Comments on CEC Revised 2010-2020 CED Forecast

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Work in Progress -- For Discussion Purposes Only

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General comments on the models and forecasts

The staff's development of an econometric model for the major market sectors is a step in the right direction. Use of econometric models may help to resolve many of the current stalemates that exist.

The disconnect in the forecast between the historic period and the forecast period for energy demand/load growth remains unexplained. The disconnect between changes in energy demand/load growth from the draft to the revised forecast remain unexplained.

The CEC staff's modeling of the embedded EE need additional work. Current model suggests that "total" EE savings (i.e. savings from all sources) have actually gone down significantly in many of the historic years.

In the absence of PG&E being able to verify the model results, including the amount of embedded EE, PG&E is unable to make meaningful comparisons between PG&E's modeling results and the CEC staff's revised forecast.

The definition of the PG&E Planning Area should be changed to be consistent with the PG&E TAC definition as used by the ISO and by PG&E.

The Forecasts

There remains an unexplained disconnect between the growth rates in the historic and forecast periods.

This is particularly problematic for the commercial and AG classes which represent approximately 40% of total peak MW.

PG&E Planning Area Coincident Peak by Sector

Year	Residential	Commercial	Industrial	Agricultural	Other	Total Demand
Annual Growth Rates (%)						
1990-2007	2.04%	2.66%	0.17%	0.73%	1.29%	1.74%
2012-2020	1.99%	1.05%	0.09%	-0.14%	0.70%	1.24%
% Change in Growth Rate	-2.15%	-60.51%	-44.68%	-118.69%	-45.82%	-28.63%

It is important to keep in mind that the 2012-2020 growth rates are in the "uncommitted" period, while the historic growth rates include all EE savings.

The Forecasts

Energy demand increases by 5.5% while peak demand increases by only 1.5% from draft to revised forecast. They should be moving together unless there is some clear reason why they are not going to do that.

California Energy Commission

PG&E Planning Area Forecast Results

Consumption (GWH)					
	CED 2007 (Oct. 2007)	*CED 2009 Draft* mid-rate case (June 2009)	*CED 2009 Revised* (Sept. 2009)	Percent Difference *CED 2009 Revised/CED 2007*	Percent Difference *CED 2009 Revised/CED 2009 Draft*
1990	86,803	86,803	86,803	0.00%	0.00%
2000	101,331	101,331	101,333	0.00%	0.00%
2008	107,591	106,753	111,205	3.36%	4.17%
2010	110,503	106,240	108,526	-1.79%	2.15%
2015	117,806	110,878	115,860	-1.65%	4.49%
2018	121,873	112,959	119,123	-2.26%	5.46%
Average Annual Growth Rates					
1990-2000	1.56%	1.56%	1.56%		
2000-2008	0.75%	0.65%	1.17%		
2008-2010	1.34%	-0.24%	-1.21%		
2010-2018	1.23%	0.77%	1.17%		

Peak (MW)					
	CED 2007 (Oct. 2007)	*CED 2009 Draft* mid-rate case (June 2009)	*CED 2009 Revised* (Sept. 2009)	Percent Difference *CED 2009 Revised/CED 2007*	Percent Difference *CED 2009 Revised/CED 2009 Draft*
1990	17,055	17,013	17,250	-0.25%	1.39%
2000	20,716	20,665	20,628	-0.25%	-0.18%
2008	23,413	23,405	23,727	-0.03%	1.38%
2010	24,050	23,240	23,321	-3.37%	0.35%
2015	25,760	24,606	24,874	-4.48%	1.09%
2018	26,754	25,341	25,742	-5.28%	1.58%
Average Annual Growth Rates					
1990-2000	1.96%	1.96%	1.80%		
2000-2008	1.54%	1.57%	1.76%		
2008-2010	1.35%	-0.35%	-0.86%		
2010-2018	1.34%	1.09%	1.24%		
Historic values are shaded					

The Forecasts

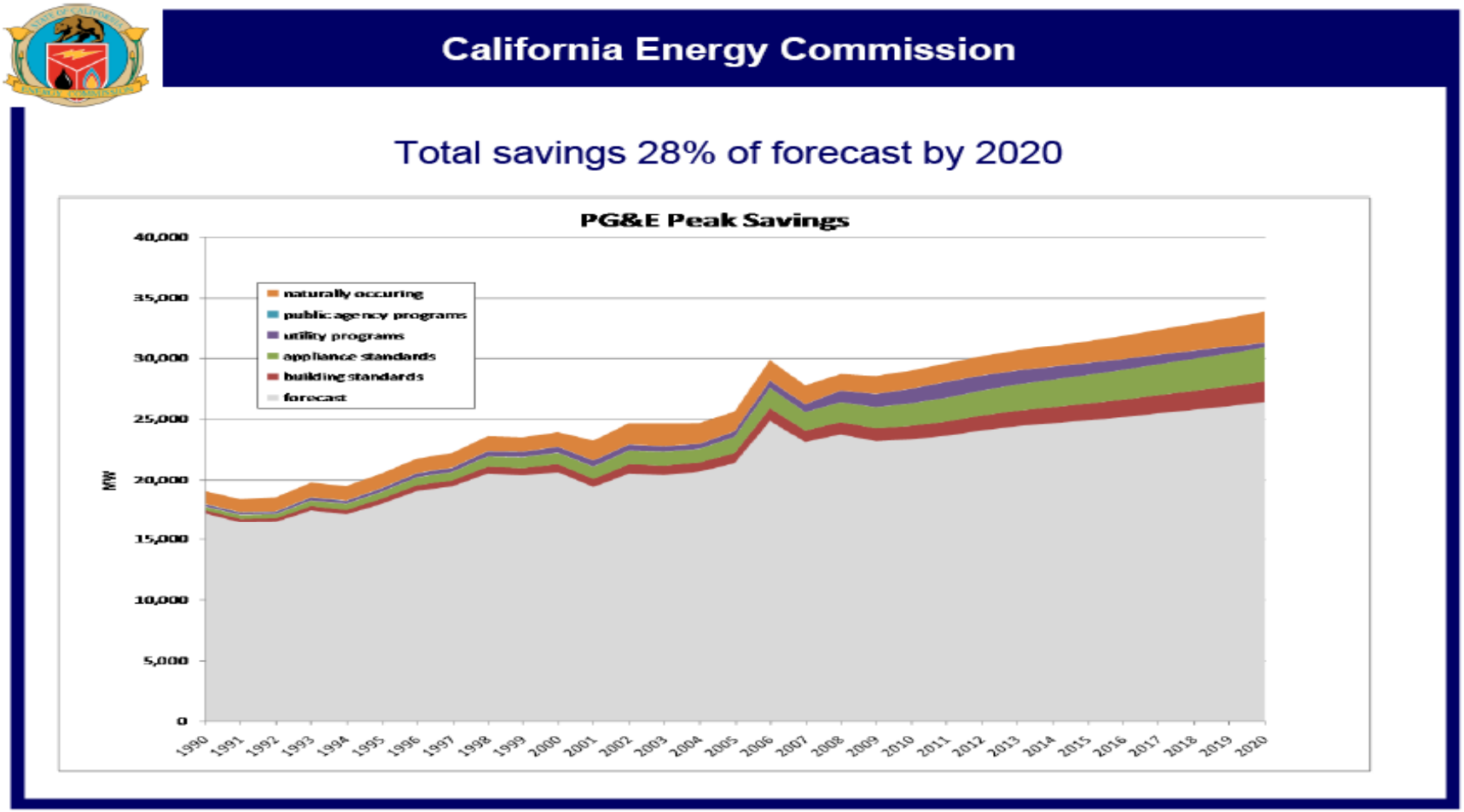
- **Magnitude of estimated peak MW reduction due to PV seems to be without support:**
  - 2008 installed PV capacity for PG&E customers was 83 MW.
  - Installed PV capacity through August 2009 for PG&E customers is 44 MW.
  - PG&E internal forecast project average installed PV capacity growth of 65 MW for 2009-2020. CEC's estimate is 120 MW per year.
  - PG&E forecasts total peak reductions in 2020 of 450 MW which fully incorporates the CSI goals. CEC's estimate is 688 MW.

Year	CEC Forecast Incremental Peak Reduction (MW)	Implied Incremental Capacity Additions (MW)
2001	1	3
2002	3	8
2003	6	15
2004	11	28
2005	12	29
2006	17	42
2007	23	58
2008	41	102
2009	96	239
2010	68	169
2011	64	161
2012	64	159
2013	64	161
2014	64	160
2015	64	160
2016	64	160
2017	6	16
2018	6	16
2019	7	16
2020	7	17
Total	688	1720

Assumes: Implied capacity calculation assumes 40% generating efficiency of PV at time of PG&E peak 5 PM to 6 PM

The Forecasts

In many years in the history the "year-over-year" total EE peak savings are significantly negative. Does that make sense?



Conclusion

- **The revised forecast is certainly moving in the right direction relative to the draft forecast. The development of an econometric based model for major market segments may help stakeholders in reaching consensus around projections going forward. Including reaching consensus around the embedded EE savings.**
- **The commercial and agricultural segment projections need to be revised further to bring them into line with historic trends. In particular the commercial segment peak growth projection appears to be 50% lower than what it should be.**
- **The CEC should scale back the revised PV assumptions to be more in line with PG&E's internal projections (65 MW per year installed capacity, 450 MW total peak reduction in 2020).**
- **The modeling of the embedded CEE needs further work. There should be an underlying assumption that consumers, on average, replace upgraded equipment/appliances with equally efficient equipment/appliances at the end of their useful lives.**
- **The modeling of the "incremental uncommitted" is dependent on the modeling of the "embedded uncommitted" and therefore cannot move forward until there is general consensus around the modeling structure and results for the "embedded uncommitted".**