

Integrated Resource Plan

TVA'S ENVIRONMENTAL AND ENERGY FUTURE

Incorporation of EE/DR Response in
Portfolio Optimization

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We intend to use two methods to evaluate EE/DR in the IRP Study: (1) load shapes (2) power purchase proxy. Both methods will use the “dependable capacity” of the DSM portfolio for modeling

Load Shapes	Power Purchase Proxy
<ul style="list-style-type: none"> ◆ EE and DR components of the DSM portfolio are represented as an hourly load shape with an associated cost <ul style="list-style-type: none"> — Individual bundles and the composite portfolio are modeled and can be evaluated separately ◆ This load shape is applied to the system load shape to produce a net load shape for capacity planning <ul style="list-style-type: none"> — This approach gives priority treatment to EE/DR compared to any supply-side resource alternatives ◆ Portfolio cost is added to supply-side costs to determine the overall plan cost 	<ul style="list-style-type: none"> ◆ Each EE/DR bundle in the portfolio is modeled as if it were an annual power purchase <ul style="list-style-type: none"> — Values change from year to year to match the bundle’s demand reduction value and year to year trend — Annual cost for each bundle is included in the plan cost ◆ EE/DR “blocks” can be scheduled or set as options to be selected by the capacity optimization model <ul style="list-style-type: none"> — Initial modeling with scheduled EE/DR blocks to match the composite portfolio value — Subsequent sensitivity cases developed to test “preferred” level and combination of EE/DR blocks ◆ A more robust version of the power purchase proxy method may be incorporated into the analysis of the short list of 20-year plans included in the draft IRP Study Report (to be released for public comment in June 2010)

Portfolio Options

- ◆ Three basic DSM portfolios will be evaluated in the initial phase of the IRP:
 - Base portfolio – the current DSM portfolio
 - Minimum portfolio – assumes no DR component
 - Maximum portfolio – assumes an aggressive DR component and EE measures consistent with potential identified in EPRI study
- ◆ Other portfolios can be tested in sensitivity cases or assumed in alternative strategies

Dependable Capacity

- ◆ Dependable capacity is the value in MW of the EE/DR portfolio at the time of the system peak
 - Comprised of programs that have passed the financial screen
 - Reflects demand reduction from both DR and EE bundles
 - Similar in concept to the dependable capacity value assigned to intermittent resources in planning studies (wind, solar)
- ◆ Does not impact energy savings associated with the DSM portfolio – full energy value is used
- ◆ Dependable capacity value will change if the portfolio design changes or the financial screen threshold is changed
- ◆ All details of the computation of dependable capacity are not yet final



EE/DR Dependable Capacity

