Energy: Challenges with Becoming More Sustainable

SDGE connected
A Sempra Energy utility

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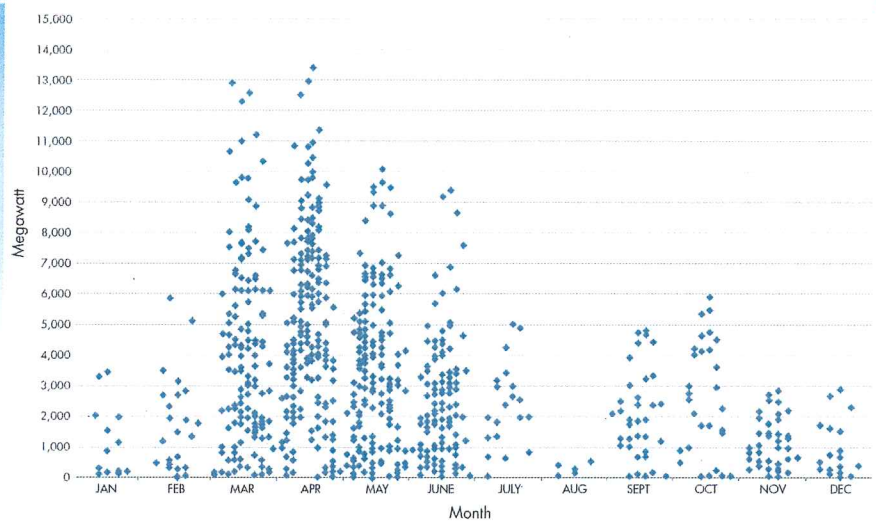
Significant amount of incremental RPS energy above 33% RPS levels are curtailed in 40% scenarios.

Scenarios (33%)	RPS Energy Curtailed (Gwh)	RPS Actual Achieved
Trajectory	153	32.9%
Trajectory without Diablo Canyon	26	33%
High load	136	32.9%
Scenarios (40%)		
40% RPS in 2024	2,825 (15% of incremental RPS above 33%)	38.7%
Expanded preferred resources	4,637 (89% of incremental RPS above 33%)	37.5%

Source: http://www.caiso.com/Documents/Aug13_2014_InitialTestimony_ShuchengLiu_Phase1A_LTPP_R13-12-010.pdf

RPS Curtailment in 2024 – 40% RPS Scenario



Source: http://www.caiso.com/Documents/Aug13_2014_InitialTestimony_ShuchengLiu_Phase1A_LTPP_R13-12-010.pdf

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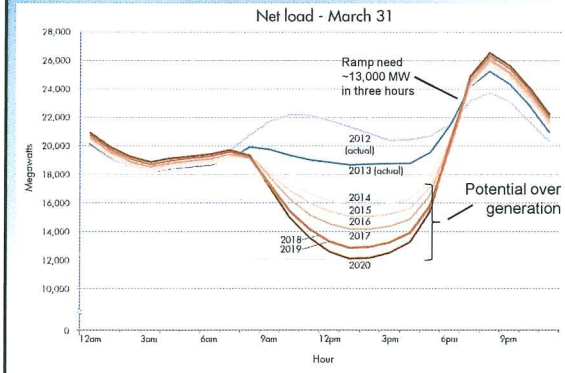
Need to maintain reliability in all hours of the day



- ISO has already seen the need to curtail generation in 2014.
- Operational requirements include:
  - Minimum gas necessary to provide ramping
  - Necessary ancillary services
  - Load following

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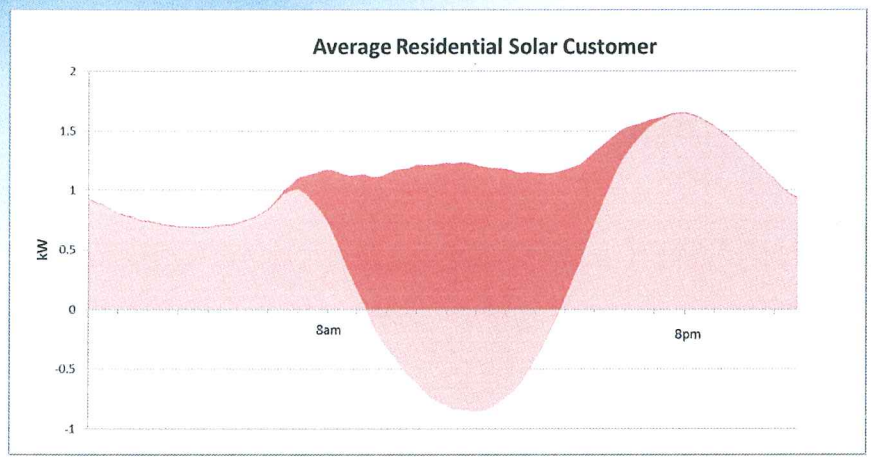
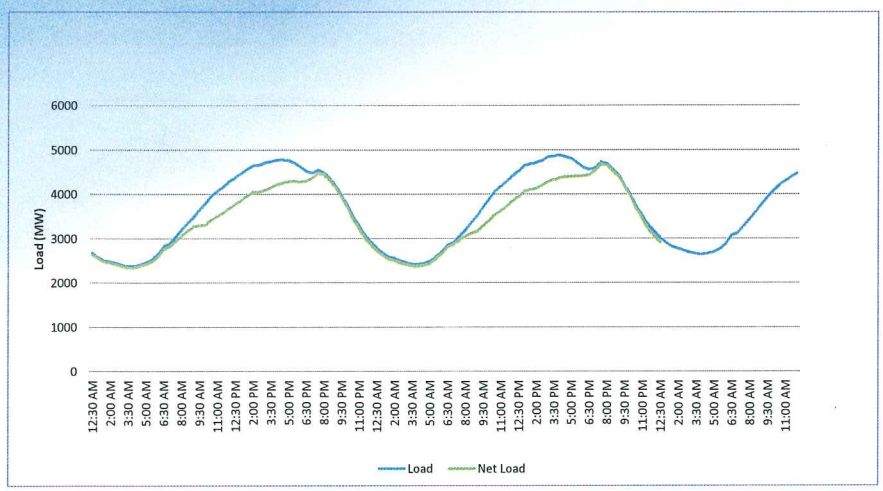
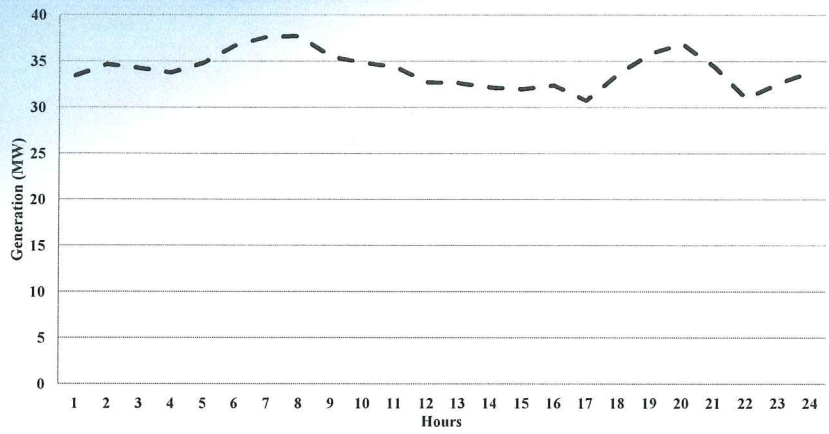
Solar Doesn't Address Residential Distribution Peaks



SDG&E System – September 16-17, 2014



Daily Average Wind Power Generation January 2013



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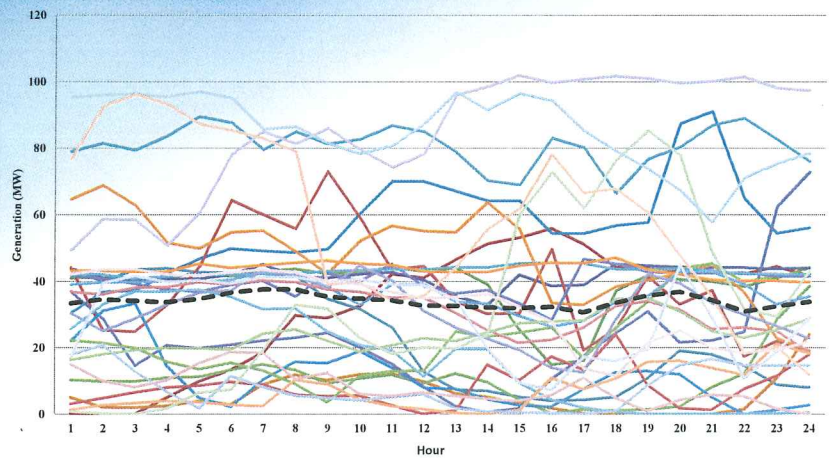
Daily Wind Power Generation January 2013



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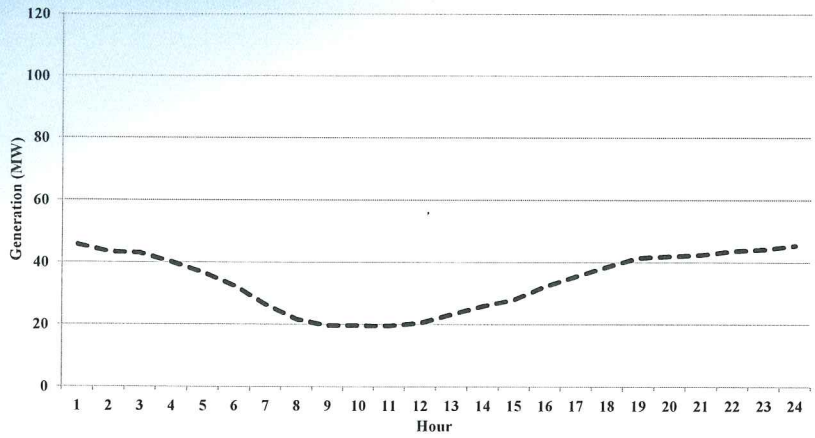
Daily Average Wind Power Generation – September 2013



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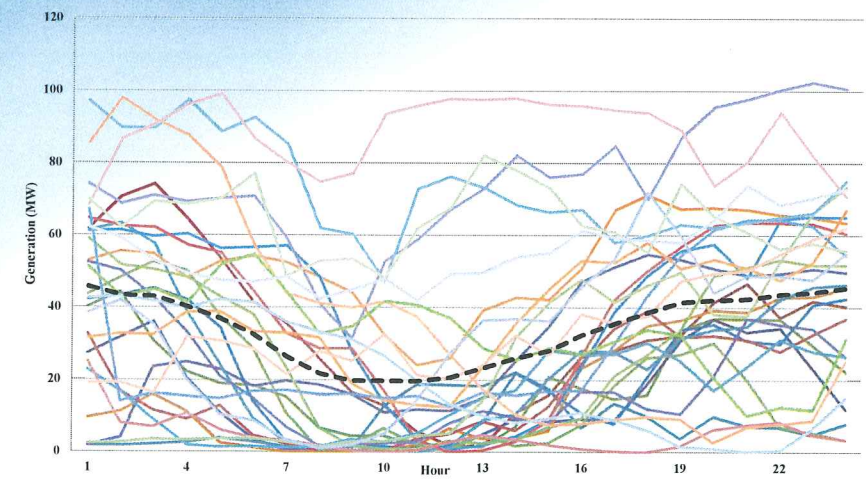
Daily Wind Power Generation September 2013



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