



STATE OF VERMONT  
OFFICE OF THE STATE TREASURER

**TO:** House Committee on Institutions and Corrections  
Senate Committee on Institutions

**FROM:** Beth Pearce, State Treasurer  
Michael Obuchowski, Commissioner of Buildings and General Services  
Chris Recchia, Commissioner of the Department of Public Service

**DATE:** January 7, 2014

**RE:** Strategy for Thermal and Energy Conservation in State Buildings  
and a Plan for Financing these Improvements

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This memorandum provides our proposal in response to Representative Emmons's and Senator Flory's above-referenced request from their memorandum dated May 14, 2013. Specifically, we describe a strategy for prioritizing energy cost saving projects for certain State buildings, and an approach to financing these improvements using loans of available State's cash to a new State resource management revolving fund to be established.

### Framework

Our offices, with support from Efficiency Vermont (EVT), have agreed that a general framework with the greatest likelihood of being both effective and responsive to your request might focus on the following elements:

1. **Cost Savings.** First, interpreting the Committees' objective as efficiency, we focused on projects and facility management strategies (e.g., building re-tuning strategies to adjust scheduling of systems and calibrate controls) that were expected to yield sustainable reductions in annual energy consumption for the purpose of saving money, in addition to the obvious direct benefit of reducing greenhouse gas (GHG) emissions.
2. **Targeting BGS-Managed, Occupied Buildings.** Second, during the course of our discussions and research, we determined that the \$22 million of annual energy costs referenced in the May 14 memo included at least \$8 million of vehicle fleet-related costs. Further, BGS only manages a subset of State buildings (approximately 283 occupied buildings out of over 330), through its "fee for space" program, for which annual energy costs have fluctuated between \$5 million and \$7 million. Over half of this amount is for electricity, with the balance spent, in order, on heating oil #2, heating oil #6, wood chips, natural gas, and propane gas. Buildings outside BGS's fee for space program include Agency of Transportation facilities (e.g., salt sheds, lighting for park and rides, etc.), Agency of Natural Resources facilities (e.g., buildings, hatcheries, etc.), electricity for Department of

Corrections facilities, and historical buildings. As a starting point, then, we focused on lowering the \$5 million to \$7 million electricity/fuel costs in the occupied buildings BGS manages, with the expectation that a successful approach could be replicated in other State facilities. If this approach is acceptable, we would be happy to assist in expanding its application to other facilities.

3. **Using ENERGY STAR as a benchmark.** Third, EVT has proposed and we agree with using the U.S. Environmental Protection Agency's ENERGY STAR standards to evaluate cost savings opportunities, as these standards are identified in the State's Comprehensive Energy Plan. EVT has had a very positive experience using these standards as a goal setting, priority setting and tracking tool, especially in K-12 schools. These standards are proven, consistent, measurable, widely-recognized and well-understood, and can be used to help prioritize which projects would be most cost-effective to pursue. Further, these standards enable contracting both for evaluation and project implementation, which can leverage BGS's and EVT's project management capabilities.
4. **Leveraging Existing Programs, Resources and Statutes.** Finally, it was generally agreed that existing tools – specifically, the energy efficiency loan mechanisms developed by the Treasurer's Office under Act No. 87 of 2013, combined with a State revolving fund – could provide a vehicle to finance efficiency improvements.

Under this proposed framework, we believe a reasonable goal would be to implement efficiency improvements to target annual energy consumption savings of between 5% and 10%, which should imply cost savings (or, if energy prices increase, then avoidance of even higher costs) of a similar magnitude. Extrapolating 5% to 10% savings to the entire portfolio of BGS-managed buildings could imply eventual annual savings (or cost avoidance) of \$250,000 to \$700,000 on a \$5 million to \$7 million annual energy budget. We caution that the most recently-available annual costs, on the order of \$5 million, do not include the Waterbury State Office Complex or the Vermont State Hospital; also, these facilities will be constructed to ENERGY STAR or better standards, and thereby will not be candidates for further cost savings.

### **Strategy for Thermal and Energy Conservation**

To identify and prioritize potential energy efficiency projects, BGS and EVT would collect the most recently-available energy cost information on targeted buildings, and also note which facilities currently meet ENERGY STAR or better standards. As a first step, BGS will be implementing submetering in the Montpelier complex to track both heating and electricity to each of its buildings. Level 1 (walk-through, visual inspection) audits, which are relatively easy and inexpensive, could be conducted on most facilities, followed by more expensive and time-consuming Level 2 audits (thermal scan) on certain facilities where more information is needed, and then the most promising candidates for efficiency improvements could be identified based upon qualifying criteria (i.e., size, use, occupancy, minimum energy usage, etc.), and a database of projects could be compiled that quantified estimates of project costs and potential annual savings.

It should be noted that the State has already completed energy efficiency improvements for existing facilities, and is incorporating state-of-the-art efficiency standards in new buildings. In addition to WSOC and VSH, these include the Bennington State Office Building (near net zero), an upgraded Brattleboro facility, the Hartford and Sharon rest areas, the Montpelier District Heat Plant, five new Public Safety State Police Barracks (including the proposed Westminster Barracks), the Barre Courthouse and State Office Building pellet boilers.

### **Plan for Financing Improvements**

To finance projects identified by BGS, the Treasurer's Office could loan funds to a State revolving fund under terms and interest rates similar to those used for existing programs with the Vermont Community Loan Fund, the Vermont Housing Finance Agency, and NeighborWorks® of Western Vermont.

Under these programs, the Treasurer's Office and the borrowing entity execute a master loan agreement, and then use one or more promissory notes to effect borrowings for needed amounts at mutually agreed-upon interest rates, modes (fixed or variable), and repayment dates. To ensure that borrowing rates are market-based, interest rates are set based upon an underlying reference rate, such as U.S. Treasury securities or the London Interbank Offered Rate (LIBOR).

The advantages of such an approach include (1) no origination costs, and minimal ongoing administrative requirements, (2) flexibility to finance individual projects in small dollar amounts on an as-needed basis, (3) a higher rate of interest than is available on short-term investment alternatives, and (4) negligible credit risk, as the State is effectively lending to itself. The primary drawback would be if expected savings did not arise, then additional funds would need to be budgeted for repayment of loan principal and interest. Failure to budget for these amounts would result in realized investment losses to State's cash, which would need to be recouped as appropriations. The Treasurer's Office would plan to conduct due diligence and to require certain metrics to demonstrate that loan repayments were highly likely to occur even under a range of potential savings outcomes that did not meet expectations.

To estimate the total dollar amounts that might be required to finance energy improvement projects, EVT has developed a revolving fund financing model. The model's inputs include the total annual energy cost, an estimate of an average energy savings percentage from adopting ENERGY STAR, a percentage reduction for buildings already at or exceeding ENERGY STAR standards, a desired return on investment, loan interest rate, repayment term in years, and an estimate annual increase in energy costs. The model assumes that loans are originated over a 10-year period, and that loan principal repayments are "recycled" during this period such that all loans are repaid after 20 years (alternatively, loans and recycling could occur indefinitely on an ongoing basis). One important point is that the model assumed that energy cost savings accrue to the State revolving fund; if this is the preferred approach, then in practice this means that fee-for-space rents would not decrease.

Using very preliminary information, including available data from 2011, we have estimated that projects to realize total energy savings of 5% might require loan financing on the order of \$2 million, and projects creating savings of 10% might require \$4 million of financing. We caution

that these numbers would be very likely to change as BGS and EVT are able to collect more updated cost information, and as more robust savings estimates are provided as a result of actual energy audits.

### **Needed Legislation**

To implement this proposal as described, at a minimum we believe legislation would be required (1) to create a new State revolving fund, and (2) to permit the Treasurer to loan funds for this purpose. Additional language setting forth certain metrics (e.g., payback period in years, percent return on investment, total dollars saved or reduction in energy usage, etc.) or other qualifications or criteria may also be desired.

We look forward to further discussing this proposal with you during the legislative session.

cc:     Jeb Spaulding, Secretary of Administration  
          Jim Reardon, Commissioner, Department of Finance and Management