

**California Energy Commission
Workshop on Energy Forecasting
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Presentation Themes

- **This needs to be sorted out before the 2009 IEPR/2010 Long Term Integrated Resource Plans are developed.**
- **The current modeling conventions with respect to treatment of EE may be outdated and causing needless confusion.**
- **PG&E believes that 100% or more of current target levels of EE are already embedded in the California Energy Demand (CED) projections.**
- **Ideally the CED would explicitly identify EE and Self-Generation by customer type and by region for each year in the forecast horizon.**
- **Ideally the CED would include more than just the “expected” value forecast. Planning to the “expected” value may not be the right standard.**

Question 1

- **How are the demand forecasts used in other venues? Are there issues associated with the forecasts and those uses? How can forecast use in these other venues be coordinated to reflect collaborative understanding of how to use the forecasts?**
- **The current modeling convention with respect to committed vs. un-committed EE programs is outdated and causes confusion**
 - The modeling convention is a hold-over from a previous era. It is outdated given the current planning environment.
 - The modeling convention is not needed given the EAP loading order, the CPUC EE targets decision, and other directives which require incorporating the adopted targets in all long-term planning exercises.
 - The modeling convention causes confusion for forecast users in transmission planning, in distribution planning, in financial and rate planning exercises.

Question 1 – Continued – What Flavor of Forecast is Needed

Uses for Long-Term Electric Demand Forecasts	Forecast Need		
	Hybrid (No)	Mitigated (Yes)	Unmitigated (?)
Generation Planning	Hybrid (No)	Mitigated (Yes)	Unmitigated (?)
Transmission Planning	Hybrid (No)	Mitigated (Yes)	Unmitigated (No)
Distribution Planning	Hybrid (No)	Mitigated (Yes)	Unmitigated (No)
Financial/Rate Planning	Hybrid (No)	Mitigated (Yes)	Unmitigated (No)
GHG Planning	Hybrid (No)	Mitigated (Yes)	Unmitigated (?)

Hybrid has different treatment of CEE savings during the forecast horizon. The current modeling convention.

Mitigated is with target levels of CEE savings incorporated throughout the forecast horizon.

Unmitigated is before target levels of CEE savings are incorporated.

Question 2

- **What additional information or analysis would parties like to see? What data are needed to conduct this analysis? Can these questions be effectively answered with the demand forecast or are new tools needed?**
- The CEC should estimate the amount of EE projected forward for classes other than residential and commercial. There is potentially a large amount of EE being projected forward via the industrial and Ag equations.
- The CEC should do an analysis similar to the EE analysis for self-generation. It is possible that the current forecasting methods are also projecting forward large amounts of self-generation that are not being shown explicitly in the forecast tables. Double counting self-gen has the potential to be a material issue for the next round of IRP. Ideally, the CEC should do both the above analyses at a regional level.
- Ideally the CEC should include in its forecast either scenarios, sensitivities, or a confidence interval. A point forecast is useful for many applications but planning requires a sense of the dispersion of possible outcomes as well as the “expected” value. Planning to the “expected” value is planning to be short 50% of the time. The “value proposition” may not support “expected value” planning.

Question 2 – Continued -- 100% of Current EE Targets May Already Be Captured

2009-2013 Time Period	Embedded in CEC Forecast	CPUC Adopted Targets for PG&E
Residential (per CEC analysis)	265 MW	
Commercial (per CEC analysis)	485 MW	
Industrial + AG (estimated based on historic data)	500 MW	
Total	1,250 MW	1,220 MW

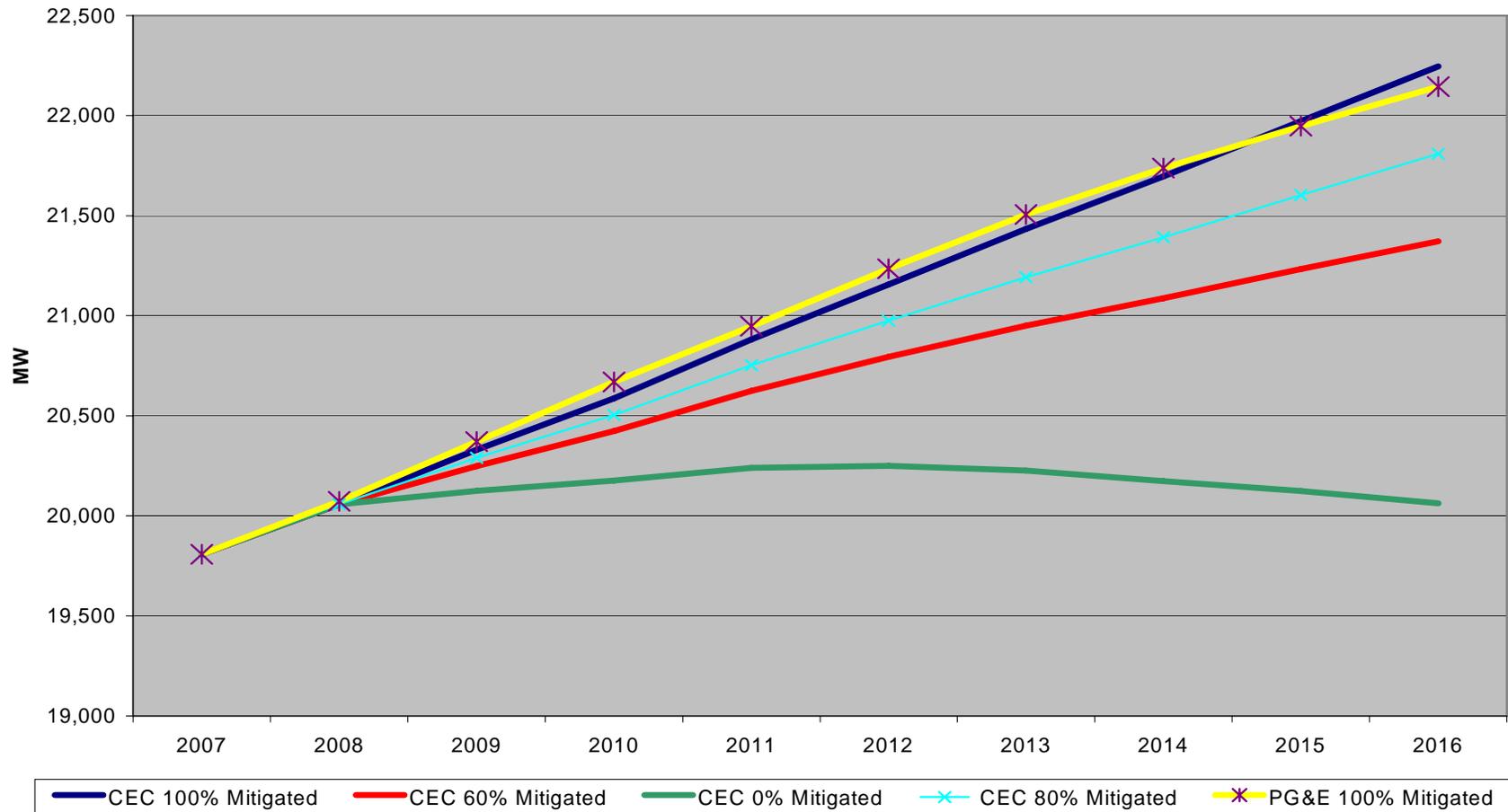
Residential and commercial savings are based on the analysis as shown in the 2008-2018 CED report Table 14.

Question 3

- **How would that additional information or analysis be used? What entity would use the results, and when is it needed?**
- **Additional information would be useful in better understanding the forecast and how to use it.**
 - 80% of targets (the final LTPP guess) seems more reasonable than 60% (the intermediate LTPP guess) or 0% (the starting LTPP guess) but 20% of the targets still amounts to 500 MW of capacity over a 10-year period.
 - Based on the forecast results PG&E get from the regression model, after fully mitigating for the target EE savings throughout the forecast horizon, it appears that the CED projection is 100% mitigated.
 - It is currently not possible to determine the reasonableness of the CEC's forecasts because it is not clear what is included or not included. This is true for both EE and self-generation.
 - Scenario or confidence interval information will help us better understand the risks and trade-off inherent in the current planning criteria.

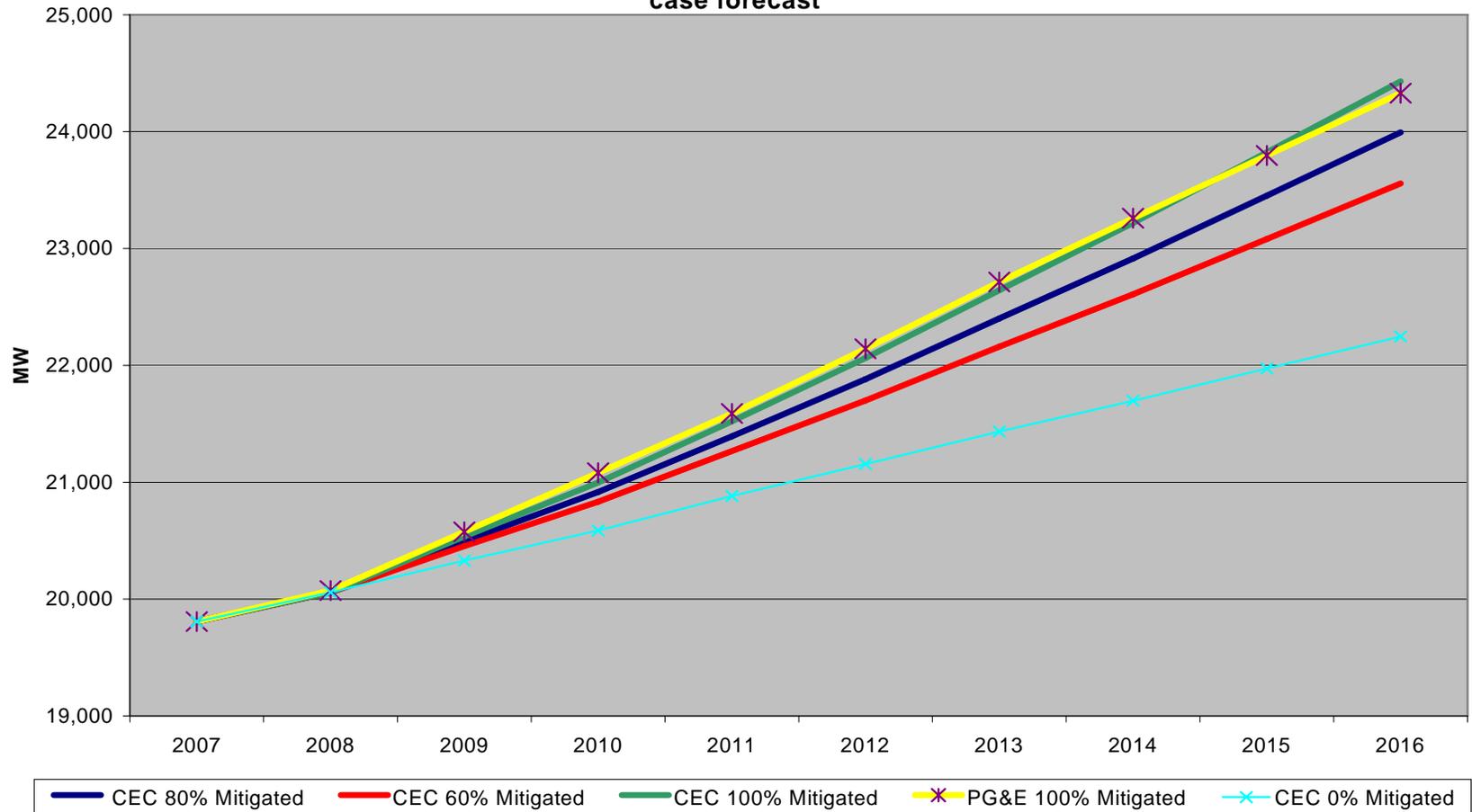
Question 3 – Continued – The Evolution of a “Guesstimate”, 2006 LTPP

Mitigated Peak Load Comparison -- CEC 2007 IEPR Forecast for the PG&E Service Area assuming differing levels of embedded mitigation for uncommitted CEE in published base case forecast



Question 3 – Continued – The Evolution of a “Guesstimate”, 2006 LTPP

Unmitigated Peak Load Comparison -- CEC 2007 IEPR Forecast for the PG&E Service Area assuming differing levels of embedded mitigation for uncommitted CEE in published base case forecast



Question 4

- **How do utilities model energy efficiency impacts in the utilities' own forecast methods? In particular, please discuss the methods and assumptions used to develop a forecast of unmanaged demand (that is, demand before the effects of energy efficiency programs).**
- **PG&E uses a regression model estimated using observed historic data. PG&E “calibrates” its model specification such that it fits very closely to the most recent observed data. For this reason PG&E need only adjust its model for changes in future trends in EE savings that are materially different from those captured in the recent historic data. This is no different than the adjustments we make for CSI and for EV load where we believe future trends will be materially different from those captured in the recent historic data over which the model was estimated.**
 - For example, recent trend EE program savings have been ~ 200 MW per year while the current targets for 2008-2013 are ~ 250 MW per year so PG&E will make an incremental adjustment of ~ 50 MW per year to the regression model forecast for the period 2008-2013 to develop its fully mitigated demand forecast.