Energy Efficiency is Clean Energy

Southern Alliance for Clean Energy endorses and supports a public utility's energy efficiency program if:

• it leads to real, sustainable energy savings that helps avoid the need for any new baseload power plants and
• especially if it enables a utility to shut down existing coal-fired power plants.
Qualities of Good Programs

• Cost-effective for the customer

• Fair for all types of customers

• Offer attractive, but not excessive, financial returns to the utility

• Lead to real, sustainable energy savings
Purposes of a Cost-Effectiveness Definition

• System-level commitment to DSM
  – Integrated resource plan
  – DSM plan

• Program evaluation
  – Prospective (approval)
  – Retrospective (improvement)

• Measure implementation
  – Managerial, field level decision making
Definition is a Policy Question, Balancing Competing Interests

• **Energy Efficiency:**
  – Energy Security
  – Reduce Global Warming Pollution
  – Lowest Overall Energy Costs

• **Utility Profits:**
  – Stable, reliable system

• **Fair Rates:**
  – Competitiveness (short & long-term)
Defining Cost-Effectiveness

Cost Effectiveness Tests

- Cost-Effective Utility & Customer
- Cost-Effective Utility Only
- Wasteful

Avoided Cost of Electric Generation relative to base rates ($ per kWh energy generation)

Cost of Energy Efficiency relative to base rates ($ per kWh energy savings)
Cost-Effectiveness Tests

Cost Effectiveness Tests

Avoided Cost of Electric Generation relative to base rates ($ per kWh energy generation)

Rate Impact Measure Test (RIM)

Total Resource Cost Test (TRC)

Utility Cost Test (UCT)

Cost of Energy Efficiency relative to base rates ($ per kWh energy savings)
Utility Cost Control Incentive

Cost Effectiveness Tests

- Avoided Cost of Electric Generation relative to base rates (¢ per kWh energy generation)
- Cost Control Incentive
- Utility Earnings Harmed

Cost of Energy Efficiency relative to base rates (¢ per kWh energy savings)

0x, 1x, 2x
Cost Reimbursement Rider

Cost Effectiveness Tests

Avoided Cost of Electric Generation
relative to base rates (€ per kWh energy generation)

Cost Reimbursement

Utility Earnings Harmed

Cost of Energy Efficiency
relative to base rates (€ per kWh energy savings)

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RIM is Utility-Earnings Driven

- RIM Programs don’t capture all cost-effective EE
- Cost recovery for programs that pass RIM is an unnecessary financial incentive!
RIM is Inequitable

• RIM helps non-participants in the short run by increasing system utilization and deferring rate increases

• Ultimately, total energy services costs are higher and harm all customers and the state economy

• Some energy efficiency happens anyway, helping the system avoid or defer fixed costs
  – Non-participants enjoy benefits as “free riders”
RIM is "Less Uncertain"

\[
\text{UAC} = \text{RL} + \text{PRC} + \text{INC}
\]

- **UAC**: Utility Avoided Costs
- **RL**: Revenue Loss
- **PRC**: Program Administration Costs
- **INC**: Participant Incentive Payments
Lost Revenues Drive RIM Results

Figure 21: RIM Benefits and Costs ($B)

Note: The above RIM analysis is only for the electric utility and does not include gas utility RIM results.

RIM is “Less Uncertain”

UAC
Utility Avoided Costs

\[ AC \times \Delta EG + PRC + INC \]

AC x Demand Change
Rates x Revenue Loss

PRC
Program Administration Costs

INC
Participant Incentive Payments
RIM is “Less Uncertain”

UAC
Utility Avoided Costs

\[ \text{AC} \times \Delta \text{EG} + \text{PRC} + \text{INC} \]

- **AC** \times Demand Change Revenue Loss
- **PRC** Program Administration Costs
- **INC** Participant Incentive Payments

**Fairly Certain:** Costs and demand change are forecast based on engineering and marketing experience
RIM is “Less Uncertain”

Modeled Statically: Rates and avoided costs are subject to dynamic changes

Utility Avoided Costs

\[ AC \times \Delta EG + PRC + INC \]

- **AC**: Rates x Demand Change Revenue Loss
- **PRC**: Program Administration Costs
- **INC**: Participant Incentive Payments

Fuel costs
Generation additions
Transmission & Distribution
RIM is “Less Uncertain”

“Peaker Method”: Marginal costs (5-7 ¢/kWh)
- Understated when baseload needed
- Uncertain over large changes in load

Utility Avoided Costs

- AC x ΔEG
- PRC
- INC

Rates x Demand Change Revenue Loss
Program Administration Costs
Participant Incentive Payments

Rate Base: Considering nuclear power plants (10-12 ¢/kWh)

Forecasts should be consistent
RIM Can Overstate Rate Pressure

Utility Avoided Costs (UAC)

\[ AC \times (\Delta EG) + PRC + INC \]

- Rates x Demand Change, Revenue Loss
- Program Administration Costs
- Participant Incentive Payments

Avoided Fuel Costs
Avoided Fixed Costs
Reduced Contribution to System Fixed Costs

Depreciation
Rate design

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RIM Limitations Often Ignored

• **California Standard Practice Manual:**
  – “Results of the RIM test are probably less certain than those of other tests because the test is sensitive to the differences between long-term projections of marginal costs and long-term projections of rates, two cost streams that are difficult to quantify with certainty.”

• **RIM useful for:**
  – Comparing programs with highly variable scopes
  – Studying fuel-substitution issues (gas/electric)
  – Program design evaluations
Purposes of a Cost-Effectiveness Definition

• System-level commitment to DSM
  – Integrated resource plan
  – DSM plan

• Program evaluation
  – Prospective (approval)
  – Retrospective (improvement)

• Measure implementation
  – Managerial, field level decision making
Recommendations

• System-level commitment to DSM
  – DSM plan target
  – Analyzed in IRP framework
• Program evaluation
  – Total Resource Cost Test
  – Societal Variant
• Measure implementation
  – Customer rate test (marginal benefit/cost)
Credits

• Major source for this presentation is:
  – MSB Energy Associates white papers prepared for Georgia DSM Working Group (April 2008)