VERMONT ENERGY INVESTMENT CORPORATION

Appendix A: EEU 2013-01 2013-2014 Demand Resources Plan Proceeding

Future Proposed Demand Resources Plan (DRP) Scenario

VEIC proposes this "Future" scenario as a departure from the traditional model currently used in Vermont. VEIC is not recommending that this scenario be implemented immediately, but rather that this proposal initiate a dialogue between Vermont Stakeholders to explore a comprehensive long-term energy strategy in Vermont. This scenario is designed to support Vermont's 2011 Comprehensive Energy Plan (CEP) and statutory policy guidance[1] and to provide increased customer, system, and societal benefits. Implementation of this scenario, should it prove to be feasible, might require Energy Efficiency Utility (EEU) structural changes. VEIC proposes that the Board open an investigation into this proposed DRP scenario in the spring of 2014. This proceeding should be informed by the Total Resource Standard (TRS) effort now being conducted by the Department of Public Service (DPS).

VEIC proposes this scenario investigation, to the extent possible, be designed to support the CEP and TRS goals through continued deep efficiency savings, strategic electrification, and effective load shaping. VEIC proposes that in addition to pursuing traditional aggressive MWh savings targets, that this scenario be designed to achieve a steady increase in the load factor of the electric system to support the goals of the CEP. This would be accomplished by minimizing Vermont's peak load levels while simultaneously increasing beneficial off-peak energy use.

VEIC proposes consideration of this scenario investigation as a way to understand how "strategic electrification" opportunities might be advantageous to Vermont. These "strategic electrification" opportunities have the potential to provide significant customer and societal benefits. If the opportunities are proved feasible by the scenario investigation, the EEUs would have a significant role in delivering the potential customer and societal benefits in partnership with Vermont's distribution utilities. Traditionally, the primary focus of Efficiency Vermont has been on MWh savings and related societal benefits. Coincident peak savings have been included as a portion of the EEU mandate as a performance metric, but they have historically been a derivative outcome of pursuing comprehensive MWh savings. This prioritization continues today since current avoided costs value energy savings over capacity reductions. In the case of Geographic Targeting, an adjustment in the selection of energy efficiency measures has been made to attain higher coincident peak savings, but an EEU has not been empowered nor incented to facilitate or help deploy a full range of demand response or load shaping measures. These measures too often rely on energy savings to be cost-effective.

Several factors make this planning cycle an ideal time to model such an approach.

[1] For example, see 30 V.S.A. § 202a. State energy policy, § 202, Electrical energy planning, § 218c. Least cost integrated planning, 10 V.S.A. § 581. Building efficiency goals. Order of Appointment for Vermont Energy Investment Corporation Pursuant to 30 V.S.A. § 209(d)(5)Issued by the Public Service Board, December 20, 2010.

1. **Planning Processes:** The Vermont Comprehensive Energy Plan set the target of meeting 90% of Vermont's energy needs from renewable energy sources by 2050. The Total Resource Standard investigation that the Department of Public Service (DPS) is currently conducting explores an integrated all-fuels approach to lowering carbon emissions while meeting energy needs. Initial "options" included in the Regulatory Assistance Project scoping document for this project include strategic electrification in the transportation, building, and water heating sectors. In addition, 10 VSA §581 establishes thermal efficiency goals that the EEUs are explicitly charged to help meet. In this context, if the scenario investigation reveals benefits from the proposed approach, it does not seem appropriate that EEUs be constrained in a Demand Resources Plan by a resource approach that focuses primarily on MWh reductions, with limited options to consider and support societally beneficial electrification and other strategies that can benefit customers, the energy system, and society.[2]

2. **Market Realities:** VEIC, acting in its capacity as Efficiency Vermont, is deeply involved with its customers and with the energy and energy-product/service marketplace. We have found that residential electric air-to-air heat pumps are cost-effective, efficient, and highly customer cost-competitive over unregulated fossil fuel options, even, in some instances, with regulated natural gas fueled options. Customers switching from fossil fuel use to heat pumps could realize significant financial savings. Heat pump technology is also applicable in commercial settings, in water heating and in clothes drying. Despite the efficiency and financial benefits, VEIC's understanding of current Board policy guidance prevents an EEU from fully supporting these new technologies since they also build load. Electric vehicles are also being adopted at a rate faster than anticipated, and while volumes are still relatively small, there has been limited EEU policy discussion around how to manage this new and growing technology. As a result, there is no structure currently in place to help customers purchasing electric vehicles minimize charging costs nor to help Vermont minimize electrical system impacts. Thus, increasingly Efficiency Vermont is finding itself unable to fully assist customers in making cost-effective choices that are optimal both from the customer and societal perspective. This alienates customers, confuses the markets, misses efficiency opportunities, and runs counter to the state energy policy.

3. **AMI implementation:** Vermont is a national leader in AMI implementation with approximately 90% of electric ratepayers now having AMI systems in place. This creates multiple opportunities for improved efficiency and time of use guidance through rate design. Efficiency Vermont is poised to work with distribution utilities to assist customers in realizing these benefits, but is constrained by the EEU's focus on energy savings in what it

[2] GMP's recent rapid over-subscription of its cold-climate heat pump pilot program is one small indication of how active this market is.

can do to help customers choose systems that might utilize the AMI infrastructure most effectively. AMI also provides the opportunity for Vermont utilities to develop new "networked" distribution systems that includes energy efficiency, Combined Heat and Power systems (CHP), Distributed Renewable Energy (RE) and "smart" use of energy to increase reliability, resiliency, and diversity in the energy system. Efficiency Vermont is prepared to work with customers on RE investments choices to make this happen.

4. **Opportunities for savings at State and Regional levels:** Vermont has been a leader in getting energy efficiency resources recognized by the New England Independent System Operator (ISO-NE). There are still major obstacles to maximizing the benefits of distributed resources in both state and regional Transmission & Distribution (T&D) planning and implementation, and in peak load challenges like the newly emerged ISO-NE gas winter peak problem. There is potential benefit to permitting an EEU to work actively with the DPS, Distribution Utilities, and VELCO to address these problems so Vermont can help realize both economic savings through reduced transmission and generation costs, and system benefits.

How the modeling would work

VEIC would assess and characterize energy efficiency opportunities across all electric energy end uses as it has traditionally, and would seek to maximize savings in those areas. VEIC would also assess and characterize "strategic electrification" opportunities and model their impact on electric consumption and load shape and assess the potential for energy efficiency relative to those technologies. Outcomes of the model would include customer and societal benefits as well as rate and bill impacts.

The model would incorporate potential realized by CHP, customer-sited renewable energy, dynamic electric rates, storage and strategic load shifting. VEIC would use this opportunity to assess in more detail some of the approaches being considered by the DPS in its Total Energy Standard (TES) assessment. The model would screen measures using currently approved cost/benefit testing methodologies. The modeling could also explore possible modifications to cost/benefit tests and the impacts those modifications might have on cost-effectiveness screening.

The scenario output would be used to determine total societal benefits, impacts on the state's thermal efficiency goals, the 2011 CEP, and the TES. The scenario could also include a preliminary assessment of what it would take to secure funding for investment in this strategy from ISO-NE and an enhanced Forward Capacity Market (FCM) auction value, or some other strategy to recognize constraint reduction benefits on the supply side.

In summary, this approach would expand efforts to lower total VT energy use while increasing electrification and transitioning away from fossil fuel use. This scenario would:

- *Help Vermont meet its Green House Gas goals,*

- *Move Vermont toward Total Energy Standard implementation (electrification in RAP TES study),*
- *Address the weatherization goal without cross-subsidizing fossil fuels, and*
- *Increase value on the Transition and Distribution side by explicitly addressing peak as part of an EEU's mandate.*

VEIC recognizes that the proposed scenario expands the range of activities required by an EEU and that historically, some of the activities proposed in this scenario have been low priorities if not restricted by current Board guidance. VEIC believes that that after reviewing the legislation underlying both Vermont Energy Policy and EEU regulatory guidance, that the activities and investments required to carry out the activities envisioned in this proposed scenario are generally consistent with Vermont's established and future legislative and regulatory direction. While there are new challenges and new interpretations that would need to be considered and explored, the fundamental direction of Vermont Energy Policy offers significant support for exploring this approach.