017). Rhode Island Power Sector Transformation: Phase One Report To Governor Gina M. Raimondo, http://www.ripuc.ri.gov/utilityinfo/electric/PST%20Report_Nov_8.pdf, (Last accessed April 28, 2020).

[8] Holden, C. (2019). More States Explore Performance-Based Ratemaking, but Few Incentives Are in Place, Greentech Media, https://www.greentechmedia.com/articles/read/more-states-explore-performance-based-ratemaking-but-few-incentives-in-plac, (Last accessed April 27, 2020).

[9] Littel, D. *et* al. (2018). Next-Generation Performance-Based Regulation Volume 1: Introduction - Global Lessons for Success, Regulatory Assistance Project and National Renewable Energy Laboratory, Technical Report NREL/TP-6A20-70822-1, https://www.raponline.org/wp-content/uploads/2018/05/rap_next_generation_performance_based_regulation_volume1_april_2018.pdf, (Last accessed April 27, 2020).

[10] Littel, D. *et* al. (2018). Next-Generation Performance-Based Regulation Volume 1: Introduction - Global Lessons for Success, National Renewable Energy Lab, Technical Report NREL/TP-6A20-70822-1, https://www.raponline.org/wp-

The inclusion of PBR in this Agreement addresses in part a key NHDES recommendation in Docket IR 15-296, Investigation into Grid Modernization, concerning the need to align the environmental, social, and economic interests. The Department recommended in May 2017,[11] and November 2019,[12] that:

"The PUC should also consider how to balance innovation, new market actors and the traditional utility business model. To integrate and fully benefit from existing and potential rapid emerging technologies as well as enable new service providers to participate, utility incentives and rewards may need to be modified to encourage and enable utilities to adopt a new, sustainable business model."

In the November 2019 letter, NHDES specifically noted that:

*"[T]he overall Grid Mod docket process may have failed to address a significant and necessary consideration, which is 'what utility business model reform is necessary to incentivize/compensate the deployment of [*distributed energy resources (DERs)] *and demand management rather than traditional utility infrastructure.'"*

NHDES considers the inclusion of a PBR process a strong step in the right direction.

D. Effective Date for Permanent Rates and Recoupment

NHDES takes no position.

E. Rate Case Expenses

NHDES takes no position.

F. Rates and Rate Design

- *Domestic Service Rates D, D-10, D-11, T, and Rate EV*

  NHDES takes no position on the individual customer charges for the above rates, with the exception of Rate EV. **NHDES strongly supports the inclusion of Rate EV.**

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content/uploads/2018/05/rap_next_generation_performance_based_regulation_volume1_april_2018.pdf, (Last accessed April 27, 2020).

[11] NHDES Comments on the New Hampshire Grid Modernization Working Group Final Report, Docket IR 15-296, Investigation into Grid Modernization, https://www.puc.nh.gov/regulatory/docketbk/2015/15-296/letters-memos-tariffs/15-296_2017-05-19_nhdes_comments.pdf, (Last accessed April 27, 2020).

[12] NHDES Comments on September 2019 Technical Session, Docket IR 15-296, Investigation into Grid Modernization, https://www.puc.nh.gov/regulatory/docketbk/2015/15-296/letters-memos-tariffs/15-296_2019-11-18_nhdes_tech_session_follow_up.pdf, (Last accessed April 27, 2020).

As will be noted elsewhere, NHDES strongly supports the inclusion of the time-of-use (TOU) rate for electric vehicles, and, therefore, supports the inclusion of a separate customer charge to cover the meter-related costs associated with this application.

NHDES does propose that the *Future Rate Design* discussions include consideration of the recommendation of the Office of the Consumer Advocate's consultant, Ron Nelson:

> "*The incremental cost of the Rate D-EV meter should be classified as demand related and allocated to the mid-peak and critical peak periods to strengthen the price signal*."[13]

Mr. Nelson's recommendation would have the customer charge cut nearly in half with the difference allocated to peak periods.

- *Rates G-3, V, G-1, G-2, M, LED-1, and LED-2*

  NHDES takes no position on the individual customer charges for the above rates, with the exception of Rates M, LED-1, and LED-2. **NHDES strongly supports the modification to Rate M, and the creation of Rates LED-1, and LED-2 with changes to those corresponding charges.**

  LED fixtures are more efficient than traditional street lighting and can provide significant energy savings. NHDES supports the modifications to the fixed charges in Rate M (the outdoor lighting service rate), and development of Rates LED-1 and LED-2. The revision to the streetlight rates recognize the significant energy savings LEDs offer compared to traditional street lighting. By offering fixed rates that account for such energy savings, whether the fixtures are installed by Liberty Utilities or by a qualified installer, will encourage more customers to transition to this technology. This will reduce the direct costs to NH customers, while reducing overall load and consumption, which will result in improved environmental outcomes.

- *Future Rate Design*

  NHDES supports the inclusion of this process in the Agreement and welcomes the opportunity to participate.

  Under this Settlement Agreement, Liberty Utilities will develop and submit for discussion an Advanced Rate Design Road Map. The Road Map will include an explanation of how Liberty Utilities plans to leverage the functionality of

[13] Direct Testimony of Ron Nelson, Docket DE 19-064, https://www.puc.nh.gov/Regulatory/Docketbk/2019/19-064/TESTIMONY/19-064_2019-12-06_OCA_TESTIMONY_NELSON.PDF, BATES 74 (Last accessed April 22, 2020).

investments in meters, and spell out Liberty Utilities plans for innovative rate design techniques such as time-of-use rates, and critical peak pricing.

NHDES views these elements as critical to transformation of the energy system in a manner that results in improved environmental and public health outcomes. Advanced meters have the potential to enable greater functionality and communication with the grid, allowing customers and Liberty Utilities to better respond to grid conditions in real time. Combining advanced meters with time varying rates, has the potential to reduce daily and seasonal peak demand, which can avoid higher cost, higher emitting energy generating units needing to be dispatched. This outcome would provide direct benefits to all rate-payers and result in better overall air quality.

Advanced meters and TOU rates have been identified as offering value to the NH energy system several times over the past decade, including in the 2009 NH Climate Action Plan,[14] the 2011 Policy Review,[15] the 2014 NH State Energy Strategy,[16] and the 2017 Grid Mod Working Group Report.[17] Their value to grid management has been verified by myriad entities and studies.

As noted by ISO-NE in their Draft 2018 ISO New England Electric Generator Air Emissions Report, shifting electricity use from on-peak to off-peak reduces the emission of the criteria air pollutants NO_x and SO_2, and the greenhouse gas, CO_2, considerably.[18] During ozone season, shifting electricity from peak to off-peak can reduce emissions for NO_x, SO_2, and CO_2 by 43 percent, 75 percent, and 10 percent respectively.[19] These values are just average reductions across the ozone season. On high electric demand days (HEDDs), the difference between peak and off-peak

[14] CCPTF (2009). The 2009 NH Climate Action Plan - Appendix 4.2: Increase Renewable and Low-CO_2-Emitting Sources of Energy in a Long-Term Sustainable Manner, NH Climate Change Policy Task Force, https://www.des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/documents/032509_nhccptf_appendix_4.2.pdf, (Last accessed April 22, 2020).

[15] VEIC (2011). The NH Independent Study of Energy Policy Issues Final Report, Vermont Energy Investment Corporation, https://www.puc.nh.gov/Sustainable%20Energy/Reports/New%20Hampshire%20Independent%20Study%20of%20Energy%20Policy%20Issues%20Final%20Report_9-30-2011.pdf, (Last accessed April 22, 2020).

[16] OEP (2014). The New Hampshire 2014 10-Year State Energy Strategy, The NH Office of Energy and Planning (Now the NH Office of Strategic Initiatives). https://www.nh.gov/osi/energy/programs/documents/energy-strategy.pdf, (Last accessed April 22, 2020).

[17] Grid Mod Working Group (2017). The New Hampshire Grid Modernization Working Group Final Report, https://puc.nh.gov/regulatory/docketbk/2015/15-296/letters-memos-tariffs/15-296_2017-03-20_nh_grid_mod_grp_final_rpt.pdf, (Last accessed May 5, 2020).

[18] ISO-NE (2020). Draft 2018 ISO New England Electric Generator Air Emissions Report, ISO New England Inc. System Planning, https://www.iso-ne.com/static-assets/documents/2020/04/2018_draft_air_emissions_report.docx, (Last accessed April 23, 2020).

[19] NHDES analysis of ISO-NE data, Table 5-3, 2018 Time-Weighted LMU Marginal Emission Rates—All LMUs (lbs./MWh), Draft 2018 ISO New England Electric Generator Air Emissions Report, pg., 29, (Last accessed April 23, 2020).

emissions would considerably higher; 200 percent, 307 percent, and 31 percent higher than the average ozone-season on-peak emission rate, respectively.[20]

G. Reliability Enhancement Program/Vegetation Management Program ("REP" and "VMP")

NHDES takes no position either the REP or VMP.

H. Planning Criteria

NHDES takes no position.

I. Tariff Provisions

1. **Decoupling**

NHDES supports the proposed application of the Lost Revenue Adjustment Mechanism (LRAM) as a transition to a decoupling mechanism.

Specifically, NHDES supports the continued use of LRAM for calendar years 2019 and 2020 with the planned transition to a decoupling mechanism beginning July 1, 2021.

New Hampshire adopted LRAM in the Settlement Agreement for DE 15-137 Energy Efficiency Resource Standard filed on April 27, 2016[21] to remove potential financial disincentives resulting from the successful investment in end-use energy efficiency. The traditional utility business model contains a throughput incentive, whereby utilities earn more profits by selling more electricity.[22] Investments in energy efficiency drive down energy use and, therefore, utility revenues. While this may reduce customer costs and improve environmental outcomes, that efficiency does not reduce the short-term, fixed costs of providing distribution service.[23] LRAM was introduced to allow utilities to recover the revenues lost due to efficiency programs.

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[20] NHDES analysis of ISO-NE data, Table 5-3, 2018 Time-Weighted LMU Marginal Emission Rates—All LMUs (lbs./MWh), pg., 29, and Table 5-8, High Electric Demand Day LMU Marginal Emission Rates (lbs./MWh), pg. 36 Draft 2018 ISO New England Electric Generator Air Emissions Report, (Last accessed April 23, 2020).

[21] NHPUC (2016). DE 15-137 Energy Efficiency Resource Standard, Settlement Agreement, https://www.puc.nh.gov/regulatory/docketbk/2015/15-137/letters-memos-tariffs/15-137_2016-04-27_staff_parties_settlement_agreement.pdf, (Last accessed April 27, 2020).

[22] RAP (2016). Revenue Regulation and Decoupling: A Guide to Theory and Application, Regulatory Assistance Project, https://www.raponline.org/wp-content/uploads/2016/11/rap-revenue-regulation-decoupling-guide-second-printing-2016-november.pdf, (Last accessed April 27, 2020).

[23] Gilleo, A., Kushler, M., Molina, M., and York D. (2015). Valuing Efficiency: A Review of Lost Revenue Adjustment Mechanisms, Report U1503, American Council for an Energy-Efficient Economy, https://www.aceee.org/sites/default/files/publications/researchreports/u1503.pdf, (Last accessed April 27, 2020).

The 2016 Agreement further noted that the NH utilities, excluding the NH Electric Cooperative, would seek approval of a new decoupling mechanism, or another mechanism, as an alternative to the LRAM during their next rate case after 2020.[24] Under LRAM, there are no adjustments if the utility sells more energy than predicted in the test year.[25] From an economic perspective, the use of a decoupling mechanism as an alternative to LRAM addresses this lack of symmetry, assuring not only that require revenues (regardless of sales) are fully recovered by utilities, but also that customers realize a savings if the required utility revenue requirements are exceeded.

By reducing the economic risk for utilities, Decoupling removes the potential adverse financial consequences flowing from successful investment in end-use energy efficiency.[26] When coupled with a performance incentive, as used in the NH energy efficiency program, decoupling can further promoting "public interest outcomes" as the incentives for a utility to pursue efficiency are further aligned.[27]

NHDES further supports, and requests an opportunity to participate in, the informal discussions of the reconciliation calculation of the first decoupling period, July 1, 2021 to June 30, 2022, to consider the treatment of any consequences stemming from the COVID-19 pandemic.

2. **EV Tariff**

NHDES supports the inclusion of the EV TOU rate and the reporting requirements included in the Settlement.

The EV TOU rates are a critical part in managing the growth in electricity consumption by the transportation sector to maximize its possible benefits to the environment, energy system, and economy. The reporting requirements will be an important means to assess the effectiveness of this tariff and enable reconfiguration as needed.

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[24] NHPUC (2016). DE 15-137 Energy Efficiency Resource Standard, Settlement Agreement, https://www.puc.nh.gov/regulatory/docketbk/2015/15-137/letters-memos-tariffs/15-137_2016-04-27_staff_parties_settlement_agreement.pdf, (Last accessed April 27, 2020).

[25] Gilleo, A., Kushler, M., Molina, M., and York D. (2015). Valuing Efficiency: A Review of Lost Revenue Adjustment Mechanisms, Report U1503, American Council for an Energy-Efficient Economy, https://www.aceee.org/sites/default/files/publications/researchreports/u1503.pdf, (Last accessed April 27, 2020).

[26] RAP (2016). Revenue Regulation and Decoupling: A Guide to Theory and Application, Regulatory Assistance Project, https://www.raponline.org/wp-content/uploads/2016/11/rap-revenue-regulation-decoupling-guide-second-printing-2016-november.pdf, (Last accessed April 27, 2020).

[27] RAP (2016). Revenue Regulation and Decoupling: A Guide to Theory and Application, Regulatory Assistance Project, https://www.raponline.org/wp-content/uploads/2016/11/rap-revenue-regulation-decoupling-guide-second-printing-2016-november.pdf, (Last accessed April 27, 2020).

EVs present economic, energy, and environmental opportunities for the state and the region by reducing overall energy consumption, reliance on energy imports from out of region, and the emission of air pollutants. In comparison to gasoline and diesel vehicles, EVs operating in the Northeast emit fewer NOx and GHG emissions, even when factoring in the power plant emissions from charging the batteries. This is, in part, because the electric grid in the Northeast is relatively "clean" as compared to other regions, and because EVs use energy much more efficiently than internal combustion engine (ICE) vehicles, using 25 percent of the energy of a conventional ICE vehicle to travel the same distance.[28] As the ISO-New England grid becomes even cleaner, through the interconnection of distributed energy resources (DERs) and large renewable energy projects, the net environmental benefit of EVs will grow.

As of the end of 2019, there were 4200 EVs were registered in New Hampshire: with around 2,300 plug-in hybrid electric vehicles (PHEVs) and over 1,900 battery electric vehicles (BEVs). While this represents only 0.29 percent of all vehicles registered in New Hampshire in 2019, and 0.33 percent of the light-duty vehicles, the growth from 2017 to 2018 was 58 percent, up from 37 percent growth between 2016 and 2017.[29] From 2018 to 2019, the growth rate was 28 percent, but a higher proportion of that being BEVs rather than PHEVs. With many new models in a variety of body types coming out, along with longer ranges, and falling purchase price, the rate of EV adoption in New Hampshire is expected to increase.

The energy and economic impacts of EVs are also increasingly positive, for the individual consumer and for the state and region. EVs are, as noted above, 77 percent efficient compared to 17–21 percent efficient than and gasoline ICE vehicle.[30] This gives EVs a cost of operation of $1.53 per gas gallon equivalent[31] compared to a New Hampshire average price of $2.39 per gallon in February 19, 2020,[32] and a price of $1.85 on April 27, 2020.[33] Even at deeply reduced prices resulting from a historically volatile oil market, EVs have a lower cost of energy.

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[28] US DOE (2019). All-Electric Vehicles, Office of Energy Efficiency & Renewable Energy, https://fueleconomy.gov/feg/evtech.shtml, (Last accessed April 18, 2019).

[29] NHDES analysis of NH DMV registration data query run December 31, 2018.

[30] US DOES (2020). Where the Energy Goes: Electric Cars, Office of Energy Efficiency & Renewable Energy, https://fueleconomy.gov/feg/atv-ev.shtml, (Last accessed April 29, 2020).

[31] Assumes 3.5 miles/KWH in a BEV, 30 miles per gallon fuel economy in gas-powered ICE vehicles, and an Eversource residential electric rate of 0.17924/KWH. Rate obtained from Eversource website: https://www.eversource.com/content/docs/default-source/rates-tariffs/nh-summary-rates.pdf?sfvrsn=2947c862_2, (Last accessed December 18, 2019).

[32] AAA Gas Prices, NH Average Gas Price on February 19, https://gasprices.aaa.com/?state=NH, (Last accessed February 19, 2019).

[33] AAA Gas Prices, NH Average Gas Price on April 27, https://gasprices.aaa.com/?state=NH, (Last accessed April 27, 2019).

While the impact of EVs on the environment and economy is likely to be a net positive, the impact to the energy sector and specifically the electric sector has the potential to be mixed. As the EV fleet in New Hampshire grows, it will displace motor gasoline and on-road diesel consumption, reducing total energy consumption and total imported energy, while increasing electricity consumption. Based on NHDES calculations, it is estimated that EVs registered in the state in 2018, representing 0.28 percent of the passenger vehicle population, consume 10,100 MWH annually. If EVs rose to 30 percent of the passenger fleet, all else being equal, that could require an additional 1,100 GWH of generation.[34]

This growth in consumption has potential positive and negative consequence. As EVs continue to increase as a percentage of the New Hampshire fleet and in the number of vehicles carrying visitors, the rise in electric power consumption has the potential, if not properly managed, to increase the total ISO-NE daily and seasonal peaks, as well as New Hampshire's share of that peak.[35] This could negatively impact all New Hampshire ratepayers by increasing both the energy supply charge and the transmission charge. However, if forecasted and managed properly, EV electricity consumption could result in more KWHs over which to spread utilities' fixed costs.[36] TOU rates are an important part of that load management.[37]

Rates can have a significant influence on charging behavior and, therefore, can be used to discourage EV charging during peak demand periods. The current number of EVs in operation in the region are having a marginal impact on daily and seasonal peak demand and total generation today, but these impacts will grow as penetration rates increase. Currently, EV drivers do more than 80 percent of their charging at home.[38] New Hampshire utilities need to be prepared to mitigate any potential negative impact EV charging may have on peak demand. Absent price signals, a typical EV owner is likely to plug their vehicle into their home charger when they arrive home from work. This typically coincides with the evening peak demand.

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[34] NHDES calculations, December 2019. Assumes EV-registration fraction equal to EV passenger-miles fraction and 3.5 miles per KWH.

[35] Harper, C., McAndrews, G., and Sass Byrnett, D. (2019). Electric Vehicles: Key Trends, Issues, and Considerations for State Regulators, National Association of Regulatory Utility Commissioners, https://pubs.naruc.org/pub/32857459-0005-B8C5-95C6-1920829CABFE, (Last accessed May 1, 2020).

[36] Page 13. Joint Comments of Liberty Utilities (Granite State Electric) Corp. D/B/A Liberty Utilities, Public Service Company of New Hampshire D/B/A Eversource Energy, And Unitil Energy Systems, Inc. Re: Order No. 26,254. http://www.puc.state.nh.us/regulatory/docketbk/2015/15-296/letters-memos-tariffs/15-296_2019-09-06_gsec_eversource_unitil_joint_comments.pdf, (Last accessed April 27, 2020).

[37] RAP (2017). Getting from Here to There: Regulatory Considerations for Transportation Electrification, Regulatory Assistance Project, https://www.raponline.org/wp-content/uploads/2017/06/RAP-regulatory-considerations-transportationelectrification-2017-may.pdf, (Last accessed May 1, 2020).

[38] US DOE (2020). Electric Vehicles: Charging at Home, Office Energy Efficiency and Renewable Energy, https://www.energy.gov/eere/electricvehicles/charging-home, (Last accessed May 1, 2020).

By offering TOU rates with strong price signals, utilities increase the likelihood that EV owners will hold off on charging until the daily peak has passed. [39] Off-peak charging of EVs not only saves EV owners money, but it also has the potential to largely mitigate the impact of EVs on the grid by shifting load to off-peak hours,[40] which will minimize impact on overall seasonal peak, as well as New Hampshire's share of the load. The implementation of EV TOU rates now, before EV numbers increase to a significant percentage of the on-road fleet and begin to register a negative impact to the grid, can better establish off-peak charging as the norm for EV owners from the very beginning.

TOU rates have the potential to influence flexible load, and also have the potential to improve all-around load factor, by shifting consumption and demand to the times of day when the generation, distribution, and transmission systems are significantly underutilized.[41] In addition, TOU rates may reduce the need for costly distribution system upgrades that could be needed in areas with denser EV penetration were EV charging behavior to remain unmanaged.[42]

3. **LED – Outdoor Lighting tariffs.**

As noted above **NHDES strongly supports the modification to Rate M, and the creation of Rates LED-1, and LED-2 with changes to those corresponding charges.**

LED fixtures offer more efficient overall and wastes less light than traditional street lighting leading to a significant energy savings. NHDES supports the modifications to the fixed charges in Rate M (the outdoor lighting service rate), and development of Rates LED-1 and LED-2. The revision to the streetlights rates recognize the significant energy savings LEDs offer compared to traditional street lighting. Offering fixed rates that account for such energy savings, whether the fixtures are installed by Liberty Utilities or by a qualified installer, will encourage more customers to transition to this technology, reducing the direct costs to NH customers, while reducing overall load and consumption, which will result in improved environmental outcomes.

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[39] Harper, C., McAndrews, G., and Sass Byrnett, D. (2019). Electric Vehicles: Key Trends, Issues, and Considerations for State Regulators, National Association of Regulatory Utility Commissioners, https://pubs.naruc.org/pub/32857459-0005-B8C5-95C6-1920829CABFE, (Last accessed May 1, 2020).

[40] NESCAUM (2018). Northeast Corridor Regional Strategy for Electric Vehicle Charging Infrastructure 2018 – 2021, Northeast States for Coordinated Air Use Management, https://www.nescaum.org/documents/northeast-regional-charging-strategy-2018.pdf/download, (Last accessed April 30, 2020).

[41] Salisbury, M. and Toor, W. (2016). How Leading Utilities are Embracing Electric Vehicles, Southwest Energy Efficiency Project, http://www.swenergy.org/data/sites/1/media/documents/publications/documents/How_Leading_Utilities_Are_Embracing_EVs_Feb-2016.pdf, (Last accessed April 30, 2020).

[42] O'Connor, P., Mandel, B., Welch, D., Bolduc, A., and Stith, P. (2019). Evaluating Electric Vehicle Infrastructure in New Hampshire, July 2019, https://www.nh.gov/osi/resource-library/documents/nh-ev-infrastructure-analysis.pdf, (Last accessed April 30, 2020).

4. **Interconnection fees.**

NHDES takes no position.

J. Lead/Lag Days

NHDES takes no position.

K. Depreciation Reserve Imbalance

NHDES takes no position.

L. Depreciation

NHDES takes no position.

M. Pole Attachment Fees

NHDES takes no position.

N. Next Distribution Rate Case

NHDES takes no position.

O. Reporting Requirements

NHDES takes no position.

P. IEEE 1547-2018

N**HDES supports the adoption of IEEE 1547-2018.**

To the extent that this new standard will enable greater DER integration by utilities, NHDES supports inclusion of this standard. This updated standard requires DERs to include certain specific functionalities, which support the reliability of the grid and improve power quality. As a result, this standard has the potential to help DER developers, utilities, equipment vendors, and others that use the standard ensure a safe and reliable electricity system, and therefore, increase the amount of DERs that distribution utilities can accommodate.[43]

[43] US DOE (2019). Revised IEEE 1547 Standard Will Aid Solar Integration, Office of Energy Efficiency & Renewable Energy, https://www.energy.gov/eere/solar/articles/revised-ieee-1547-standard-will-aid-solar-integration, (Last accessed May 1, 2020).

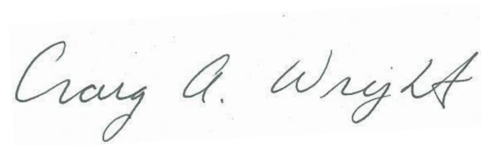
IEEE 1547-2018 will also complement the adoption of a Decoupling Mechanism, and the work that will take place under the Performance-Based Ratemaking process, and the Future Rate Design process. Taken together the adoption of advanced technical standards, advanced rate design, and a next generation business model, have the potential to achieve enable grid modernization and result in cost-effective deployment of DERs.[44,45]

NHDES supports the expansion of cost-effective DER solutions in the state as they have the potential to reduce criteria air pollutants and GHG emissions, while also supporting greater resilience to extreme weather events, which are growing in severity and frequency in New Hampshire.[46]

III. EXOGENOUS EVENTS

NHDES takes no position.

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES



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[44] Grid Mod Working Group (2017). The New Hampshire Grid Modernization Working Group Final Report, https://puc.nh.gov/regulatory/docketbk/2015/15-296/letters-memos-tariffs/15-296_2017-03-20_nh_grid_mod_grp_final_rpt.pdf, (Last accessed May 5, 2020).

[45] NH PUC (2019). Staff Recommendation on Grid Modernization, IR 15-296 Investigation into Grid Modernization, NH Public Utilities Commission, https://puc.nh.gov/regulatory/docketbk/2015/15-296/letters-memos-tariffs/15-296_2019-02-12_staff_report_and_recommendation.pdf, (Last accessed May 5, 2020).

[46] PUC (2019). New Hampshire Historical Outages All Utilities For Wide Scale Storms, https://www.puc.nh.gov/Safety/Electrical%20Safety/Safety-Chart-Of-Historical-Storms.pdf, (Last accessed May 1, 2020).