Market Price Benchmark Refinements: CAISO Services

PCIA Workshop #1

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Problem

- The market price benchmark methodology does not include the value of CAISO services even though the costs associated with CAISO services are included in the total portfolio cost.

Avoidable CAISO Charges

- As load migrates to non-bundled service, certain charges paid by the utilities to the CAISO for services will be avoided.
- These include a variety of charge types for grid management services, ancillary services and other uplift charges.
- CCAs and ESPs pay for these services directly to the CAISO and should not also pay for utilities' costs.
- Market price benchmark should also be adjusted for basis differential: i.e., the difference between the Trading Hub price (NP15 or SP15) and the Load Aggregation Point (DLAP_PG&E, DLAP_SCE, DLAP_SDG&E) price to reflect portfolio value at the appropriate delivery point.

Load Based CAISO Charges

Charge Code	Description
550	FERC Fee Settlement Due Monthly
721	Intermittent Resources Net Deviation Allocation
752	Monthly Participating Intermittent Resources Export Energy Allocation
4501	GMC - Core Reliability Services Non-Coincident Peak
4505	GMC - Energy Transmission Services Net Energy Withdrawals
4506	GMC - Energy Transmission Services Deviations
4511	GMC - Forward Scheduling
4512	GMC - Forward Scheduling Inter-SC Trades
4534	GMC - Market Usage Ancillary Services
4536	GMC - Market Usage Uninstructed Energy
4537	GMC - Market Usage Forward Energy
4575	GMC - Settlements Metering and Client Relations
4999	Neutrality Adjustment
6090	Ancillary Service Upward Neutrality Allocation
6194	Spinning Reserve Obligation Settlement
6196	Spinning Reserve Neutrality Allocation
6294	Non-Spinning Reserve Obligation Settlement
6296	Non-Spinning Reserve Neutrality Allocation
6457	Declined Hourly Pre-Dispatch Penalty Allocation

Charge Code	Description
6474	Real Time Unaccounted for Energy Settlement
6477	Real Time Imbalance Energy Offset
6480	Excess Cost Neutrality Allocation
6486	Real Time Excess Cost for Instructed Energy Allocation
6594	Regulation Up Obligation Settlement
6636	IFM Bid Cost Recovery Tier 1 Allocation
6678	Real Time Bid Cost Recovery Allocation
6694	Regulation Down Obligation Settlement
6696	Regulation Down Neutrality Allocation
6700	CRR Hourly Settlement
6774	Real Time Congestion Offset
6790	CRR Balancing Account
6791	CRRBA Accrued Interest Allocation
6806	Day Ahead Residual Unit Commitment (RUC) Tier 1 Allocation
6947	IFM Marginal Losses Surplus Credit Allocation
6977	Allocation of Transmission Loss Obligation Charge for Real Time Schedules Under Control Agreements
7989	Invoice Deviation Interest Distribution
8826	Monthly Resource Adequacy Standard Capacity Product MD Allocation
8827	Monthly NRSS Resource Adequacy Standard Capacity Product MD Allocation

Proposed Benchmark Adjustment for CAISO Services

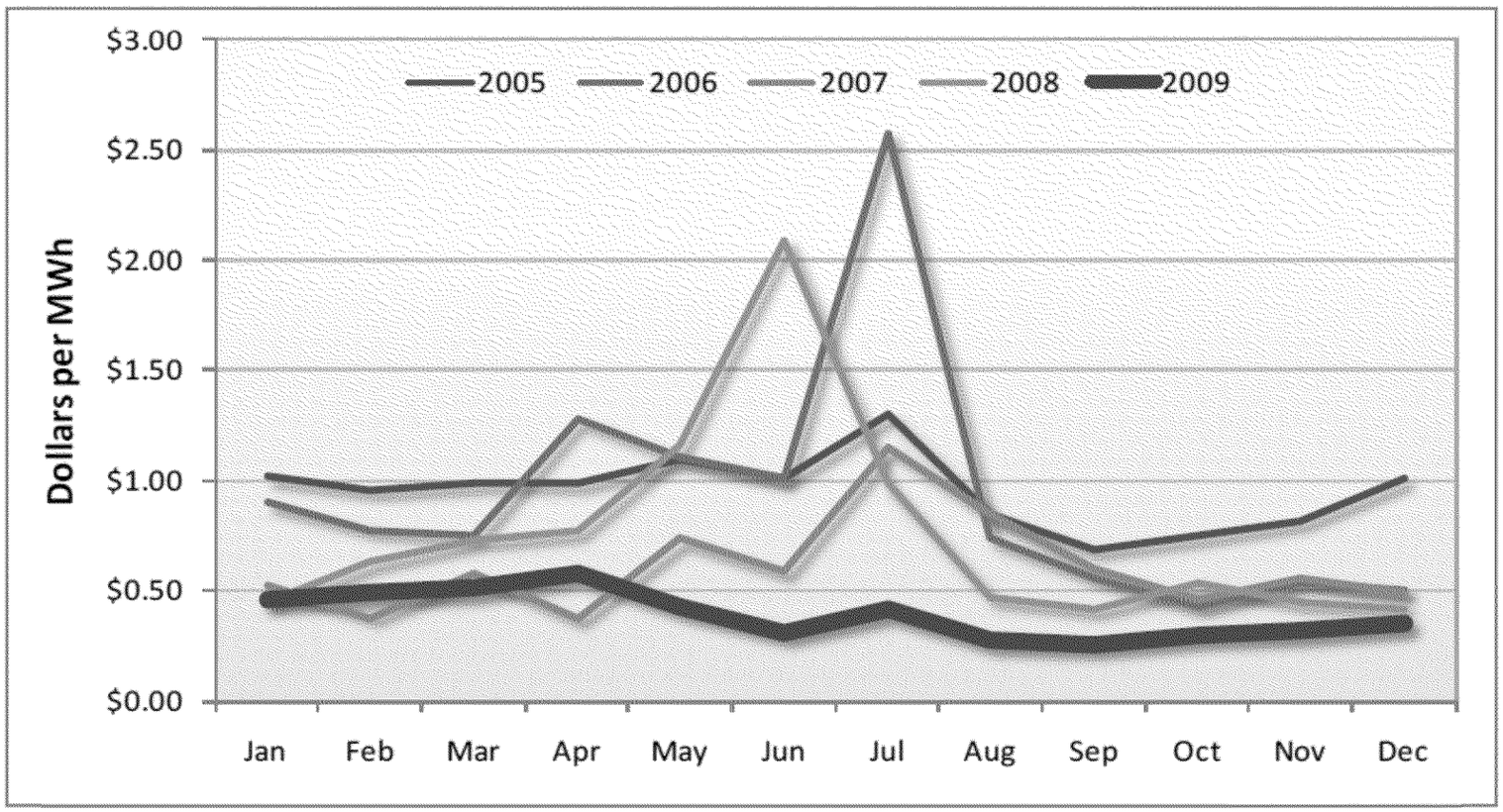
- Use historical data to derive average basis between Trading Hub and LAP day-ahead prices.
- Use ERRA forecast of CAISO costs for the relevant charge codes as an adder to the benchmark:

  CAISO Services Adder ($/MWh) = CAISO Cost Forecast ($) /Bundled Sales Forecast (MWh)

- Adjust for value of self-provided ancillary services – may need to use a reasonable proxy value for ancillary services based on published CAISO data; e.g., prior year's average AS costs per MWh of load.

Ancillary Services Costs

Figure 6.3 Ancillary service cost per MWh of load (2005 – 2009)



CAISO Cost Example

- As an example of the magnitude of CAISO costs that should be included in the benchmark, MEA's load-based CAISO charges have been averaging approximately $3.25 per MWh since MEA's inception:

GMC:	$1.15
Ancillary Services:	$0.45
Other Allocated Charges:	$0.75
PG&E LAP – NP15 Hub:	$1.00
Total CAISO Services	$3.25

- CAISO costs in utility portfolio should be similar, but will need data to confirm.
- Incorporating CAISO costs in benchmark using the above estimates would reduce the "indifference fee" by approximately $2.85 for PG&E and $2.75 for SCE.

Market Price Benchmark Refinements: Shaped Delivery Profile

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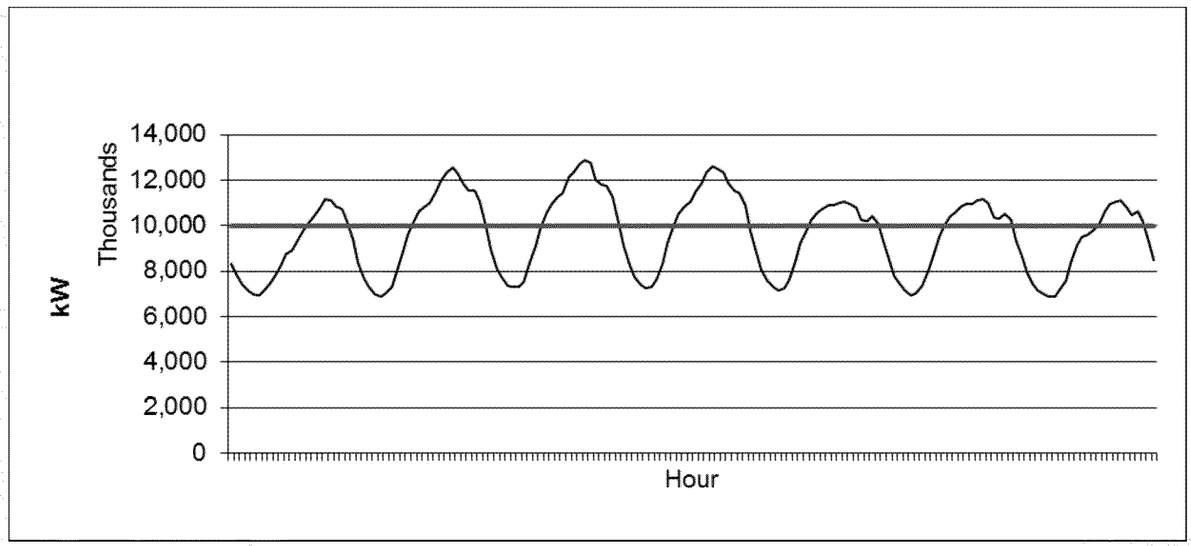
Dalessi Management Consulting

Problem

- The market price benchmark methodology does not include the value of resources needed to serve the shaped load of customers even though costs associated with these resources are included in the total portfolio costs.



Proposed Solution

- Replace the baseload price used in the benchmark with a load-weighted (shaped) energy price (Load Shape Adjustment).
- For administrative simplicity, use the utility system load profile to derive the load shape adjustment.

Current Method

- Current benchmark methodology derives a baseload forward price by weighting calendar year average on-peak and off-peak forward prices by the respective on-peak and off-peak hours in the year.
- Example of current calculation:

CY2011 On-peak price ($/MWh)	40
CY2011 Of-peak price ($/MWh)	28
CY2011 On-peak hours	5,008
CY2011 Off-peak hours	3,752
Weighted average (calculated baseload) price ($/MWh)	**35**

Adjustment for Load Shape

- Could use the utility's system load shape to determine on-peak and off-peak MWh and use these values to calculate a weighted average (shaped) price.
- Utility load shapes can be estimated from publicly available information using published statistical hourly class load profiles and forecast of sales by class (ERRA).
- Sum all hourly MWh during on-peak hours (6 am to 10 pm M-Sa) in each month and sum all hourly MWh during off-peak hours in each month.
- Use these as the weighting factors in the calculation of shaped energy price.

Option 1 – Load Weighted Average, Annual

- Use on-peak and off-peak annual strips and weight by on-peak and off-peak usage.
- Captures intra-month peak and off-peak profile.

CY2011 On-peak price ($/MWh)	40
CY2011 Of-peak price ($/MWh)	28
CY2011 On-peak load (MWh)	50,000,000
CY2011 Off-peak load (MWh)	25,000,000
Weighted average (shaped) price ($/MWh)	**36**

Option 2 – Load Weighted Average, Monthly

- Use monthly on-peak and off-peak forward prices and weight by monthly on-peak and off-peak usage.
- Captures seasonal price/load correlations as well as intra-month peak and off-peak profile.

Month	On-peak price ($/MWh)	On-peak MWh	Month	On-peak price ($/MWh)	On-peak MWh
January	35	4,137,250	July	50	5,205,900
February	35	3,676,290	August	50	5,026,340
March	35	3,950,320	September	50	4,598,210
April	35	3,888,680	October	35	3,990,520
May	35	4,349,640	November	35	3,804,930
June	50	4,509,100	December	35	4,174,100
Weighted Average (Shaped) Price ($/MWh)			**37**		

Option 3 – Load Weighted Average, Hourly

- Neither of the previous options accounts for the positive correlation between hourly loads and prices.
- Option 3 would use a load shape adjustment to the forward baseload price. The adjustment would be derived using historical CAISO day-ahead energy prices and the utility hourly system load shape:

$$\text{Shape Factor} = [\sum_{i=1}^{8760} P_i L_i / \sum_{i=1}^{8760} L_i] / AvgPi$$

Where P_i equals CAISO day ahead price in hour i and L_i equals utility system load in hour i.

- Multiply calculated baseload price (per current methodology) times the Shape Factor.