Benefit Cost Test: A Framing Document

Kansas Corporation Commission
Workshop on Energy Efficiency
March 25 and 26, 2008

Guide to Resource Planning, Chapter 5
National Action Plan for Energy Efficiency
[Posted separately]

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Objectives:

- Decide which programs and measures to include in an energy efficiency portfolio.[1]
- Alternatively, benefit cost tests can inform decision-makers, who will use an array of information to decide which programs to implement.
- Contribute to decision on whether a prospective energy efficiency portfolio is providing a sufficient return on investment

Background Document Included Here:
Guide to Resource Planning, Chapter 5, National Action Plan for Energy Efficiency.[2]

Additional Points
In weighing the results of the benefit cost tests, the utility and the Commission may try to assure that the outcome reflects the priorities of the state. A state may be particularly interested in energy efficiency for its comprehensive environmental benefits – in this case, societal test results may weigh more heavily. Conversely immediate rate competitiveness with other jurisdictions is important, a state may rely more on the ratepayer impact measure (RIM) test, though many programs that are less expensive than new generation resources fail to pass the RIM test.[3]

The benefit cost test used should match the aggressiveness of the state policy to promote energy efficiency. A savings goal (by a governor or appearing in a statute) might call for a high bar in energy efficiency savings, representing a high value on these savings, perhaps to avoid expensive generation investments or emissions. This goal should be matched, then, by a benefit cost test that will also tend to value energy efficiency highly, as the societal test does. A budget-limited portfolio of energy efficiency programs may do just fine with tests that screen fewer programs.

Clarity regarding the Commission's expectations regarding benefit cost tests will serve to make administration of energy efficiency programs, and their evaluation, more cost and

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[1] Definitions: An energy efficiency measure is a single change in equipment or process that produces a savings in energy use. A motor replacement is a measure. An energy efficiency program is the full plan employed by a program administrator to convince a customer or group of customers to implement a measure or a group of measures. A motor replacement program might includes a plan for finding customers with inefficient motors, getting their attention, providing information and perhaps incentives to switch, assuring that a supply of efficient motors in available, and measuring and verifying savings as replacements occur. An energy efficiency portfolio is the group of programs offered by an energy efficiency program administrator.

[2] http://www.epa.gov/cleanenergy/documents/resource_planning.pdf

[3] It is worth a moment to consider that generation is generally not asked to pass the RIM test.

time efficient. At the same time, continuous improvements based on experience that are implemented prospectively serve to assure that consumers are getting the maximum net benefits from the programs.

The California Standard Practice Manual offers a standard reference for benefit cost tests, which can be modified. Some states settle on a particular test that is valued above others, while others use a balanced assessment of many or all of the California tests.

What Ratio of Benefits to Costs Can Program Administrators Expect?
Portfolio ratios around 2 are typical across the country. Program ratios may vary from just over 1 to an upper end of the range of 7 depending on the intensity of benefits (how inefficient is business as usual?) and costs (how much work and infrastructure are needed to convince the customer to make the switch?).

Programs for low income customers often receive special attention, and in these situations, a lower benefit cost test threshold may be acceptable. This lower threshold is reasonable to several reasons. First, it may be a societal imperative to assure that a suitable set of effective programs are available to this group of customers. Second, the costs to reach and influence these customers are often higher than they would be to reach more affluent residential customers.

A Few States Are Organized to Procure All Cost Effective Energy Efficiency. What Does This Mean?
First, the state regulator will have established some convention about which benefit cost tests will be used. In Vermont, the societal test is used (so the amount that qualifies is very high). The regulator also has to decide if all cost effective means all programs with ratios greater than 1, or if some buffer to cover the prospect of cost overruns or lower savings is needed. The regulator determines what level of effort (which programs, with budgets and savings forecasts for each) is cost effective. The cost of this effort is put into rates and the programs are implemented. Most states are budget limited today, and so do not achieve all cost effective savings.[4] Several states, however, have recently set ambitious savings goals where it is likely that programs that procure all cost effective energy efficiency will be necessary to meet those goals.[5]

Making Program Decisions Using the Tests
A clear understanding of the purpose of the tests and they way they are used by decision-makers is important, especially when budgets are limited. One state could run benefit cost tests and choose the programs with the highest ratios until available funds are used up. Another state might divide the programs among customer classes (low income residential consumers might be a distinct class for this purpose), rank the programs by benefit cost ratio within each customer class, allocate funds to each class, and again choose the programs with the highest ratios until all funds are used up. In these two cases, the tests are a hard threshold.

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[4] States that do endeavor to procure all cost effective energy efficiency now are Vermont and California.
[5] These states include Illinois, Maryland, New York and Massachusetts.

Another state might array all this information and additional goals and choose programs in a more customized way. For example, states may apply a longer term strategy concerning the market transformation of a particular objective (supporting multi-family housing, or a key industry) and include programs with a lower ratio than other programs in a given program year. In another example, fuel switching from electric to gas might exceed the threshold ratio, but the regulator may exclude this program, not wanting to encourage more gas use right now. In these cases, the benefit cost test results are important but not conclusive in deciding the ultimate line up of programs. Rather, decision-makers must weigh the information included in the benefit cost tests and apply judgment in choosing the programs that will be implemented.