Leveraging Today’s Technology to Teach the Duck to Fly

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Meeting Targets at Least Cost
(WGA/RAP/NREL – June 2012)

- Expand Sub-hourly Scheduling
- Facilitate Dynamic Transfers
- Implement EIM
- Improve Forecasting
- Leverage Geographic Diversity
- Improve Reserves Management
- Retool Demand Response
- Use Flexibility of Existing Generation
- Flexibility in New Gas Generation
Guess What: Ducks Can Fly

A duck in water has very much the shape of the CAISO graphic. The “fat body” floats, and the tall neck breathes.

A duck in flight stretches out its body and straightens its neck in order to reduce wind resistance.

Our job is to straighten this duck out.
Ten Strategies To Align Loads to Resources (and Resources to Loads)

1. Targeted energy efficiency
2. Orient solar panels
3. Use solar thermal with storage.
4. Manage electric water heat
5. Require new large air conditioners to include storage
6. Retire older inflexible power plants
7. Concentrate demand charges into “ramping” hours
8. Deploy energy storage in targeted locations
9. Implement aggressive demand response programs
10. Use inter-regional exchanges of power

Not every strategy will be applicable to every utility.
How Did We Do?

Pre-Strategy, without Solar/Wind:  73% LF
Pre-Strategy, with Solar/Wind:      63% LF
Post-Strategy, with Solar/Wind:      83% LF

Hourly Ramp:  340 MW vs. 400 today, and 550 w/o strategies
Two Questions

How well do we use today’s info tech?
Will energy be scarce?
Resource Materials:

The Least Cost Integration Challenge:
http://www.raponline.org/document/download/id/5041

Teaching the Duck to Fly:
http://www.raponline.org/document/download/id/6977

Clean Keeps the Lights On:

Regulatory Consideration Associated with Expanded Adoption of Solar (w/ NREL):
http://www.raponline.org/document/download/id/6891
About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

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