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April 3, 2018

MEMORANDUM

TO: Power Committee

FROM: Tina Jayaweera, John Ollis

SUBJECT: Model for Demand Response Potential

BACKGROUND:

Presenter: Tina Jayaweera, John Ollis

Summary: As part of the Eighth Power Plan, Council staff will develop an assessment of demand response potential with associated costs. The Council does not currently have a comprehensive model to do this assessment in-house. Staff proposes issuing a Request for Proposals (RFP) for development of a model that Council staff will then use to develop demand response supply curves.

The proposed schedule is to release the RFP by April 12, and to begin the contract in late May/early June. The total contract budget for the model is not expected to exceed \$25,000; no Council decision is required at this time. The purpose of this presentation is to keep the Power Committee apprised of the work anticipated to be needed for the Eighth Power Plan and to provide the committee with an opportunity to ask questions and provide any guidance to staff.

Relevance: As part of the Eighth Power Plan, the Council staff will develop an assessment of demand response potential with associated costs. Council staff will need a robust model to calculate this potential, using methods consistent with the load forecast and conservation potential assumptions. The Council does not currently have a comprehensive model to do this assessment in-house. For the Seventh Power Plan, an outside contractor completed the potential and cost assessment, and Council staff developed the levelized cost calculations and supply curve construction.

For future power plans, Council staff anticipates demand response potential will be input into the Regional Portfolio Model in a supply curve format, where potential (in megawatts) from various DR products is provided as a function of levelized cost (in dollars per kilowatt-year). This potential can be calculated in two general ways, bottom-up and top-down. The bottom-up method multiplies the savings per unit by the number of controllable units (e.g. electric water heaters or thermostats). The top-down method develops a potential estimate by taking a percent reduction in load, for each end use and customer class.

Workplan: D.1. Demand Response – Data development to enhance or improve estimates for demand response supply curves.

More Info: The Seventh Plan assessment model is available [here](#).

Demand Response Model

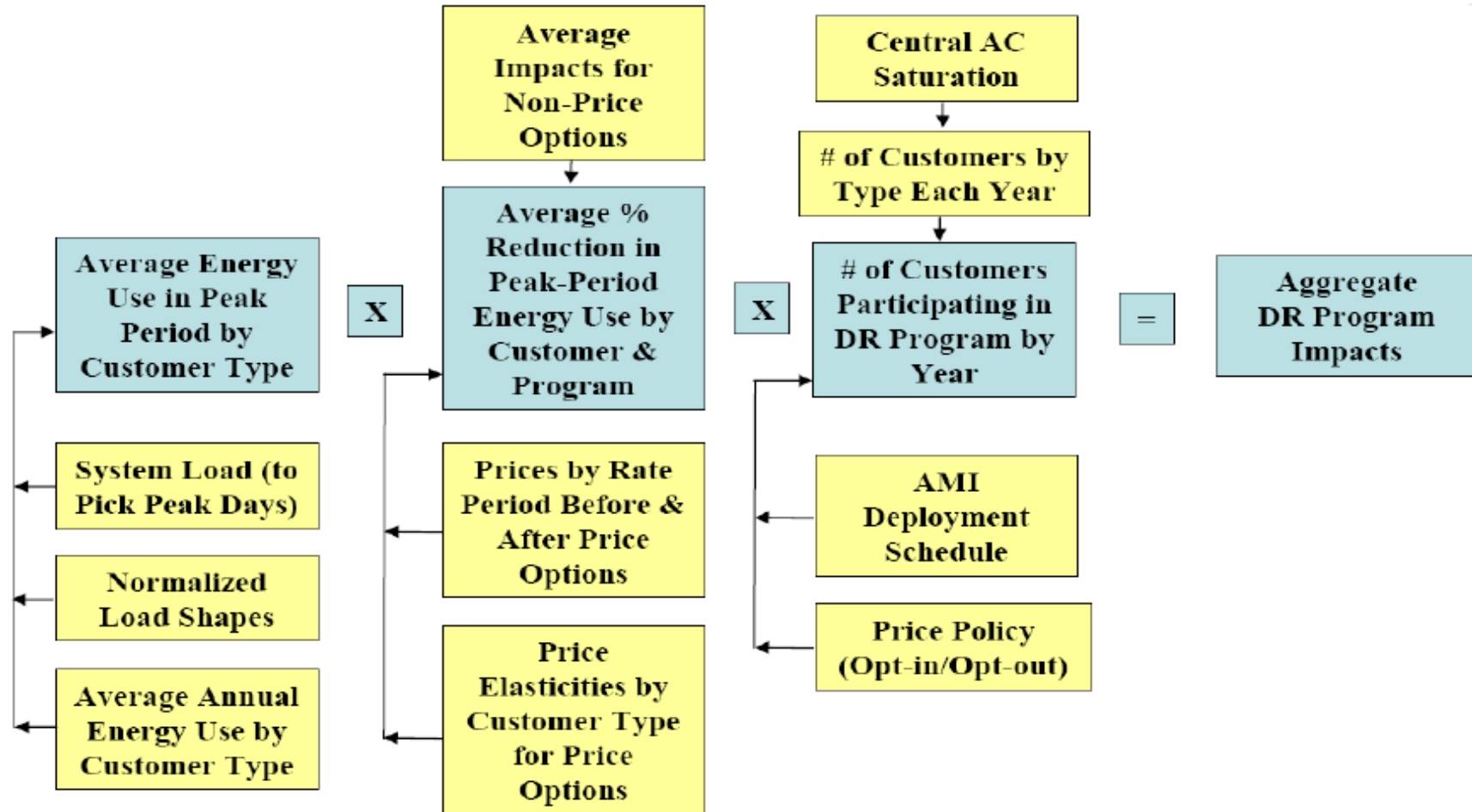
Tina Jayaweera, John Ollis

April 10, 2018

Purpose

- Build a model to develop demand response supply curves which will be an input to the 8th Plan
- Expand on what was used in 7th Plan
- Hire contractor to build this model
 - Consulting firms have in-house models they use for their clients
 - Contract would be to build a customized model, *not* to develop the supply curves

Key Building Blocks and Inputs for Demand Response Potential Model



Model Elements

- Incorporates both firm (e.g. direct load control) and non-firm (e.g. peak period pricing) potential
- “Top-down” (based on customers curtailing load) and “bottom-up” (savings per widget) analysis
- Elements from load forecast
 - Hourly consumption by end use
 - Number of units
- Overlap with energy efficiency