

FLORIDA BUILDING COMMISSION  
FLORIDA ENERGY CODE WORKGROUP  
RECOMMENDATIONS REGARDING COST  
EFFECTIVENESS TEST FOR AMENDMENTS TO THE  
FLORIDA ENERGY CODE  
(Unanimously Adopted March 27, 2009)

*Overview from the FSEC Report: “Energy Efficiency Cost-Effectiveness Tests for Residential Code Update Process”*

In 2008, the Florida Legislature passed the Florida Energy Act of 2008. A portion of this Act (Section 109, HB 7153) directs the Florida Building Commission (FBC) to develop a rule for determining the cost effectiveness of energy conservation measures considered for inclusion in the Florida Energy Code, as follows:

*“(3) The Florida Building Commission shall, prior to implementing the goals established in subsection (1), adopt by rule and implement a cost-effectiveness test for proposed increases in energy efficiency. The cost-effectiveness test shall measure cost-effectiveness and shall ensure that energy efficiency increases result in a positive net financial impact.”*

The administrative rule directed by this legislation is to be completed and applied to the 2010 update of the energy provisions of the Florida Building Code.

To assist in meeting their charge to develop a rule for a cost effectiveness test for the Florida Building Code, the Florida Department of Community Affairs (DCA) contracted with the Florida Solar Energy Center (FSEC) to draft a report on economic indicators and to make recommendations on economic assessment standards that might be included in a cost effectiveness test rule. The Report was used as the basis for the Workgroup’s evaluation of issues and options.

The Florida Legislature has directed that the adopted cost effectiveness test “*ensure that energy efficiency increases result in a positive net financial impact.*” This charge could be interpreted as a positive net financial impact to the state economy as a whole. This interpretation would imply that macro-economic and societal impacts must be considered. It is important to point out that the economic indicators used to develop these recommendations do not consider these macro-economic and externality impacts, which include, but are not limited to, the following:

- Increased job creation through additional construction spending on building energy efficiency,
- Increased general economic activity due to added consumer disposable income and spending resulting from energy cost savings,
- Decreased importation of expensive fuels for the production of electricity,
- Decreased environmental pollution in the form of green house gases and heavy metals from coal-fired power plants – the largest segment of power production,
- Decreased health costs due to reductions in environmental pollution.

FSEC concludes that, “from a statewide economic perspective that considers both macro-economic impacts and the societal externalities of energy use, the recommendations presented in the FSEC Report are quite conservative”.

The Florida Energy Code Workgroup’s recommendations are provided on the following pages.

***Workgroup Action***

***Motion—The Workgroup voted unanimously to adopt the package of consensus recommendations for submittal to the Energy TAC and Florida Building Commission regarding cost effectiveness test for evaluating proposed amendments to the Florida Energy Code.***

**1. OPTIONS FOR ENERGY EFFICIENCY COST-EFFECTIVENESS TESTS FOR RESIDENTIAL CODE**

The Florida Legislature directed the Commission to develop a rule for determining cost effectiveness of energy conservation measures to be considered for inclusion in the Florida Energy Code. The rule must be completed and applied to the update of the energy provisions of the for the 2010 Florida Building Code.

*“(3) The Florida Building Commission shall, prior to implementing the goals established in subsection (1), adopt by rule and implement a cost-effectiveness test for proposed increases in energy efficiency. The cost-effectiveness test shall measure cost-effectiveness and shall ensure that energy efficiency increases result in a positive net financial impact.”*

**Energy Analysis Calculations Methodology**

*Energy analysis necessary to determine energy savings for Energy Conservation Measures (ECMs) be accomplished using Florida’s code compliance software, EnergyGauge®.*

*Energy simulation analysis will be conducted for both single ECMs and packages of ECMs.*

**Economic Analysis Assumptions**

*Energy Conservation Measure (ECM) costs will be the full, installed incremental cost of improvements, where the incremental cost is equal to the difference between the baseline measure cost and the improved measure cost unencumbered by any federal tax credits, utility incentives or state rebates.*

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## **Study Life Period**

*The analysis for residential buildings shall be conducted over a 30 year study period.*

## **ECM Service Life**

*The evaluation shall be conducted using the appropriate service lives of the measures.*

## **Home Mortgage Parameter Values**

*Mortgage interest rate: the greater of the most recent 5-year average and 10-year average simple interest rate for fixed-rate, 30-year mortgages computed from the Primary Mortgage Market Survey (PMMS) as reported by Freddie Mac.*

*Mortgage down payment: 10%.*

## **Annual Rate Parameter Values**

*General inflation rate: the greater of the most recent 5-year and 10-year Annual Compound Interest Rate (ACIR) computed from the annual average Consumer Price Index (CPI) as reported by the U.S. Bureau of Labor Statistics.*

*Discount rate: General inflation rate plus 2%.*

*Fuel escalation rate: the greater of 5-year and 10-year ACIR computed from revenue-based prices as reported by Florida Public Service Commission minus the general inflation rate.*

*The baseline electricity and natural gas prices used in the analysis shall be the statewide, revenue-based average residential price for the most recent available 12 months as provided by the Florida Public Service Commission.*

## **Cost Effectiveness Criteria**

*For present value cost-to-benefit ratio (PV/CB) a value of 1.0 or greater.*

*For the internal rate of return (IRR) on investments, a value equal to 8%. {The recommended value is approximately 1.5% greater than the guaranteed return on State of Florida DROPS (retirement account) investments and is considered large enough that any rational investor would consider the investment wise compared with any other long-term investment.}*

*For the levelized cost of conserved energy (LCCE), a value equal to the statewide residential revenue-based retail cost of electricity adjusted at the fuel escalation rate over one-half of the life of the measure (yields average over the measure life). {This is based on the fact that, over their life, accepted measures will cost consumers the same or less than purchasing electricity from the utility, where: LCCE criteria = (current price) \* [(1+fuelEsc) ^ (life/2)].}*

## **Evaluation Methodology for Measures and Packages of Measures**

*Create multiple packages of ECMs that result in the target % efficiency increase for each code cycle update (20, 30, 40 and 50%), based on comparison to the 2007 FBC as adopted October 31, 2007 (without the 2009 supplement).*

*Evaluate each ECM using adopted cost effectiveness indicators (PVBC, IRR, LCCE), within their specific package of ECMs. PVBC will be considered the primary measure with IRR and LCEE used as measures for illustration and communication of individual ECMs and packages of ECMs comparative economic viability.*

*Validation of the cost effectiveness of Florida Energy Efficiency Code for Building Construction changes shall mean that a number of ECM packages evaluated to comply with the statutory percent energy efficiency increase requirements have a greater benefit than cost as measured in present value dollars.*

## **2. OPTIONS FOR ENERGY EFFICIENCY COST-EFFECTIVENESS TESTS FOR COMMERCIAL CODE**

### **Energy Analysis Calculations Methodology**

*Energy analysis necessary to determine energy savings for Energy Conservation Measures (ECMs) will be accomplished using Florida's code compliance software, EnergyGauge®.*

*Energy simulation analysis will be conducted for both single ECMs and packages of ECMs.*

### **Economic Analysis Assumptions**

*Energy Conservation Measure (ECM) costs will be the full, installed incremental cost of improvements, where the incremental cost is equal to the difference between the baseline measure cost and the improved measure cost unencumbered by any federal tax credits, utility incentives or state rebates.*

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### **Study Life Period**

*The analysis for commercial buildings shall be conducted over a 30 year study period with appropriate service lives included in the analysis.*

### **ECM Service Life**

*The evaluation shall be conducted using the appropriate service lives of the measures.*

### **Mortgage Parameter Values**

*Mortgage interest rate: tied to a relevant and appropriate commercial lending vehicle.*

*Mortgage down payment: based on appropriate commercial lending vehicle(s).*

### **Annual Rate Parameter Values**

*General inflation rate: the greater of the most recent 5-year and 10-year Annual Compound Interest Rate (ACIR) computed from the annual average Consumer Price Index (CPI) as reported by the U.S. Bureau of Labor Statistics.*

*Discount rate: General inflation rate plus 2%.*

*Fuel escalation rate: the greater of 5-year and 10-year ACIR computed from revenue-based prices as reported by Florida Public Service Commission minus the general inflation rate.*

*The baseline electricity and natural gas prices used in the analysis be the statewide, revenue-based average commercial price for the most recent available 12 months as provided by the Florida Public Service Commission.*

## **Cost Effectiveness Criteria**

*For present value cost-to-benefit ratio (PVCB) a value of 1.0 or greater.*

*For the internal rate of return (IRR) on investments, a value equal to 8%. {The recommended value is approximately 1.5% greater than the guaranteed return on State of Florida DROPS (retirement account) investments and is considered large enough that any rational investor would consider the investment wise compared with any other long-term investment.}*

*For the levelized cost of conserved energy (LCCE), a value equal to the statewide commercial revenue-based retail cost of electricity adjusted at the fuel escalation rate over one-half of the life of the measure (yields average over the measure life). {This is based on the fact that, over their life, accepted measures will cost consumers the same or less than purchasing electricity from the utility, where: LCCE criteria = (current price) \* [(1+fuelEsc) ^ (life/2)].}*

## **Evaluation Methodology for Measures and Packages of Measures**

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*Evaluate each ECM using adopted cost effectiveness indicators (PVBC, IRR, LCCE), within their specific package of ECMs. PVBC will be considered the primary measure with IRR and LCCE used as measures for illustration and communication of individual ECMs and packages of ECMs comparative economic viability.*

*Validation of the cost effectiveness of Florida Energy Efficiency Code for Building Construction changes shall mean that a number of ECM packages evaluated to comply with the statutory percent energy efficiency increase requirements have a greater benefit than cost as measured in present value dollars.*

## **2.5 Clarify Definition of “Consumer” (applies to both Residential and Commercial)**

**The Workgroup recommends that the Energy TAC develop a definition for “Consumer” for inclusion in recommendations to the Commission.**

### **OPTION:**

*Define “Consumer” as a Class of the economic system participant (e.g. consumer, producer, regulator) similar to energy regulation system consideration.*