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Incremental Impacts of Energy Efficiency Policy Initiatives Relative to the *2009 IEPR* Adopted Demand Forecast: Overview of Analysis and Results

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Presentation

- Brief review of 2009 IEPR demand forecast for the three IOUs
- Concept of “managed” forecast
- Method of Analysis
- Results

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California Energy Commission *2009 IEPR* Energy Demand Forecast

- Reference forecast for the incremental uncommitted forecast
- Forecast includes committed efficiency savings only
- Level of analysis for the incremental uncommitted forecast is IOU (SCE, PG&E, and SDG&E) service territory
- Below *2007 IEPR* forecasts because of more pessimistic economic projections, more efficiency impacts, higher rate projections, more self-generation

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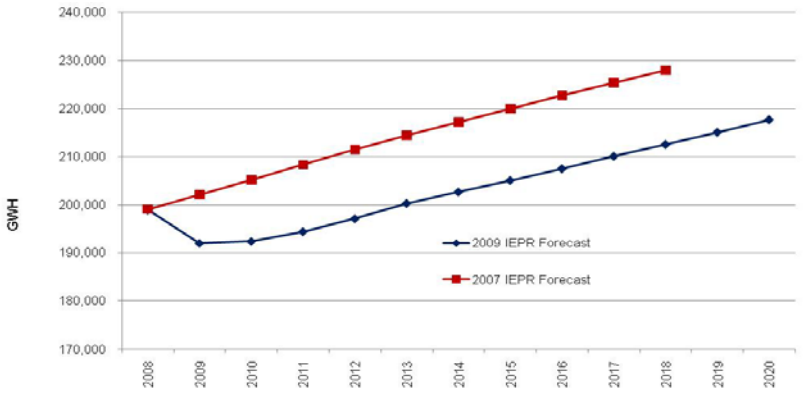
Comparison of Electricity Sales Forecasts, *2007* and *2009 IEPR*

3 IOU Service Territories Combined, 7% Lower in 2018



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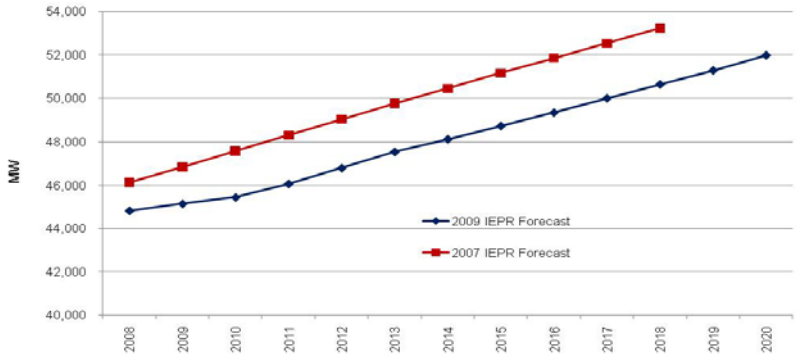
Comparison of Electricity Peak Forecasts, *2007* and *2009 IEPR*

3 IOU Service Territories Combined, 5% Lower in 2018



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CPUC and Long-Term Procurement

- The "managed" forecast starts from the *2009 IEPR* demand forecast and decrements for the consequences of further demand side policy initiatives:
  - Energy efficiency
  - Combined heat and power
  - Other distributed generation on customer side of the meter
- Discussed in Attachment C of report
- Analysis is for further energy efficiency only

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Method of Analysis

- Goal: estimate the *incremental* impacts of three CPUC efficiency initiative scenarios for the 2013-2020 period, accounting for overlap between these initiatives and savings in *2009 IEPR* forecast
- Three scenarios (high, mid, and low) based on varying assumptions regarding:
  - Uncommitted IOU programs
  - Codes and standards: Title 24 and Federal
  - AB 1109 (Huffman)
  - Big Bold Initiatives
- Scenarios are updated versions of *2008 Goals Study*

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Method of Analysis

- Itron's model known as Scenario-based Energy Savings Analysis Tool (SESAT) was used
- SESAT uses output from Itron's ASSET, a behaviorally-based model designed to estimate utility program participation
- Itron and Energy Commission staff matched inputs for respective models as closely as possible
- Energy Commission staff provided Itron detailed end-use level committed savings estimates and peak-to-energy ratios from the *2009 IEPR* forecast

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Method of Analysis

- Despite the efforts at model reconciliation, differences remained in the pre-2013 period that could not be fully reconciled
- Incremental results were therefore computed as starting in 2013, assuming no incremental impacts for the savings computed by SESAT in 2012
- However, this approach is consistent with the CPUC decision to delay the total market gross approach until 2013, so that 2012 SESAT results are used as a point of reference to determine the final incremental impacts of the policy initiatives

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Method of Analysis-Overlap

- Analysis done at end-use level: UEC (unit energy consumption) and EUI (energy use intensity)
- Overlap a factor for IOU programs (including “naturally occurring” savings) and AB 1109
- Committed savings from Energy Commission 2009 IEPR forecast transformed from GWh units into % UEC and EUI reductions
- Percentages used to avoid systematic bias stemming from interacting results generated by different modeling platforms

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Method of Analysis-Overlap

- These % reductions “netted out” of % UEC and EUI impacts from CPUC policy initiatives in SESAT to give incremental uncommitted
- Net impact on UEC and EUI multiplied by units or floor space to give incremental uncommitted savings
- Incremental uncommitted energy savings converted to incremental peak savings using peak to energy ratios for each end use

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2020 Incremental Impacts of Policy Initiatives Relative to the *2009 IEPR* Demand Forecast

Utility	Savings	Scenario		
		Low	Mid	High
PG&E	Energy (GWh)	4,634	5,130	6,087
	Peak (MW)	1,731	2,245	2,722
SCE	Energy (GWh)	4,971	5,874	6,848
	Peak (MW)	1,941	2,593	3,160
SDG&E	Energy (GWh)	1,091	1,222	1,440
	Peak (MW)	363	514	602
Total IOUs	Energy (GWh)	10,658	12,225	14,374
	Peak (MW)	4,034	5,352	6,484

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2020 Incremental Impacts of Policy Initiatives as a Percentage of Projected Load Growth from 2008-2020

Utility	Savings	Scenario		
		Low	Mid	High
PG&E	Energy	56%	62%	74%
	Peak	70%	91%	110%
SCE	Energy	62%	74%	86%
	Peak	50%	67%	81%
SDG&E	Energy	44%	49%	58%
	Peak	46%	65%	77%
Total IOUs	Energy	57%	65%	77%
	Peak	56%	75%	91%

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2020 Incremental Impacts of Policy Initiatives as a Percentage of Projected Load Growth from 2012-2020

Utility	Savings	Scenario		
		Low	Mid	High
PG&E	Energy	53%	59%	70%
	Peak	80%	103%	125%
SCE	Energy	52%	62%	72%
	Peak	77%	103%	126%
SDG&E	Energy	48%	53%	63%
	Peak	73%	103%	121%
Total IOUs	Energy	52%	60%	70%
	Peak	78%	103%	125%

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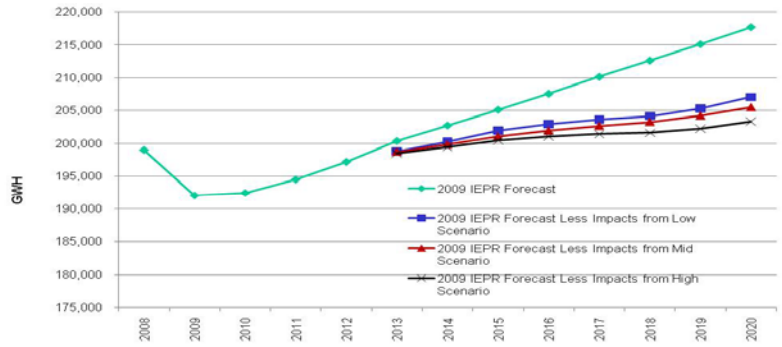
Incremental Uncommitted Savings Relative to 2009 IEPR Sales Forecast by Scenario, 3 IOUs Combined

5%-7% Reduction in 2020



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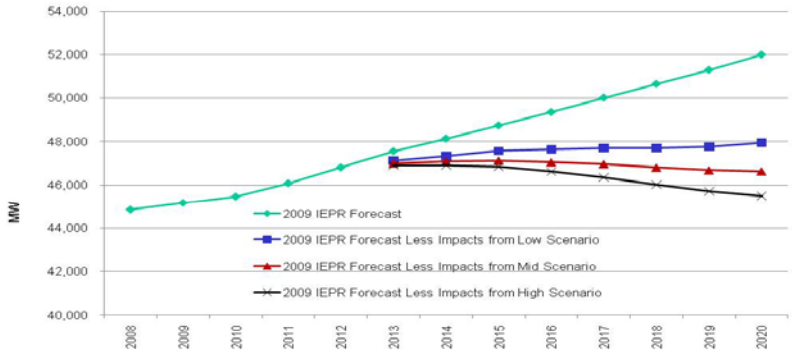
Incremental Uncommitted Savings Relative to 2009 IEPR Peak Forecast by Scenario, 3 IOUs Combined

8%-12% Reduction in 2020



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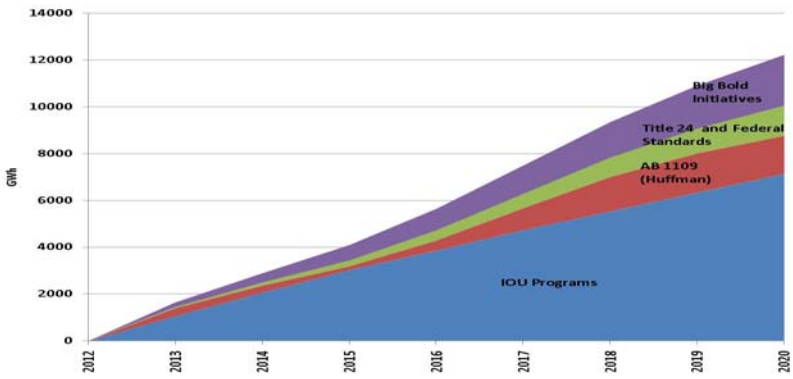
Distribution of Energy Incremental Uncommitted Impacts: Mid Scenario

IOU Programs account for 58% of total in 2020



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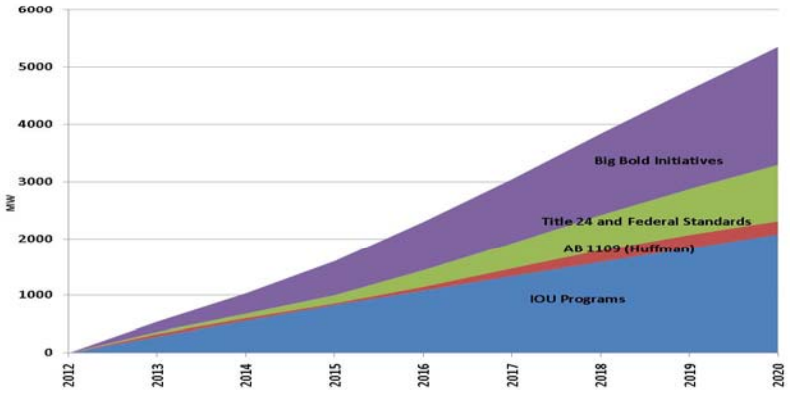
Distribution of Peak Incremental Uncommitted Impacts: Mid Scenario

Big Bold accounts for 38% of total in 2020



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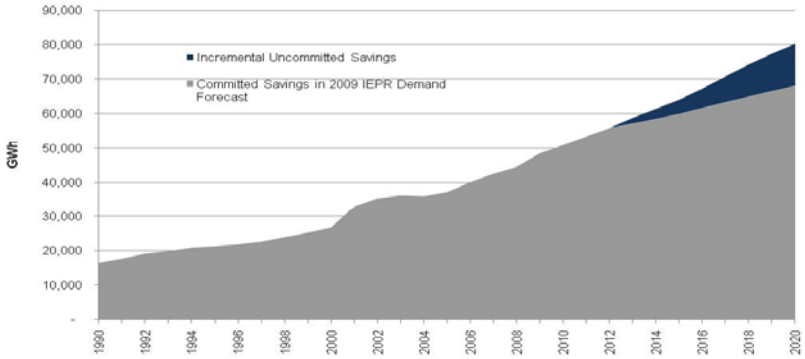
Comparison of Incremental Impacts in the Mid Scenario to Total *2009 IEPR* Committed Savings, 3 IOUs Combined



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Incremental Uncommitted Results and AB 32 Goals

- Not directly comparable, since AB 32 goals are statewide and use *2007 IEPR* forecast as reference
- However, can give rough comparison using the following information:
  - ARB Scoping Plan goal for 2020 is 32,000 GWh savings vs. *2007 IEPR* forecast
  - *2009 IEPR* has ~10,000 GWH more savings than *2007 IEPR*
  - Inc. uncommitted savings are 10,700-14,400 GWH in 2020
  - IOU service territories ~75% of statewide electricity sales
- So, incremental uncommitted savings projected to statewide total equal 65-90% of Scoping Plan goal

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