

Integrated Resource Plan

TVA'S ENVIRONMENTAL AND ENERGY FUTURE

Financial Analysis of Current EE/DR
Portfolio

December 10-11, 2009



Program designers develop program costs and savings

- ◆ Supplies program costs and incentives
- ◆ Provides program energy savings
 - Based on hours of use, adoptions, decay, etc.

TVA conducts a financial analysis on the various programs. The analysis uses proxies for avoided costs

- ◆ TVA avoided build cost of a combustion turbine (CT) for capacity savings
- ◆ Market energy prices for energy savings
- ◆ Revenue loss from applicable rates

The purpose of the analysis is to rank programs on their economic performance. The design of the lowest ranking programs may be reevaluated to improve their performance.

The actual total benefit to the TVA system will likely be lower when compared to the system plan for two reasons:

- ◆ The analysis uses incremental benefits for all programs
- ◆ The TVA system can add capacity and energy more efficiently than incremental market costs

TVA uses the following metrics to evaluate EE/DR programs:

Savings	Peak MW	<ul style="list-style-type: none"> ◆ Summer peak savings (reported both as maximum and average peak savings)
Capital Requirements	TVA (\$ millions)	<ul style="list-style-type: none"> ◆ Total TVA spending that includes levelized program costs and incentives
Comparison to TVA Cost	Pure Capacity Ratio	<ul style="list-style-type: none"> ◆ Percentage of how much each program would spend for capacity relative to how much revenue TVA would have to recover to own a CT that produces the same amount of capacity over the same lifetime
	Pure Energy Ratio	<ul style="list-style-type: none"> ◆ Compares each program's capital requirements to the forecasted incremental cost of producing the same amount of energy over the same lifespan
Net Present Value (\$Millions)	Total Resource Cost (TRC)	<ul style="list-style-type: none"> ◆ Net benefit to the Tennessee Valley as a whole ◆ Avoided Costs – (Program Costs + Increased Costs). Customer costs are included if known ◆ No incentives included (nets out) ◆ Unaffected by revenue changes (nets out)
	Net Rate Impact Measure (RIM)	<ul style="list-style-type: none"> ◆ Bottom line gain or loss to TVA's cash flow ◆ Indication of impact to TVA's electric rates on a net basis ◆ Revenue loss and incentive costs included ◆ Avoided Costs – (Program Costs + Increased Costs + Revenue Loss + Incentives)
	Utility Cost Test (UCT)	<ul style="list-style-type: none"> ◆ Indicates overall revenue requirements for TVA ◆ Avoided Costs – (Program Costs + Increased Costs + Incentives)



Test Results by Ratio – All Programs

The results of each test (e.g., TRC, RIM) show the percentages of the total demand and energy targets relative to the ratio of:

$$\frac{\text{TVA avoided costs}}{\text{Test costs}}$$

- ◆ Test costs are calculated as follows:
 - TRC = program costs + participant costs
 - UCT = program costs + incentives
 - RIM = program costs + incentives + revenue loss

- ◆ For demand, test results for TRC and UCT were generally favorable (>1.0) while RIM and pure capacity were generally unfavorable

- ◆ For energy, test results for TRC, UCT, and pure energy were generally favorable

2012 Demand	Above 1.0	Below 1.0
TRC	78%	22%
RIM	11%	89%
UCT	72%	28%
Pure Capacity	9%	91%

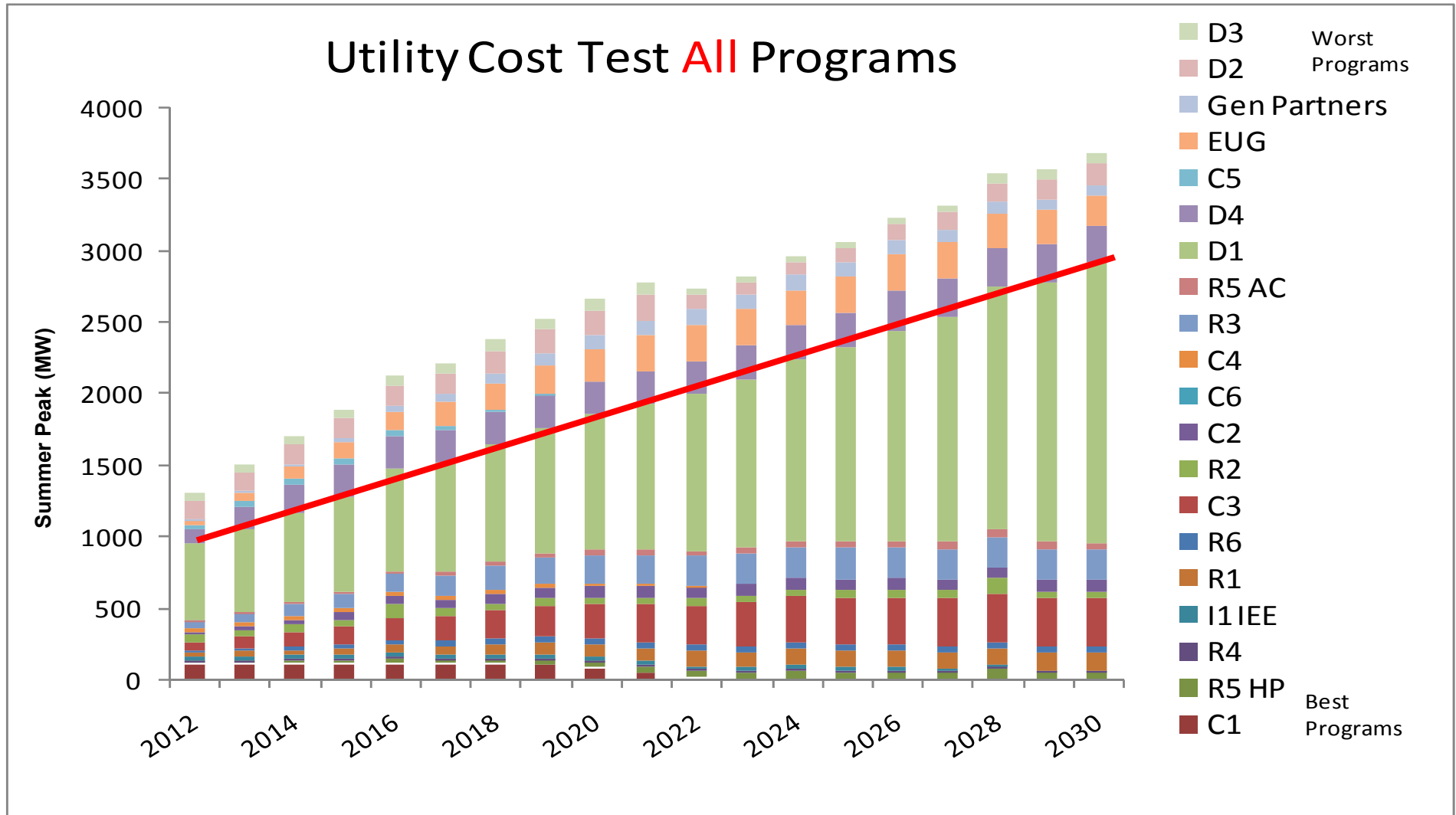
All percentage values are share of total MW demand target

2012 Energy	Above 1.0	Below 1.0
TRC	91%	9%
RIM	43%	57%
UCT	89%	11%
Pure Energy	88%	12%

All percentage values are share of total GWh energy target



Test Results – UCT for All Programs



Red line represents a UCT ratio of about 1.0 (below the line > 1.0)



Results by Portfolio Type

Ratios	Energy Efficiency	Demand Response	Generation Partners
TRC	1.1	1.5	1.5
RIM	0.9	0.7	0.6
UCT	5.7	0.9	0.6
\$/MWh	18	1041	176
Pure Energy Ratio	19%	991%	173%
Pure Capacity Ratio	194%	128%	2279%