FLORIDA ENERGY CODE WORKGROUP

REPORT TO THE FLORIDA BUILDING COMMISSION

March 5, 2009

Cape Canaveral, Florida

Facilitation, Meeting and Process Design By

CONSENSUS SOLUTIONS

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FLORIDA BUILDING COMMISSION
FLORIDA ENERGY CODE WORKGROUP REPORT

OVERVIEW

Governor Crist directed the Commission to increase building energy efficiency requirements by 15% in his July 2007 Executive Order 127. In addition, the 2008 Legislature through passage of The Energy Act of 2008 created a suite of energy related assignments for the Building Commission. The Energy Code provisions were a major focus of the Commission during 2008, and the Commission increased the thermal efficiency requirements for the Florida Energy Code by 15% and integrated the enhanced requirements into the 2007 Florida Building Code. The Commission reviewed energy related code amendments adopted in the 2007 Florida Building Code Update to determine their cumulative level of increased efficiency, and adopted additional amendments required to achieve Governor Crist's directive of 15% increased efficiency. During 2008 the Energy Code was amended by administrative rule and then the revised Energy Code was adopted into the 2007 Florida Building Code during the 2008 "glitch" cycle concurrently with the March 1, 2009 effective date for the 2007 Florida Building Code. Working with stakeholders using consensus-building workgroups, the Commission was able to achieve the 15% increase in efficiency in buildings and implement code amendments that are efficient, consistent, understandable and enforceable for the full spectrum of Energy Code users. The Commission's Energy Code Workgroup will develop recommendations regarding energy conservation measures for increasing efficiency requirements in the 2010 FBC by 20% as required by law.

MEMBERS AND REPRESENTATION

Raul L. Rodriguez, AIA, Chair of the Florida Building Commission, has made the following appointments to the Florida Energy Code Workgroup. Members are charged with representing their stakeholder group's interests, and working with other interest groups to develop consensus package(s) of recommendations for submittal to the Commission.

2010 Florida Energy Code Workgroup

Steve Bassett, Rusty Carrol, Bob Cochell, Phillip Fairey, Dale Greiner, Jeff Gross, Jeff Householder, Larry Maxwell, Donny Pittman, Paul Savage, Drew Smith, Jeff Stone, and Rob Vickers.

Meeting Schedule

February 3, 2009: Melbourne; March 5, 2009: Cape Canaveral; March 27, 2009: Tampa;
April 30, 2009: Tampa; May 28, 2009: Tampa.

REPORT OF THE MARCH 5, 2009 MEETING

Opening and Meeting Attendance
The meeting started at 9:00 AM, and the following Workgroup members were present:
Steve Bassett, Rusty Carroll, Bob Cochell, Phillip Fairey, Dale Greiner, Jeff Gross, Jeff Householder, Donny Pittman, Paul Savage, Drew Smith, and Jeff Stone.

Members Absent:
Larry Maxwell and Rob Vickers.

DCA Staff Present
Rick Dixon, Mo Madani, and Ann Stanton.

Meeting Facilitation
The meeting was facilitated by Jeff Blair from the Florida Conflict Resolution Consortium at Florida State University. Information at: http://consensus.fsu.edu/

Project Webpage
Information on the project, including agenda packets, meeting reports, and related documents may be found in downloadable formats at the project webpage below:
http://consensus.fsu.edu/FBC/2010-Florida-Energy-Code.html

Agenda Review and Approval
The Workgroup voted unanimously, - 0 in favor, to approve the agenda as presented including the following objectives:

- ✓ To Approve Regular Procedural Topics (Agenda and Summary Report)
- ✓ To Hear a Report on Cost Effectiveness Test Options and Recommendations
- ✓ To Identify Issues and Options Regarding Development of Cost Effectiveness Test
- ✓ To Discuss and Evaluate Level of Acceptability of Proposed Options
- ✓ To Consider Public Comment
- ✓ To Identify Needed Next Steps and Agenda Items for Next Meeting

February 3, 2009 Facilitator's Summary Report Approval
Jeff Blair, Commission Facilitator, asked if any members had corrections or revisions to the February 3, 2009 Report, and several were offered.
The Workgroup voted unanimously, 11 - 0 in favor, to approve the February 3, 2009 Facilitator's Summary Report as amended.

Amendments
- Rusty Carroll's name was misspelled.
- Arlene Stewart was present at Meeting I.
- Ann Stanton was not present at Meeting I.
- Correct cut and paste error for Workgroup's Scope and Charge.

- Correct comments on page 5: Code date should be 10/31/07 instead of 10/31/09; 75% instead of 15%; 25% instead of 75%.
- Correct comment on page 6: 2030 instead of 20/30.

Cost Effectiveness Test Report and Recommendations Review
Phillip Fairey, FSEC Deputy Director, reviewed the FSEC Report: "Energy Efficiency Cost-Effectiveness Tests for Residential Code Update Process", with members and answered questions. There were many questions from members and the public throughout the presentation on the Report. The entire Report and the meeting PowerPoint presentation may be viewed at the project web-link, as follows: http://consensus.fsu.edu/FBC/2010-Florida-Energy-Code.html

Identification of Issues Requiring Evaluation Regarding Cost Effectiveness Test
Workgroup members were asked to identify key topical issues that should be evaluated for developing cost effectiveness test requirements and criteria recommendations for the Florida Building Code. Jeff Blair explained that the Options Evaluation Worksheet contained the key issues extracted from the FSEC Report to create a starter list, and member's should identify other key issues for evaluation, if any. Members of the public were also provide an opportunity to comment and offer key issues for evaluation. The Workgroup did not offer additional issues from those outlined in the Worksheet, and agreed that the key issues for evaluation regarding developing recommendations to the Commission for a cost effectiveness test, were as outlined in the Worksheet.

Members agreed that the options evaluated during the March 5, 2009 meeting are for residential buildings only. Commercial buildings will be evaluated once additional information is provided to Workgroup (the March 27, 2009 meeting).

Overview of Comments and Discussion:
- JS: Should consider shorter time period for study life, and look at trend lines for inflation rates and other rates. Technology changes in efficiency and cost over time and is not completely predictable. This was a Classic textbook presentation and there are other complicating factors and uncertainties that need to be considered as well.
- SB: Concern with comparing efficiency increases to 2007 code levels, and allowing for new technologies to be included. Have to take into effect previous sets of changes, paying back with fixed rates. When does the 30 year study period start: when the new technology comes in or from the 2007 Code. Measuring from the latest Code Edition or the 2007 Code needs clarification from the Legislature.
- BC: SB says better to have a moving target to benchmark against. Prefer to stay with one set of targets, cleaner and more efficient (2007 Code as benchmark).
- JS: Should take into consideration any new baselines.
- PF: Statute requires use of 2007 FBC (Code) as the baseline. Provides a point of comparison, consistency. However, if changes occur to he baseline in the future that would complicate the analysis for the percentage of improvements required for each code update cycle.

Discussion, Identification and Evaluation in Turn of Options Regarding Development of Cost Effectiveness Test Recommendations

Members were requested to identify, discuss and evaluate a range of options regarding development of cost effectiveness test recommendations for submittal to the Commission. For each of the key topical issue areas, member's were asked to identify a range of potential options for the Workgroup to consider. Issues and Options were organized to address the tasks assigned by the Florida Building Commission and the Florida Legislature. A preliminary list of options was drafted using the recommendations contained in the FSEC report titled: "Energy Efficiency Cost-Effectiveness Tests for Residential Code Update Process", and the Workgroup was requested to discuss and add any additional relevant options they deem appropriate. When available, staff will provide information from data collections, research studies, and other pertinent sources to the Workgroup. Members and staff were encouraged to request any information they feel necessary for evaluating an issue, option or range of options. Once ranked by the Workgroup, options will be listed within relevant key topical issue areas, in descending order of initial support as indicated by the initial acceptability ranking. Options with 75% or greater number of 4's and 3's in proportion to 2's and 1's shall be considered consensus draft recommendations. Members of the public were also invited to provide feedback and options for evaluation.

The Results of the Options Ranking Exercise and relevant comments and discussion are included as Attachment 3 of this Report.
(Attachment 3—Options Evaluation Exercise Results)

General Public Comment

Members of the public were invited to provide the Workgroup with comments. In addition, members of the public spoke on each of the substantive discussion issues before the Workgroup throughout the meeting.

Public Comment:

- Arlene Stewart: Add to legal opinion research whether the IECC is included in evaluating ECM packages. What needs to be done with the IECC regarding evaluating packages to the baseline (2007 FBC). With 2009, IECC has adopted different measures.

Member's Comments and Issues

Workgroup members were invited to provide comments, or identify and issues of agenda items for the next meeting.

Member Comments:

- JG: BOMA is submitting a letter requesting that a similar study be conducted on commercial buildings. Would be pleased to provide professional input: hot water, lighting (i.e., a/c time of use is different in commercial than residential).
- SB: Be glad to hear from BOMA.
- PS: See 3 cost criteria: PBCC, IRR, LECC, need to see how the formulas works. Would like to see a specific example.
- PF: Appendix does have specific measures for 3 packages: Tax C, Pkg 1, EStar. Has description of cost of ECM, tells what they consist of.
- JH: What is missing is the actual energy use.

- PF: Table 3, Total percent is the total savings over baseline. With performance-based code, our job is to show you can get to the goal using multiple methods.
- RD: We already have in the Workplan where comparing the FECC with the IECC 2009.
- AS: Have Philip work a sample package to show how it works.
- SB: The BCIS website has a problem: if you go to the '04 code nothing comes up. Need to fix the page.
- JG: Kudos for the FCRC Consensus Center's website. It is well organized and has all relevant project materials in downloadable format. The link is as follows: http://consensus.fsu.edu/FBC/2010-Florida-Energy-Code.html

Key to Commenters in Report:
Steve Bassett: SB
Rusty Carroll: RC
Bob Cochell: BC
Phillip Fairey: PF
Dale Greiner: DG
Jeff Gross: JG
Jeff Householder: JH
Donny Pittman: DP
Paul Savage: PS
Drew Smith: DS
Jeff Stone: JS
Rick Dixon: RD
Mo Madani: MM
Arlene Stewart: AS
Tom Larson: TL

Review of Workgroup Delivery and Meeting Schedule
The Workgroup will be meeting as follows during 2009:
February 3, 2009: Melbourne; March 5, 2009: Cape Canaveral; March 27, 2009: Tampa;
April 30, 2009: Tampa, and May 28, 2009: Tampa.

The March 27, 2009 meeting will focus on concluding recommendations regarding cost effectiveness test, focusing primarily on commercial buildings, and any additional time will be devoted to evaluating the additional subtasks as follows: replacement of air conditioning equipment, humidity and moisture control problems, energy efficient pool pumps, and specific building options to achieve energy efficiency improvements. Subsequent meetings will focus on the subtasks. The delivery schedule is as follows:

Schedule for Sub-Task 27—Cost Effectiveness Test

Appoint Workgroup	12/9/08
Work Group/TAC meetings to develop recommendation	2/09, 3/09
Rule Development Workshop	4/09
Rule Adoption Hearing	6/09
Rule Effective	7/09

Schedule for Other Sub-Tasks (26, 29, 39, and 42)

Workgroup/TAC considers options and develops consensus plan	3/09, 5/09, 6/09 8/09
Recommendations to Commission	10/09
Proposals submitted for 2010 FBC Update	12/09

Next Steps and Needed Information
Members and the public identified the following information needed for the next meeting:

- Appropriate "service life" determiners/options for ECM life values.
- Need to run an example using the cost effectiveness test recommendations with the values plugged-in. Need actual energy use in examples, and provide actual example using formula and values. (Note: the Appendix to the FSEC Report has examples run)
- ASHRAE Standard 90.1 (Energy Standard for Buildings Except Low-Rise Residential Buildings) and 189.1 (Standard for High-Performance, Green Buildings Except Low-Rise Residential Buildings) to review options regarding an appropriate study period for commercial buildings.
- Building Owners and Managers Association (BOMA) commercial building data.
- FEECA study by ITRON.
- Legal opinion regarding scope for effectiveness test regarding ECMs as package vs. ECMs individually.
- Legal opinion regarding the intent of statute relative to including the IECC as part of prescriptive packages, determine what needs to be done with the IECC to compare packages to 2007 FBC baseline.

Adjournment
The Workgroup voted unanimously, 11 – 0 in favor, to adjourn at 2:50 PM.

ATTACHMENT 1

MEETING EVALUATION RESULTS

March 5, 2009—Cape Canaveral, Florida

Average rank using a 0 to *10* scale, where *0* means totally disagree and *10* means totally agree.

1. Please assess the overall meeting.

9.2 The background information was very useful.
9.2 The agenda packet was very useful.
9.5 The objectives for the meeting were stated at the outset.
9.2 Overall, the objectives of the meeting were fully achieved.

2. Do you agree that each of the following meeting objectives was achieved?

9.0 Report on Cost Effectiveness Test Options and Recommendations.
9.0 Identification of Issues and Options Regarding Development of Cost Effectiveness Test.
9.0 Evaluation and Acceptability Ranking of Proposed Options.
8.8 Identification of Next Steps.

3. Please tell us how well the Facilitator helped the participants engage in the meeting.

9.8 The members followed the direction of the Facilitator.
9.8 The Facilitator made sure the concerns of all members were heard.
9.4 The Facilitator helped us arrange our time well.
9.3 Participant input was documented accurately.

4. Please tell us your level of satisfaction with the meeting?

9.0 Overall, I am very satisfied with the meeting.
9.3 I was very satisfied with the services provided by the Facilitator.
9.2 I am satisfied with the outcome of the meeting.

5. Please tell us how well the next steps were communicated?

8.9 I know what the next steps following this meeting will be.
8.6 I know who is responsible for the next steps.

6. What did you like best about the meeting?

- Group Discussion.
- Staying on topic as much as possible.
- Staying on time and on track.
- Philip's presentation and background information.
- Good pace.

7. How could the meeting have been improved?

- Having a working lunch.
- A specific understanding of what we are to accomplish.
- Faster pace, do more at each meeting to avoid having 4 meetings if 3 will do.
- Examples of the formula discussed.

8. Member Evaluation Comments.

None were provided.

ATTACHMENT 2
MEETING ATTENDANCE

Public Meeting Attendance
Name
Arlene Stewart
Bob Volin
Amanda Hickman
Tom Larson

ATTACHMENT 3

OPTIONS EVALUATION EXERCISE RESULTS

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 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®.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**7**	**4**	**0**	**0**

Member's Comments and Reservations (March 5, 2009):

- SB: Need to look at commercial as well, EG Summit.
- MM: Before getting into selection of a program, law talks about results being positive financial impact. Look at three economic indicators first. Then, does the EG program support this.
- PF: The options are in the right order. Need to decide as to whether EG software will be used to do the analysis.
- PS: Comments general. These two constructs, 1) mandating degree of efficiency, 2) use these items, 3) if require these items, are they cost effective to consumer. Need determination of how to do that. At loss to see how EG is featured now.
- JS: Are there other options?
- SB: Simplistic, just using EG come up with numbers needed. Still need to apply cost, inflation; be careful to indicate this is part of the process, and not the final answer.
- PF: Says only to use EG programs for energy savings, not other factors. Whatever software is used to determine compliance in Florida should be required, need to be consistent with the Code.
- JG: Most people who buy homes have no idea hoe to properly operate the energy functions of their homes. Can/should we require manuals/ education for residential.
- RD: One other requirement of law, BERS, requires BERS and the Code to use the same analyses.
- SB: If 5 years down road, and we change software, will new software be required to use same

parameters?

- PF: Don't know what will happen. 2007 baseline will not be taken out of EnergyGauge.
- JG: Haven't looked at ASHRAE 90.1, are there any correlations?
- PF: Florida Summit software uses ASHRAE 90.1.-04, can be updated to 90.1-07 or any future standard.
- AS: Is there any mechanism for EnergyGauge to reflect new technologies.
- PF: Yes, unless its so bizarre that it can't be reflected by Fortran code.
- AS: Suggest corollary on how new technology be included in programs. It took time to get instantaneous water heaters into the code.
- DG: Echo AS's concern; make sure accommodation for new technology. Need a process for this.
- PS: How can EG be used to perform energy savings for a single ECM.
- PF: Use baseline home as part of Florida Energy Code. Well described in Code (13-613). Simulate baseline home. Change component, run program, find savings from ECM.
- DS: Timing is the issue. How long does it take to include.
- PF: Need luminous efficacy (on lighting) to compare how it will be used. We know for current technologies, and need to know for LED fixtures.

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

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**10**	**0**	**1**	**0**

Member's Comments and Reservations (March 5, 2009):

- PS: Major reservation. Working under a Statute that references specific criteria, and mentions nothing about packaging ECMs and using ECMs together. Can't make leap to packaging ECMs.
- PF: Understand concern with going 30, 40, 50% more stringent. Rule is to develop a procedure for establishing efficiencies, also to develop packages that will get there. Multiple ways to get there.
- JH: Agree with that. Statute looks at overall efficiency of code, not looking on an individual ECM basis. Want to see overall consumer cost effectiveness. Global efficiency of "units".
- SB: Express in different terms. Possible, when looking at 5 changes, each cost effective by themselves, together may not be cost effective. High efficiency windows reduce cooling load, overall both may not be cost effective. Consider both by self and as a group.
- JS: Will the Workgroup identify packages?
- RD: No, work group establishes method.
- PF: Process is that list is broad, rank order options, pick packages that will get to goal, use less cost things first, include others until achieve goal. Use list rank ordered, package ends up at overall goal of Legislatively required levels. Multiple paths to achieve goal.
- MM: EG does have this capability now.
- PF: Can put anything in software. Talking about setting up process of people who know what they're doing to set up packages that together will be cost effective.
- SB: Review of process: Goes into base model. One percent per year? As efficient as Baseline house.
- RD: Commission has policy on how to develop process. Apply 5% reduction directly to the 2007 Baseline. Exercise is to come up with cost effective options above 20%
- SB: Gets "hairy" to get up to 50%. What we come up with still provides options. Could change baselines. Establish ways to do it.

- PF: SB said packages could end up in Method B. Method B often determined by Politics. No way to determine if cost effective will end up in Method B.
- PS: Have time to change baselines. Still have reservations.

Economic Analysis Assumptions

Energy Conservation Measure (ECM) costs 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.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**9**	**1**	**1**	**0**
Revised 3/5/09	**9**	**2**	**0**	**0**

Energy Conservation Measure (ECM) costs 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 with option to consider encumbering utility incentives, etc. later.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**6**	**4**	**1**	**0**

Member's Comments and Reservations (March 5, 2009):

- JS: Conservative approach would consider impacts of other incentives.
- PF: Would need to show that, say, utility incentives affect market, could impact, loosen up some.
- DS: What are we using for actual standard. RS Means? Have been skewed in past. Is there another measure for costs?
- PF: Most justified is ECM costs. Can call 3 contractors for cost: differ by factor of 2. No established cost. Capitalism, anti-trust laws, competition among suppliers.
- JS: Who makes decisions? Workgroup.
- PF: Need table to show cost assumptions.
- JH: Outgrowth of rule development process. Scrutiny during rule making.
- JS: Make workgroup process as open as possible.
- RD: Workgroup is to open the process. Will need input during 2010 code update as well.
- AS: With regard to installed cost. Clarify provisions where improved cost is quite a bit more than cost at first installation (e.g., windows at time of construction vs. later).
- PF: Lost opportunity cost. For purposes of Code, we are talking about new buildings. All costs are on an incremental basis. Cost difference would be difference between baseline windows and installed windows.
- JS: Would like to use the option as proposed, but look in future at considering utility rebates.
- JH: FEECA has rules that require utilities to consider changes to building code. Used to eliminate options to be included in utility rate base.
- JS: Becomes an important factor in decision making, may have to go to PSC to change programs.
- PF: Beyond code programs tend to work together anyway.
- RD: PSC can't claim code is cost effective optimum.

- JH: 553.901 Most cost effective options, report to Legislature every 3 years.

ECM Life Values

30 years for envelope ECMs unless there is evidence that the measure will not last the life of the mortgage.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**9**	**2**	**0**	**0**

Member's Comments and Reservations (March 5, 2009):

JH: Why are we looking at individual ECMs right now; is this the list? Aren't we focusing on the process and not specific components?
PF: If including 30 year cost in cash flow, need to know how long the study period is.
JH: Shouldn't we be doing this later with more public input
RD: If you wait, triple or double effort. Idea is to adopt a rule to establish parameters.
MM: Are we waiting for next meeting for source information?
JH: need a technical basis for making determinations.
TL: FEECA has launched a technical study available in a week or two. Recommend categories for types of measures. May change over time. Process for establishing lives.
AS: With 30 years, what kind of evidence is needed to demonstrate need for replacement.
Regular water heaters: are they major appliances?
PF: Consider water heaters a major appliance.
SB: HVAC for both commercial and residential. Suggest go to ASHRAE, Systems. Packaged unit in Southeast Florida is lucky to get 10 years; with split systems change compressor in 5 years.
JS: Not sure mortgage should be the determining factor.
RC: Need to define what evidence should be.
JH: Trying to define a study period, during which ECM or envelope might rationally be rated. Still setting service lives where known. Should base on technical data based on recognized source. Don't see study life in report. Should be for study period.
RD: Commercial interests don't look at a mortgage. Look at basis for ASHRAE 90.1.
AS: Agree with Philip. Without equalizing more expensive options, can't justify.
JG: Leave commercial out of this for now, and do separately.

NOTE: members agreed not to evaluate individual ECM life values and not to include the option above in recommendations. Instead, members agreed to focus on the study period.

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

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**5**	**3**	**2**	**1**
Revised	**5**	**6**	**0**	**0**

Member's Comments and Reservations (March 5, 2009):

- SB: Don't know many commercial buildings that have 30 year mortgages. A lot of people use 2 years payback.
- JG: I'd go with 30 years for residential. Commercial should be 10 years.
- DG: You've got to put a number out there. How to deal with people who re-mortgage. There needs to be the ability to recalculate.

- PF: The mortgage period is not really the issue, it is over what period is it reasonable, for the life of the building. It is in the State's interest to protect the next buyer of the home. If you use a ten year payback, you are shortcutting the State's ability to control the energy needs of the buildings.
- JS: How long does a building last before major maintenance. People behave in certain ways. Sensitivity for payback period.
- PF: Major appliances would be assumed to be replaced over a given period. Include in the analysis.
- JS: Will provide information that was provided to ASHRAE 189.1, for High Performance Green Buildings.
- SB: Don't set life for all other elements. Include maintenance required. Go with manufacturer's specification for how long a component lasts.
- PF: can't use manufacturer's specifications as source, creates gaming. Need objective source material.
- JH: Parallel for PSC methodology is to use appropriate service life, and it should be included in the calculation. Set study period on the front end established by the rule. Service lives are not established by rule.
- MM: Need to rely on available literature, list if manufacturer's recommendation.

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

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**11**	**0**	**0**	**0**

Member's Comments and Reservations (March 5, 2009):

- DS: Be more specific. Manufacturer's recommendations.
- PF: When you use the manufacturer's recommendations it will be gamed.
- SB: Use "nationally recognized" standards.
- JS: Leave it as it is. Let group revisit and make determination later.

The following options were not evaluated since the Workgroup agreed to decide on a study period and to use appropriate service life measures instead of evaluating specific ECM life values.

30 years for solar hot water systems with incremental maintenance costs added at 10 year increments.
15 years for HVAC equipment.
10 years for major appliances (if considered).
5 years for CFL lamps (if considered).

Home Mortgage Parameter Values

Mortgage term: 30 years.
Members agreed this option was not needed since the next option covers the issue.

DS: Doesn't reflect commercial.
JB: the Workgroup agreed to limit discussions and option to residential during this phase of the process.
RD: Think these need to be determined up front. The report has identified sources for information.

JS: Have identified 30 years, what is the average mortgage time?
PS: No, typical is 30 years.
SB: Why get into mortgage terms. Looking at cost to implement, why look at how often replaced? No one will come up with a loan for 30 years on something that won't last that long.
PF: Everything that goes into a new home is included in the 30 year mortgage. Can't do cost analysis if you don't have a mortgage interest rate. Can't get the mortgage rate if you don't set a term for the mortgage.
JH: Maybe just set a discount rate.
PF: Look at the second option (below). Need to get interest rate from national source like Fannie Mae.
SB: Agree with where to find interest rate. Come up with interest rate on how to calculate the time value of money.
PF: Next segment looks at annual rate, discount rate. Two different things, two different definitions.
RD: Don't really need option 1 (above).

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.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**8**	**3**	**0**	**0**

Member's Comments and Reservations (March 5, 2009):

- JS: Is the 1 year average meaningful, based on where the economy has gone over the past several years?
- PF: Can't predict the future. Have historical information about where rates have been. Recommended 5 and 10 year periods.
- JH: Just residential is being considered at this point, correct? Yes.

Mortgage down payment: 10%.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**9**	**1**	**1**	**0**

Member's Comments and Reservations (March 5, 2009):

- SB: Don't think there should be a down payment required.
- RD: Wouldn't be realistic because discounting it up front wouldn't work. Measure for ECM is IRR. Looking at direct measure of what the law says.
- PF: Down payment is important because it is in present value dollars.

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.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**11**	**0**	**0**	**0**

Discount rate: General inflation rate plus 2%.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**11**	**0**	**0**	**0**

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.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**10**	**1**	**0**	**0**

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

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**10**	**1**	**0**	**0**

Member's Comments and Reservations (March 5, 2009):

Cost Effectiveness Criteria

For present value cost-to-benefit ratio (PVCB) a value of 1.0 or greater is recommended based on the fact that the investment will fully recover its cost over a 30 year study period.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**10**	**1**	**0**	**0**
Revised	**11**	**0**	**0**	**0**

Member's Comments and Reservations (March 5, 2009):

- JS: 30 year mortgage period is too long.
- PF: Change language to '30 year study period" instead.

For the internal rate of return (IRR) on investments, a value equal to 8% is recommended. 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.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**11**	**0**	**0**	**0**

Member's Comments and Reservations (March 5, 2009):

- JH: How will you model rate of return. Present value analysis.
- PF: IRR and LCCE. Gives a feel in Tables 3, 4 5 in the appendix. Significant differences between NBB and LCCE.

*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) is recommended. 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)] .*

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**11**	**0**	**0**	**0**

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%).

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**9**	**1**	**1**	**0**

Member's Comments and Reservations (March 5, 2009):

- JS: Is it the percent compared to 2007 code?
- PF: Yes, statute specifies those percentages. 15% was a Governor's Executive Order.
- JG: ECM and energy efficiency improvements, is it the same? Yes. Suggest that no-cost and low-cost issues be added to the calculation, e.g. planning and zoning aspects like orientation.
- PF: Energy code compliance software already accounts for orientation. Baseline is a solar neutral building. There are no overhangs in the Baseline.
- MM: When you refer to the 2007 Code, it means without the 2009 Supplement.
- AS: Suggest add another evaluation point: changes to 2009 IECC may already have included some provisions.
- PF: Statute requires us to compare to the 2007 Code, excluding the 2009 Supplement.
- PS: Have major reservations on how get to packages. Who does this? Don't see this in Statute.

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.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**10**	**0**	**1**	**0**

Member's Comments and Reservations (March 5, 2009):

- PS: Major reservations, same reason as before: don't thing Statute allows.

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.

	4=acceptable	*3= minor reservations*	*2=major reservations*	*1= not acceptable*
Initial Ranking 3/5/09	**6**	**4**	**1**	**0**

Member's Comments and Reservations (March 5, 2009):

- JH: This give me the "willies". Used to rule being more specific. Need to tighten the language up.
- PF: Intent is that we should not say there is only one way to get to the goal. Prove multiple options.
- TL: Northwest Power Conservation Council used computer program, 700 types of different features were considered.
- SB: Aren't we coming up with prescriptive packages?
- RD: Point of analysis is not to prescribe, but to provide packages of options that people can use to comply. Question is, are there different ways to accomplish goal. Maybe people use IRR, simpler measures for less sophisticated. Someone with less resources can achieve same goal in a different way.
- SB: Why can't someone use one of x packages to comply?
- RD: IECC only has one prescriptive package.
- PF: If you took the package of measures and ran the program, you would pass. If you comply by Method B, can't vary from the prescriptive path. Method A is a total performance-based compliance model. Can use any features that work.
- JH: Don't think that language will fly when developing the rule. Needs to be more transparent.
- MM: Still need prescriptive package unless you go with only performance method.
- PS: Same reservation regarding authority to use packages.