

HOUSE BILL 251 IMPLEMENTATION PLAN

OHIO UNIVERSITY

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In accordance with the requirements of House Bill Number 251, Ohio University has developed the following fifteen year plan for use and approval by the board of trustees to ensure energy efficiency and reduce energy consumption in existing and planned facilities at all Ohio University campuses.

This plan should be understood as one component of our process toward the development and implementation of a comprehensive sustainability plan which will serve as both a long-term vision and a blueprint for campus sustainability efforts across Ohio University's six (6) campuses. The sustainability plan will reconcile and align the goals of Vision OHIO, the Presidents Climate Commitment and House Bill 251 in order to direct the university's progress toward broader sustainability targets affecting all functional areas of campus operations, which includes, academics, governance, endowment investment, materials management, food, transportation, built environment, land use and energy generation.

Introduction

House Bill 251, introduced in May 2005 and signed by the Governor in January 2007, aims to promote the State of Ohio as a leader in energy efficiency. It focuses, in part, on energy consumption in state-funded facilities (including those of state institutions of higher education). As such, it addresses the authority of university and college boards of trustees regarding on- and off-campus construction and leasing.

The bill requires that each board of trustees develop its own 15-year plan for phasing-in energy efficiency and conservation projects. The guidelines must incorporate best practices into energy efficiency standards and plans and must provide that project impact assessments include the fiscal effects of energy efficiency and conservation recommendations and plans.

Further, the guidelines must include a goal of reducing on- and off-campus building energy consumption by at least 20% by 2014, using calendar year 2004 as the benchmark year. The bill authorizes the guidelines to recognize the diverse nature and different energy demands and uses of such buildings, as well as measures already taken to increase building efficiency and conservation.

The guidelines also must prescribe minimum energy efficiency and conservation standards for any new, on- or off-campus capital improvement project with a construction cost of \$100,000 or more. Those standards must be based on general building type and cost-effectiveness. Additionally, the guidelines must prescribe minimum standards for leased, off-campus spaces of at least 20,000 square feet.

Goals

The primary goal of this fifteen year plan is the reduction of campus facility energy intensity by 20% by the end of fiscal year 2014 as compared to fiscal year 2004. "Energy intensity" is

defined as consumption of mmBTU per gross square foot. Where possible, this measure will also factor in heating and cooling degree days. Both conditioned and non-conditioned spaces will be included in gross square footage totals.

The secondary goal of this fifteen year plan is to obtain, as best possible, a similar reduction of greenhouse gas emissions, hereto forward referred to as “GHG”.

Strategies

In order to reach the goals stated above, Ohio University will utilize the following strategies:

1. Every capital improvement project will be evaluated according to the energy and GHG efficiency of its design as well as its impacts on the efficient use of existing space on campus;
2. For capital improvement projects with anticipated construction costs in excess of \$100,000, we will exceed ASHRAE 90.1.2004 standards by 10 percent for new construction projects and 7.5 percent for renovation and other projects. For projects with programming/design work commencing after July 1, 2010, we will exceed ASHRAE 90.1.2004 by 20 percent for new construction projects and 15 percent for renovation and other projects;
3. For leased spaces of 20,000 square feet or more, all effort will be made to comply with the standards outlined in section (1) above;
4. Strive to direct a minimum of 20 percent of capital budget allocations toward innovative infrastructure efficiency projects targeting reductions in energy, water and/or carbon emissions. This may include capital budget projects already identified such as total building rehabilitations which are projected to produce energy intensity savings. Further, additional projects will be developed and implemented as the 10 year capital budget is updated;
5. Strategic metering standards outlined by the department of Facilities Management will be strictly maintained on all capital improvement projects that involve new construction or renovations of existing buildings;
6. Add through redirection and Vision OHIO funding, engineering and sustainability personnel over time in proportion to the total square footage of built spaces on campus. One new energy engineer position will be created through redirection in fiscal year 2009;
7. Explore establishment of an ongoing internal funding stream for resource efficiency projects;
8. Where applicable, external funding opportunities will be researched and pursued to assist in the financing of projects positively affecting our energy intensity, overall energy consumption, and/or carbon footprint;

9. In recognition of our severe dependence on coal, its resultant impacts on our carbon footprint, and rising utility costs, we will explore alternative fuel sources in all critical evaluations of our future energy needs and infrastructure;
10. Aggressively pursue education and outreach efforts which stimulate voluntary conservation and integration between the academic mission of the institution and sustainability goals and projects.

Funding Mechanisms

CAPITAL BUDGET ALLOCATIONS

Ohio University receives a capital allocation from the State of Ohio roughly every two years toward construction, renovation and infrastructure upgrades. In the current biennium, this allocation totaled approximately \$27,000,000, including those funds directed toward the regional campuses.

DEBT/PERFORMANCE CONTRACTING

Since 1994, the State of Ohio has allowed Ohio's public colleges and universities to hire companies to improve energy efficiency based on the amount of money the company promised to save, instead of relying on the typical threshold of giving the job to the lowest and best bidder. This law enables state agencies to enter into performance contracting agreements, which guarantee the performance of the building and the expected savings. Projects can be paid for out of actual energy savings under a performance contract. Such projects usually include the installation of energy or water conservation measures in buildings by professional contractors. Equipment is installed at no initial cost to the University, in return for part of the energy savings. Ohio University has made use of this option since 1999 to identify and implement conservation and efficiency projects with paybacks through cost avoidance in the 5-10 year range.

REVOLVING ENERGY FUND OR ENERGY MANAGEMENT FUND

Revolving loan funds involve the allocation of an initial sum of money which then finances conservation and efficiency projects that have a quantifiable monetary savings or avoidance. A portion of the returns from these projects is reinvested into the fund until the project has been paid off. The money is then reused for more projects. Prior to 1999, Ohio University made use of this strategy by reinvesting savings or the costs avoided in an energy management fund.

GRANTS AND GIFT OPPORTUNITIES

With increasing public support for campus sustainability, reducing the institution's carbon footprint and conserving energy, there are emerging opportunities to pursue grants through various agencies and organizations as well as gifts from individuals. These are particularly appropriate for projects with considerable environmental benefits which may not boast a suitable payback period for implementation based on cost savings or avoidance alone.

Reporting Requirements

Best practices related to energy efficiency and conservation will be disclosed biennially within Ohio University's Six Year Capital Plan for the capital biennium commencing July 1, 2010, as

submitted to the Ohio Board of Regents for the purposes of State Capital Appropriations requests. The first installation of the best practices report will include a review of prior conservation efforts which have resulted in significant cost and GHG avoidance, including those which pre-date the 2004 benchmark year.

Each capital project undertaken and developed within the context of the guidelines of House Bill 251 shall be evaluated by Ohio University through a project impact assessment report, disclosing the fiscal effects of the energy efficiency and conservation measures pursued within the project, including, but not limited to, life cycle cost analysis.

Ohio University will report its energy consumption to the Ohio Board of Regents as follows:

- (a) The standard unit of measurement shall be as defined as mmBTU consumption per gross square foot. Where possible, this measure will also factor in heating and cooling degree days. Both conditioned and non-conditioned spaces will be included in gross square footage totals.
- (b) In order to maximize the utilization of existing state-wide institutional reporting mediums, energy consumption data shall be reported
 - a. From a historical view: On a fiscal year basis, using the Portfolio Manager software package prescribed by the Ohio Board of Regents, including actual energy consumption in units and dollars and carbon footprint information
 - i. In order to provide the comparable annual performance data, it is expected that the actual energy consumption data for fiscal years 2004 through 2008 shall be provided with the fiscal year 2008 HEI submission in February 2009.
 - b. From a prospective view: Bi-annually, commencing July 1, 2010, Ohio University will provide a prospective view of our accomplishments, future plans, and challenges. The view will be submitted in a narrative format as part of Ohio University's Six Year Capital Plan.

Once the data has been compiled by the Ohio Board of Regents and reviewed in consultation with the committee, the Regents will incorporate the results into their annual performance report.

Review Process

Ohio University will review the fifteen year plan on a biennial basis to update targets and strategies as needed.

Glossary of Terms

ASHRAE 90.1.2004 – a building energy efficiency standard issued by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

carbon footprint – the impact of a human activity on the environment measured as the amount of the greenhouse gas carbon dioxide released over a period of time .

cooling degree days – an indicator of the annual demand for energy needed to cool a facility. The *cooling degrees for a single day* are calculated as the number of degrees by which the average outside temperature for that day exceeds the reference temperature (typically 65 degrees F). The *annual cooling degree days* value is calculated by summing the cooling degrees for each day of the year.

conditioned spaces – portions of facilities which are heated or cooled.

energy intensity – a measure of the overall efficiency of a facility. It is calculated, in this case, as the units of energy (mmBTU) consumed per unit of facility area (gross square foot).

greenhouse gas (GHG) emissions – the atmospheric release of gases associated with increased potential for global warming (e.g. carbon dioxide, nitrous oxide, methane, etc.). GHG emissions often result from the combustion of fossil fuels to generate heat or electric power.

gross square foot – a measure of total facility area in units of square-feet.

heating degree days – an indicator of the annual demand for energy needed to heat a facility. The *heating degrees for a single day* are calculated as the number of degrees by which the reference temperature (typically 65 degrees F) exceeds the average outside temperature for that day. The *annual heating degree days* value is calculated by summing the heating degrees for each day of the year.

mmBTU (million British Thermal Units) – a unit of energy measurement which can be applied to any fuel source.

Ohio House Bill 251 – signed into law in January 2007, the legislation: 1) requires the efficient use of energy in existing state facilities, 2) sets energy efficiency standards for the procurement of goods and services, and 3) requires the use energy efficient designs in new capital construction.