IR 15-296

141 Gallahad Lane,
Bristol, NH, 03222.
September 15, 2015.

Ms. Debra Howland,
Executive Director PUC NH,
21 South Fruit Street,
Suite 10,
Concord, NH, 03301-2429.

Re: IR 15-296; Electric Distribution Utilities Investigation into Grid Modernization.

Dear Ms Howland,

Please find 7 copies (original and 6 copies) of my one page comment document entitled, 'Augmenting the Grid with Distributed Storage capability and a secured role for Utilities before 2025.'
I am submitting this document as a 'Public Comment' document addressing IR 15-296.
An electronic version of this has also been sent to your email address at the PUC, under the subject matter title, IR 15-296: Dowey Comment.

Regards,

William (Bill) Dowey.
Chairman Bristol Energy Committee.
603-744-3839.

Augmenting the Grid with Distributed Storage capability and a secured role for Utilities before 2025.

With the advent of electric cars, high capacity 7 kw.h to 100 kw.h battery technologies are emerging and being embraced by early adopters for use as residential electrical storage. These batteries today are comprised primarily of Lithium Ion (LI) cells which have been produced originally for the portable and lap-top computer market.

As an outgrowth of this technology focus, new steps in storage technology are being advanced with emerging technologies, which includes Lithium Sulfur (LS) batteries. These batteries have been shown in 2015 to have energy densities that are 2-3 times that of Lithium Ion (see note below). Deploy-able LS storage devices will achieve 10 times the energy density of LI batteries by 2020, at prices that are one tenth that of Lithium Ion batteries.

Companies demonstrating these technologies and achieving these performance parameters are Sion Power, in Tucson Arizona and Oxis in the UK, along with companies in China and Korea.

Within 5 years, Utilities could be deploying one cubic foot, 100 kw.h energy storage units into residences, apartments and commercial facilities at prices under $100 /kw.h. This is the same size as today's 200 amp distribution panel that is used in many homes and facilities. This is at a fraction of the price for gas fired power plants ($250 kw.h), which are currently proposed to displace coal and oil fired power plants, because of cost and pollution abatement advantages.

If Utilities were to rethink their business model and the use of the Grid to include how they could place these storage units in residences and facilities, along with a rate structure that would allow the residences to use this power in times of outages or for the Utilities to regain this power into the grid for redistribution in times of outages or peak demand (high AC loading times), then they would remain as viable corporations with a role in our environment and avoid the potential 'death spiral' that will be brought on if they maintain following the current 20th century 'business as usual' power generation and grid distribution model.

These storage units would not be confined in their distribution to residences and facilities with renewable power source installations, but could be distributed universally to all utility customers, where a storage unit could be charged in off-peak hours from the Grid. Facilities equipped with solar arrays would be able to charge their storage units either from the Grid or from their solar arrays, making the stored power available to the Grid under a modified Net Metering scheme and rate structure.

The Utilities could be advocating and deploying the use of these electrical storage units in conjunction with solar power installers so that they team up in establishing a new Grid with massive storage capacities. This would enable the Utilities to make better economical use of current power generating and distribution facilities, rather than deploying and bringing on line new generation facilities, unless these new facilities are to reduce their current polluting facilities.

The future of the Grid and the role of Utilities is assured if a new model of distributed/retrievable power were to be adopted within the State of New Hampshire and elsewhere in New England.

W. Dowey. Chairman, Bristol Energy Committee. 603-744-3839.

9/15/2015

Note. LI Batteries have a energy density of 100-250 watt hours per kilogram (w.h/kg) of storage material. LS batteries in 2015 have been shown to have energy densities of 500 w.h/kg, LS material has a theoretical energy density of 2550 w.h/kg, 20 times that of LI storage material.