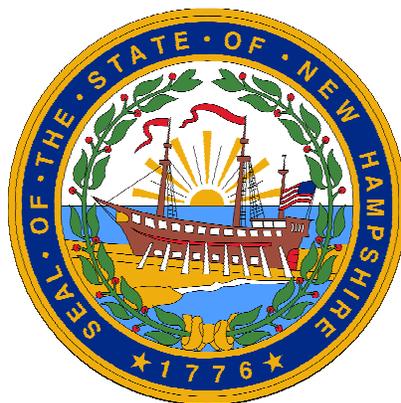


STATE OF NEW HAMPSHIRE, DEPARTMENT OF
ADMINISTRATIVE SERVICES

2016 STATEWIDE ENERGY CONSERVATION PLAN

RSA 21-I:14-C



Statewide Energy Conservation Plan

RSA 21-I:14-C

JANUARY 15, 2017

In accordance with Revised Statutes Annotated (RSA) 21-I:14-c, Energy Consumption Reduction Goal; Reports, each state department must identify cost-effective measures to reduce fossil fuel consumption by 30 percent by 2020 in state buildings, on a square-foot basis, compared to a 2005 baseline. Each state department must submit an annual report to the Department of Administrative Services (DAS) which details any cost-effective measures it is utilizing and those potential measures, subject to budgetary approval, to comply with the energy consumption reduction goal established by RSA 21-I:14-c. DAS is required to compile all departmental conservation plans to summarize and report on the State's progress toward reaching its energy reduction goals and identify problems that may prevent the state from achieving these goals. This document is submitted to fulfill DAS's reporting obligation. The State of New Hampshire Fiscal Year 2016 Annual Energy Report provides a summary of the State's progress over the last year, and is included as Appendix C to this report.

State Agency Energy Conservation Plans

Individual agency reports have been received from fourteen of the fifteen large property-owning agencies and institutions (see Appendix A for specific agency plans). Juvenile Justice Services, a residential facility under the Department of Health and Human Services did not submit a plan. Plans were reviewed by staff from DAS. Energy conservation measures identified through the plans could be completed to save the State energy and money. The estimated cost of these measures totals over \$25 million¹.

Departments listed 107 energy conservation measures completed in FY16. Of these measures, agencies were able to provide calculated energy savings for 76 measures. The total cost of completing these 76 measures was nearly \$20 million resulting in nearly \$1.4 million in annual avoided energy costs. The 76 projects listed in the plans include two energy saving performance contracts. Many of these measures will remain in state facilities for twenty years or more, adding to additional avoided energy costs over time.

Non-property owning agencies were asked to complete a simplified plan consisting of a one-page summary of the efforts that they have made over the past year to reduce energy consumption along with some goals for the upcoming year. Fourteen agencies were asked to submit plans based on the criteria listed in Executive Order 2016-03: agencies that occupy more than 5,000 square feet and those that employ at least 15 people. Twelve plans (including a plan from the Board of Tax and Land Appeals, although it was not required to submit one) were received from non-property owning departments summarizing behavioral measures to reduce energy use. Agencies that were required to submit a plan and did not are: Cultural Resources and the Office of Professional Licensure and Certification. Health and Human Services did not submit a plan for its non-institutional operations. By encouraging employees to make small shifts in their behavior, energy consumption could be reduced even more. Any ideas that were included in these non-property owners' plans will be passed

¹ Measure costs provided by agencies include non-energy related components of some projects. New construction projects were included at 15% of total cost.

along to the department that owns the building for review and possible implementation. See Appendix B for a list of departments that do not own property and submitted an energy conservation plan.

Past Energy Management Initiatives

The Energy Management Office was awarded \$500,000 in capital funds for energy conservation projects for fiscal years 2016 and 2017. The State Energy Manager and staff took an approach to distribute the funds across property owning departments based on the square footage of building space that each owns. All agencies were able to expend the entire amount of money allocated to them on energy saving projects. The funding helped to complete 32 projects, either fully or partially funded, resulting in a projection of over \$70,000 in annual avoided energy costs.

The Energy Management Office started a new initiative in 2015 called the Small Buildings Energy Efficiency Program (SBEEP). This program focuses on state buildings across all agencies that are 10,000 square feet or smaller. In the past, energy saving opportunities in these buildings have been largely ignored due to the State's focus on larger facilities. SBEEP provides high level evaluations of state buildings; instant energy savings through turnkey savings measures including LED lighting, spray foam insulation, faucet aerators, and appliance timers; and tips and recommendations for the agency to implement after the visit. Additionally, if staff identifies any major energy projects, they will be added to the queue of projects to be done when funding becomes available. As of December 2016, the program is estimated to have achieved nearly \$1,500 in annual energy savings.

In FY16, the State issued a third Request for Proposals (RFP) for an energy saving performance contract (ESPC) that will cover 28 facilities in Concord. Facilities are located in downtown Concord and on the State Office Park South. ESPCs are a way for departments to install energy saving measures in their buildings with no up-front costs. Agencies pay for measures over time from the energy savings associated with the projects using their utility budgets. Departments see no difference in their total expenditures because the required payments are offset by reduced energy bills. A recent ESPC for buildings on Hazen Drive is in the final stages of construction with the project scheduled to be completed in January of 2017. The second ESPC project currently underway is for facilities and operations at Cannon Mountain and is also nearly complete with final measures to be installed at the close of the ski season. The third project, mentioned above, is scheduled to begin the investment grade audit phase in January 2017.

Energy Management Staff worked with the US Department of Energy in 2016 to complete an ESPC Champions Toolkit. This toolkit provides agencies with all of the guidance they need to initiate their own ESPCs. The Energy Management team can then provide technical assistance with the project as it progresses. The idea for this toolkit is to help agencies take ownership of their energy saving projects and in turn the energy reduction goals outlined in Executive Order 2016-03. This also frees up the time of the minimally staffed Energy Management Office and allows more projects to happen. After the presentation of the toolkit to agencies in October, there has been an increased interest from agencies in ESPC and a fourth project will go forward in early 2017.

In preparation for performance contracting, a facility may elect to defer any energy related upgrades so that they can be included in the overall project. Longer payback items are offset by energy measures with quicker paybacks and the blending of these projects is what makes the initiative successful.

Future Energy Projects

The Energy Management team is working with departments on finalizing projects that were funded using the FY16/17 energy capital funds. The \$500,000 capital appropriation was allocated based on the square-footage owned by each agency.

Based on the information received in the individual agency conservation plans, the Energy Management team has assembled a list of measures to be completed in FY18/19. Measures were included in the list (see Table 1) if they met the following criteria:

- Agencies were able to provide project cost and energy savings estimates;
- Payback periods for the projects were reasonable; and
- Agencies indicated that no other source of funding was available to fund the measure.

Additional work could be completed through energy performance contracts. Energy audits and other similar studies can provide agencies with a prioritized plan, often identifying measures that would not be completed otherwise and allowing agencies to see which measures will result in the largest benefit.

While this list serves as an indication of the amount and type of projects that need to be done across the State, situations and technologies change over time and a department's priorities may shift due to these circumstances. The Energy Management Office supports departments in getting critical projects done quickly and also focuses on high energy saving projects that will provide the most benefit to the State. Based on information provided by the departments in their plans, it is evident that many are able to find the funding for smaller (under \$50,000) projects, but often struggle to be able to complete projects in the \$100,000 to \$500,000 range. For example, a small lighting retrofit can often be accomplished within the operating budget of a department, but a full facility lighting retrofit can often run several hundred thousands of dollars which makes it unattainable within their biennial budget. For a list of projects completed with FY16/17 energy capital funds, please see Table 2.

In addition to the projects listed in Table 1, the State Energy Manager has requested an additional \$1.6 million in capital funds to use for additional LED lighting conversion projects and additional window quilt projects. These two initiatives can be implemented fairly simply in many state facilities at little relative cost, yielding a four to eight year payback in most cases. The State Energy Management team believes that easily implemented and widespread initiatives will be needed to meet the strict energy reduction targets outlined in Executive Order 2016-03. The State Energy Manager also intends to pursue energy saving performance contracts with several state agencies in FY17 and beyond. Departments are in need of more resources to be able to achieve these goals, including access to professional studies and audits, training, funding, and staff that are able to assist in the implementation of energy saving measures. Furthermore, if departments have the resources to do more, the DAS Energy Management Office would benefit from more staff to work with departments on all phases of project implementation and tracking. Departments are clearly spending more on energy and maintenance than they need to. A combination of education, funding, and staff could improve the energy efficiency of state facilities and divert tax dollars away from departmental energy budgets and towards other areas that are in need.

Appendix A: Agency Conservation Plans, Property Owners

1. The New Hampshire Adjutant General's Department
2. Department of Administrative Services
3. New Hampshire Department of Corrections
4. New Hampshire Employment Security
5. New Hampshire Department of Environmental Services
6. New Hampshire Fish & Game Department
7. Glencliff Home
8. New Hampshire Hospital
9. New Hampshire Liquor Commission
10. New Hampshire Police Standards and Training Council
11. New Hampshire Department of Resources and Economic Development
12. New Hampshire Department of Safety
13. New Hampshire Department of Transportation
14. New Hampshire Veterans Home

Appendix B: Agency Conservation Plans, Non-Property Owners

1. New Hampshire Department of Agriculture, Markets, and Food
2. New Hampshire Banking Department
3. New Hampshire Department of Education
4. New Hampshire Office of Energy and Planning
5. Department of Information Technology
6. New Hampshire Insurance Department
7. New Hampshire Department of Justice
8. New Hampshire Department of Labor
9. New Hampshire Lottery Commission
10. New Hampshire Public Utilities Commission
11. New Hampshire Department of Revenue Administration
12. New Hampshire Board of Tax and Land Appeals

Appendix C: Fiscal Year 2016, State of New Hampshire Energy Management Annual Report

Table 1: Prioritized Measures for Fiscal Year 2018/19 (As provided by departments in their agency-level plans)

Agency	Measure Description	Building(s) Impacted	Estimated Measure Cost	Expected Annual Energy Cost Savings	Simple Payback (years to recoup cost)
Adjutant General	New Boilers	Rochester, Concord Bldg M	\$200,000	\$16,250	12.3
Administrative Services - BFAM	Energy Saving Performance Contract*	South Campus Buildings	\$5,000,000	\$250,000	20.0
Administrative Services - Courts	Window Quilts	Lebanon Circuit Court	\$12,737	\$5,200	2.4
Administrative Services - Courts	LED Parking Lot Lights	Coos, Derry, Lebanon	\$10,275	\$3,540	2.9
Administrative Services - Courts	New Condensing Boilers	Rockingham County	\$125,000	\$34,980	3.6
Services - General Serv.	Energy Saving Performance Contract*	South Campus and Downtown	\$5,000,000	\$250,000	20.0
Corrections	Replace Doors and Windows	Various	\$300,000	\$18,400	16.3
Employment Security	LED Lighting Replacement	Portsmouth	\$12,000	\$1,800	6.7
Environmental Services	Solar PV Array	Pierce Island Air Monitoring	\$4,700	\$324	14.5
Environmental Services	LED Lighting Replacement	WRBP Wastewater Plant	\$10,625	\$1,222	8.7
Environmental Services	Air-source Heat Pumps	Camp Dodge, Laconia, and TSU Air Monitoring	\$4,200	\$540	7.8
Fish & Game	LED Lighting Replacement	Twin Mountain Hatchery	\$2,880	\$176	16.4
Glenciff	Convert to Steam	LaMott Wing	\$350,000	\$60,000	5.8
Health and Human Services	Energy Saving Performance Contract*	South Campus	\$2,000,000	\$100,000	20.0
NH Hospital	Exterior LED Lighting	Acute Psychiatric Services	\$36,470	\$5,885	6.2
NH Hospital	LED Lighting Replacement	Acute Psychiatric Services	\$77,298	\$41,347	1.9
Liquor Commission	LED Lighting Replacement	Store 34	\$37,900	\$6,720	5.6
Police Standards and Training Council	Emergency Lights	Campus-wide	\$580	\$84	6.9
Police Standards and Training Council	Exit Signs	Campus-wide	\$749	\$600	1.2
Police Standards and Training Council	LED Lighting Replacement	Dorm	\$4,400	\$1,080	4.1
Transportation	Exterior LED Lighting	Shed 124	\$150	\$18	8.3
Transportation	Weatherization and Lighting	Old Shed 224	\$3,500	\$163	21.5
Transportation	Replace Overhead Doors	Shed 516	\$15,000	\$813	18.5
Veterans Home	Clothes Dryer Upgrade	Laundry	\$7,705	\$1,075	7.2
Veterans Home	LED Lighting Replacement	Tarr North, Welch	\$135,349	\$24,000	5.6
Veterans Home	LED Lighting Replacement (Interior and Exterior)	Tarr South, Exterior	\$69,916	\$9,600	7.3
		TOTAL	\$13,421,434	\$833,817	16.1