KEMA

memo

To: Natelle Dietrich, PSC; Brenda Wilbers, DNR
From: Tom Franks
Date: October 11, 2010
Copy: Fred Coito & Kristina Kelly, KEMA; Gwen Mizell, GSM Development
Subject: Interim Memo on Economic Data

This is the third and last interim memorandum on the inputs necessary for the analysis of the statewide potential for demand side management energy savings. This memo addresses the methodology we will use to create statewide estimates for economic inputs.

The DSM ASSYST® model requires a number of economic inputs including

- Time-of-use definitions (peak-off peak, summer/winter)
- Avoided costs (demand and energy)
- Rates (demand and energy)
- Discount rates (for both the utility and the customer)
- Inflation rate
- Line loss rate

Where available we present preliminary estimates of specific inputs. KEMA will present work papers as appropriate, documentation of inputs and assumptions, and the full set of inputs on October 27 as scheduled.

Time-of-use periods

We reviewed rate schedules for the four IOUs to determine how each defined peak periods for their rates. Ameren UE and KCP&L-GMO (GMO) define summer as June to September, while KCP&L and Empire define it from mid-May to mid-September. We applied a simple weighting based on number of customer to estimate an average summer period from May 28 to September 27, with winter defined as the remaining 8 month of the year from September 28 to May 27.

Peak periods also varied by utility: 10 am to 10 pm for Ameren (year round) and for GMO's summer period. KCP&L had a shorter peak period, running from 11 am to 7 pm. Empire did not appear to have time-of-use rates, but their interruptible rate schedule describes typical interruption periods as noon to 7 pm, and that was taken as their peak period. For winter peak, GMO used 7 am to 10 pm. For the summer and winter period we weighted these start and end times, then rounded the results. We estimated an 11 hour summer peak running from 10:30 am to 9:30 pm, and a slightly longer winter peak running from 10 am to 9:30 pm.

The following table summarizes the four time-of-use periods we propose for this study.

Rate/Time Periods	1	2	3	4	
Name	Summer On-Peak	Summer Off-Peak	Winter On-Peak	Winter Off-Peak	
Definition	May 28-Sept 27 10:30-21:30	May 28-Sept 27 21:30-10:30	Sept 28-May 27 10:00-21:30	Sept 28-May 27 21:30-10:00	
Abbreviation	SON	SOFF	WON	WOFF	TOTAL
Hours	1353	1599	2783	3025	8760

Avoided Costs

We have requested demand and energy avoided cost forecasts from each IOU. If we receive this data, we will create weighted average avoided cost forecasts for use in the ASSYST model.

If we do not receive the necessary data (or find it in the data already provided by the PSC), we believe we can leverage data from the ISO on spot prices. We propose (as a contingency plan) to equate avoided costs with spot prices to create a base-year avoided cost estimate. We will then escalate the avoided costs using either the inflation rate or a secondary rate forecast, e.g. Energy Information Administration forecasts.

Rates

We have requested average rate forecasts from each IOU. If we receive this data, we will create weighted average avoided cost forecasts for use in the ASSYST model.

If we do not receive the necessary data, we will turn to the Federal Energy Regulatory Commission's Form F286. This form provides revenues and sales by utility by state by year and by month. The revenue and sales data can be used to estimate average rates. The rate forecast would be tied to the avoided cost forecast using the following formula:

$$Rate_t = (Rate_{t-1} - AC_{t-1}) * (1 + Inf) + AC_t$$

where t is the year, AC is the avoided cost, and Inf is the inflation rate or some other price escalator.

Discount Rates

We have requested discount rates for each IOU, either from the utilities in response to our data request or from the integrated resource plans filed with the PSC. We will weight the discount rates to create an average rate to use in the study.

The model also requires a customer discount rate to use in customer cost/benefit calculations. We have asked the utilities if they have any estimates of customer discount rate. However, in our

experience few utilities create such estimates. If we do not receive data from the IOUs, we will use a 15 percent customer discount rate in the model, which is what we have used for past studies.

Inflation Rates

We have requested the inflation rates used by each IOU, either from the utilities in response to our data request or from the integrated resource plans filed with the PSC. We will weight the inflation rates to create an average rate to use in the study.

If we do not receive data on inflations rate assumptions, we calculate a rate based on the consumer price index or use a fixed interest rate of on the order of 2.5 percent.

Line Loss Rate

The PSC provided line loss rates for the four IOUs. We weighted these values and estimated an average line loss rate of 5.54 percent.

Next Steps

We have requested additional data on the remaining economic inputs from the IOUs. We will also continue to review the extensive data file provided by the PSC to try and locate the key data.