STATE OF NEW HAMPSHIRE

BEFORE THE

PUBLIC UTILITIES COMMISSION

Docket No. DE 16-576

DEVELOPMENT OF NEW ALTERNATIVE NET METERING TARIFFS and/or
OTHER REGULATORY MECHANISM and TARIFFS FOR CUSTOMER GENERATORS

PREFILED DIRECT TESTIMONY OF

RICHARD A. NORMAN

ON BEHALF OF
NEW HAMPSHIRE SUSTAINABLE ENERGY ASSOCIATION

October 24, 2016

Q1. Please state your name, position and business address.

A1. My name is Richard A. Norman. I am President of Granite State Hydropower Association ("GSHA"). The business address of GSHA is Two Commercial Street, Boscawen, New Hampshire 03303.

Q2. Please describe GSHA and your responsibilities.

A2. GSHA is the association for the independent hydroelectric power industry in New Hampshire. Its members are independent power producers ("IPP"s) that own, operate and manage approximately fifty-five (55) hydroelectric projects located throughout New Hampshire of which approximately sixteen (16) projects presently are authorized Customer Generators that sell power under current net metering tariffs. In the aggregate, GSHA projects have a total installed capacity of approximately fifty megawatts (50 MW). GSHA is governed by a Board of Directors. All directors and officers serve as non-compensated volunteers. As President of GSHA, I oversee the financial and administrative aspects of GSHA's activities and coordinate representation of GSHA before the New Hampshire Legislature and regulatory bodies, and the Federal Energy Regulatory Commission ("FERC").

Q3. Please summarize your educational background.

A3. I received a Bachelor of Science degree in general science from the United States Naval Academy in 1961. In 1970, I received a Master's Degree in Business Administration from the Harvard Graduate School of Business Administration.

Q4. Please summarize your professional experience.

A4. My business experience is described in a resumé attached to this testimony as Exhibit NHSEA-RN-1.

As it relates to this docket, my experience includes the development, construction and subsequent operations of small scale hydroelectric projects from 1976 to the present. In 1983 I cofounded Essex Hydro Associates, LLC ("EHA"), a developer, operator of and investor in small power producer ("SPP") hydroelectric facilities. I served as President of EHA from 1983 through late 2014 and currently I am its Chairman. EHA now directly or indirectly has an ownership interest in, operates and manages eleven (11) hydroelectric projects, five of which are located in New Hampshire; the other six are located in Vermont and Maine.

My business experience includes familiarity with the operation of regulated and non-regulated companies. I have participated in several dockets concerning avoided cost determinations and have led or co-led the negotiation or renegotiation of a number of IPP power purchase agreements with companies including New England Power Company, Niagara Mohawk Power Corporation, Green Mountain Power Corporation, Pacific Power and Light Company, Central Vermont Power Service Corporation, Public Service Company of New Hampshire ("PSNH") and the Vermont Electric Power Purchases, Inc.

Q5. Have you testified previously before the New Hampshire Public Utilities Commission or other regulatory bodies?

A5. Yes, I have testified before the New Hampshire Public Utilities Commission (the "Commission") in Docket Nos. DE 09-174 (Petition for Declaratory Ruling – Penacook Lower Falls), DE 99-099 (PSNH – Proposed Restructuring Settlement) and Docket Nos. DE 14-238 (PSNH – Restructuring and Rate Stabilization Agreement). I also have testified before the FERC on behalf of New Hampshire Hydro Associates in Docket ER94-692-000 and the Vermont Public Service Board in Docket No. 8010 and related workshops on behalf of Boltonville Hydro Associates and North Hartland Hydro LLC.

Q6. Why are you submitting this direct testimony?

A6. GSHA desires to put into the record the extent of net metering presently provided by New Hampshire located hydroelectric projects with one megawatt (1 MW) or less of installed generating capacity. GSHA also desires to quantify the maximum additional capacity that might be provided by New Hampshire-located hydroelectric projects with one megawatt (1 MW) or less of installed generating capacity under future net metering tariffs that might be approved in this docket.

Q7. Turning first to the extent of net metering capacity presently provided by New Hampshire-located hydroelectric projects with one megawatt (1 MW) or less of installed generating capacity. What is the net metering capacity presently provided by New-Hampshire located hydroelectric projects with one megawatt (1 MW) or less of installed generating capacity?

A7. In response to a GSHA data request, PSNH provided a list of hydroelectric projects that presently have received authority to operate as Customer Generators under current net metering authority. The total installed capacity of those projects is 8.475 MW (see Exhibit NHSEA-RN-2). In response to that same data request, Unitil and Liberty Energy indicated that neither has any hydroelectric projects operating under current net metering tariffs.

Q8. Generally speaking, what is the size of hydroelectric projects that operate under present net metering tariffs and why is that significant?

A8. With few exceptions, hydroelectric projects operating as Customer Generators have an installed capacity of greater than 100 kW. As such, these projects receive the default energy rate of the Utility in whose service territory they are located. They are not paid the utility's retail rate. Under terms of the current net metering tariffs, the utility, not the Customer Generator, receives capacity payments earned by the Customer Generator from ISO-NE registration.

Q9. Turning now to the maximum additional capacity that might be provided by New Hampshire-located hydroelectric projects with one megawatt (1 MW) or less of installed generating capacity ("SPC") under future net metering tariffs that might be approved in this docket. Have you identified a source of information that would quantify the potential additional SPC? If so, please explain the results of your search.

A9. Virtually all New Hampshire small hydroelectric projects are regulated by the FERC. The FERC publishes and maintains a list of all hydroelectric projects located in New Hampshire that hold FERC regulatory approvals to operate. The FERC assigns a FERC project number and provides the location, ownership information and maximum authorized installed capacity of these projects. In an attempt to estimate the maximum additional capacity of SPC that might seek new certification as Customer Generators, I went to the FERC web site and obtained a list of all New Hampshire hydroelectric projects with an installed capacity of one megawatt (1 MW) or less. I determined that the sum of all such projects was 20.989 MW. Of that total capacity, there were eight (8) projects with less than 100 kW of installed capacity. There were forty-five (45) projects with an installed capacity between 100 kW and 1MW with a total of 20.523 MW of capacity (see Exhibit NHSEA-RN- 3).

Q10. Does that mean that the total additional capacity from the New Hampshire hydroelectric industry that might seek status as Customer Generators under new net metering tariffs would be 20.523 MW?

A10. No. As shown in PSNH's answer to GSHA's data request, there are already 8.475 MW of capacity from these projects that are certified as Customer Generators and operate under current net metering tariffs. Thus, the maximum additional capacity that might seek net metering tariffs will be no more than approximately 12.541 MW (20.989 MW - 8.475 MW). This number may be somewhat overstated because some projects may sell power

under direct sales contracts or utilize power behind the meter in commercial or industrial operations.

Q11. Can you comment on the characteristics of those hydroelectric projects not now certified as Customer Generators that might seek such certification?

A11. Yes, as shown in my attached exhibits, virtually all potentially new SPC generators will have an installed capacity of more than 100 kW. As such, these projects would be paid the utility default rate under current net metering regulations. Virtually all such hydroelectric projects are interconnected at distribution voltage levels.

Q12. Does this conclude your testimony?

A12. Yes.

Exhibits

NHSEA-RN-1	**Resume of Richard A. Norman**
NHSEA-RN-2	**Total Installed Capacity of Existing Customer Generators**
NHSEA-RN-3	**Total Installed Capacity of NH Hydroelectric Generators between 100 kW and 1 MW**