Integrated Resource Planning, Declining Loads and Energy Efficiency

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Models Used in IRPs

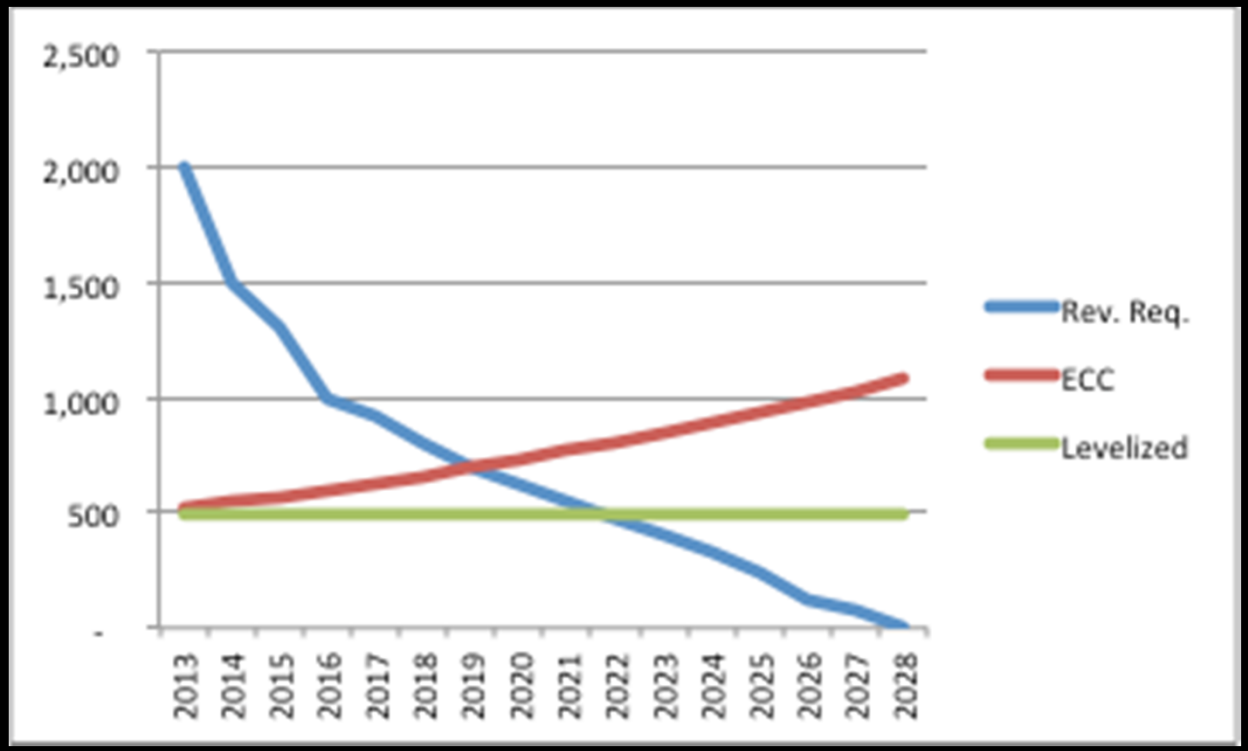
- Generally fall into two categories, capacity expansion or production costing
- Common models include:
  - Strategist (C)
  - System Optimizer (C)
  - Planning and Risk (P)
  - Promod (P)

Model Outputs Can Tell You...

- Projected generation by unit
- System and unit emissions including CO_2
- Revenue requirements by plant and in total
- Off-system sales/purchases
- Much more...

What the model might hide

- Actual trend of project costs to customers

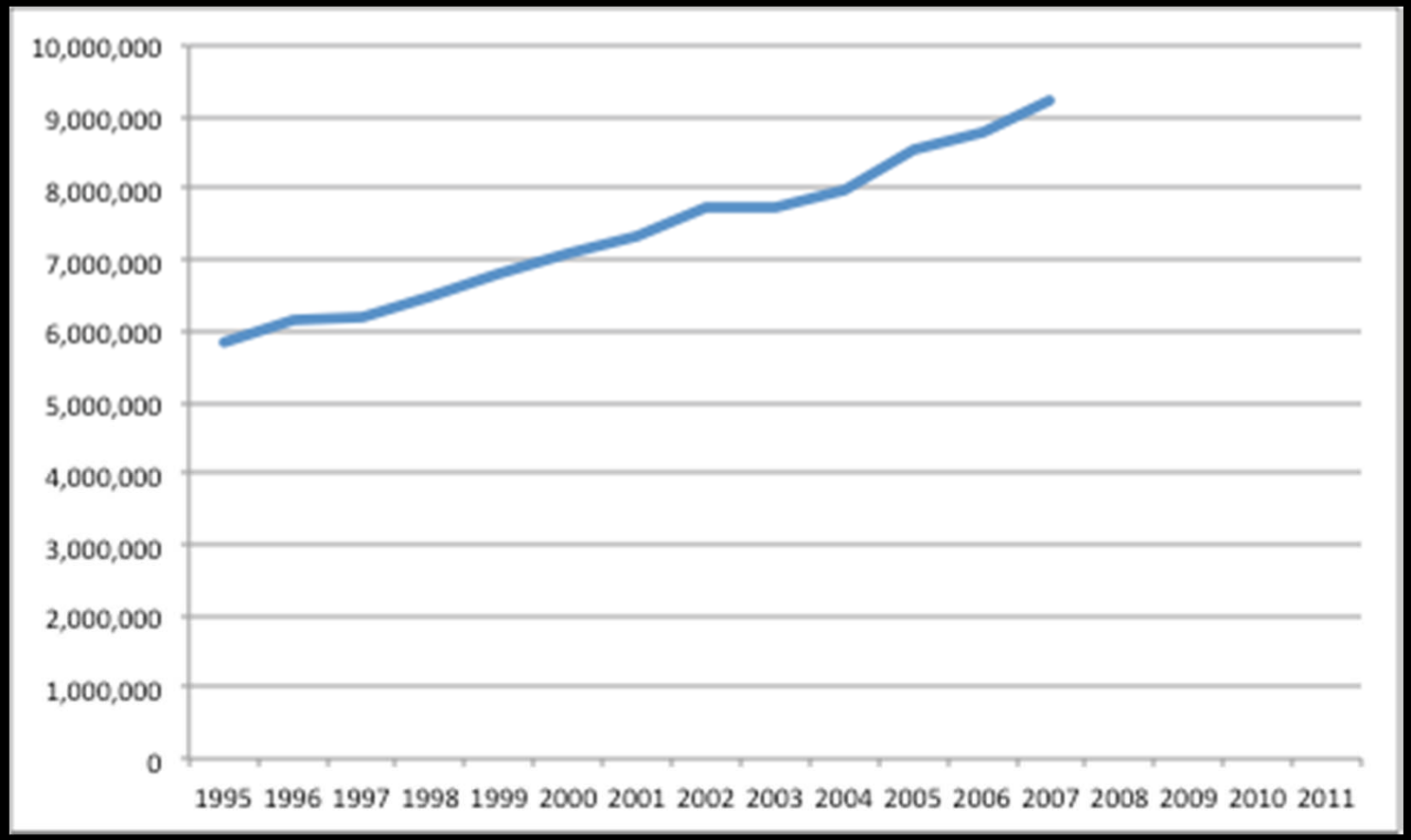


Modeling Load Forecasting Energy Efficiency

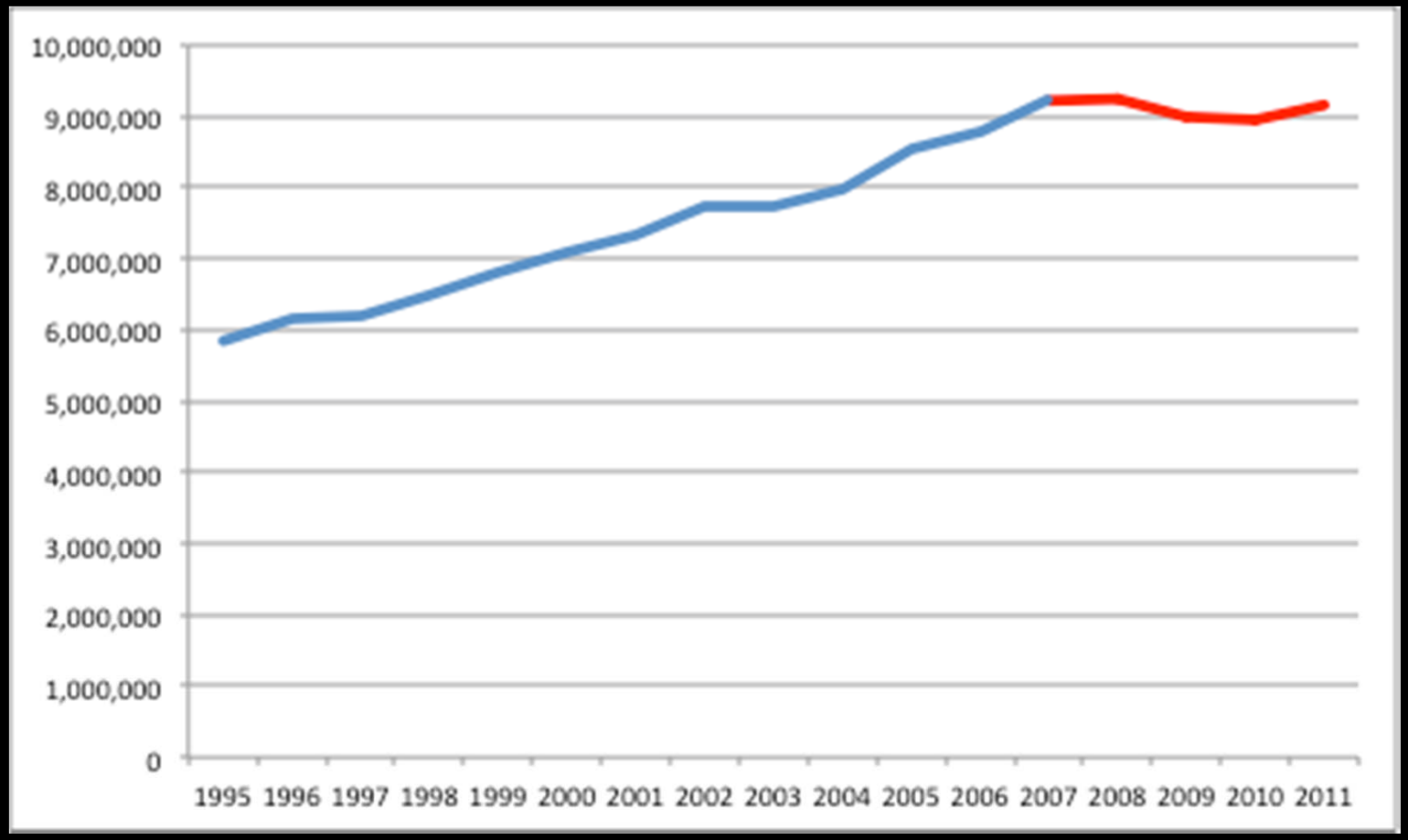
What the model might hide

- Actual trend of project costs to customers
- Underutilitization of units
- Expansion plan is “forced” in
- Off-system sales justify new capacity
- Many other possibilities...

Thru the Mid 2000's Many Utility Load Forecasts Looked Like This



But Then Suddenly This Happened....



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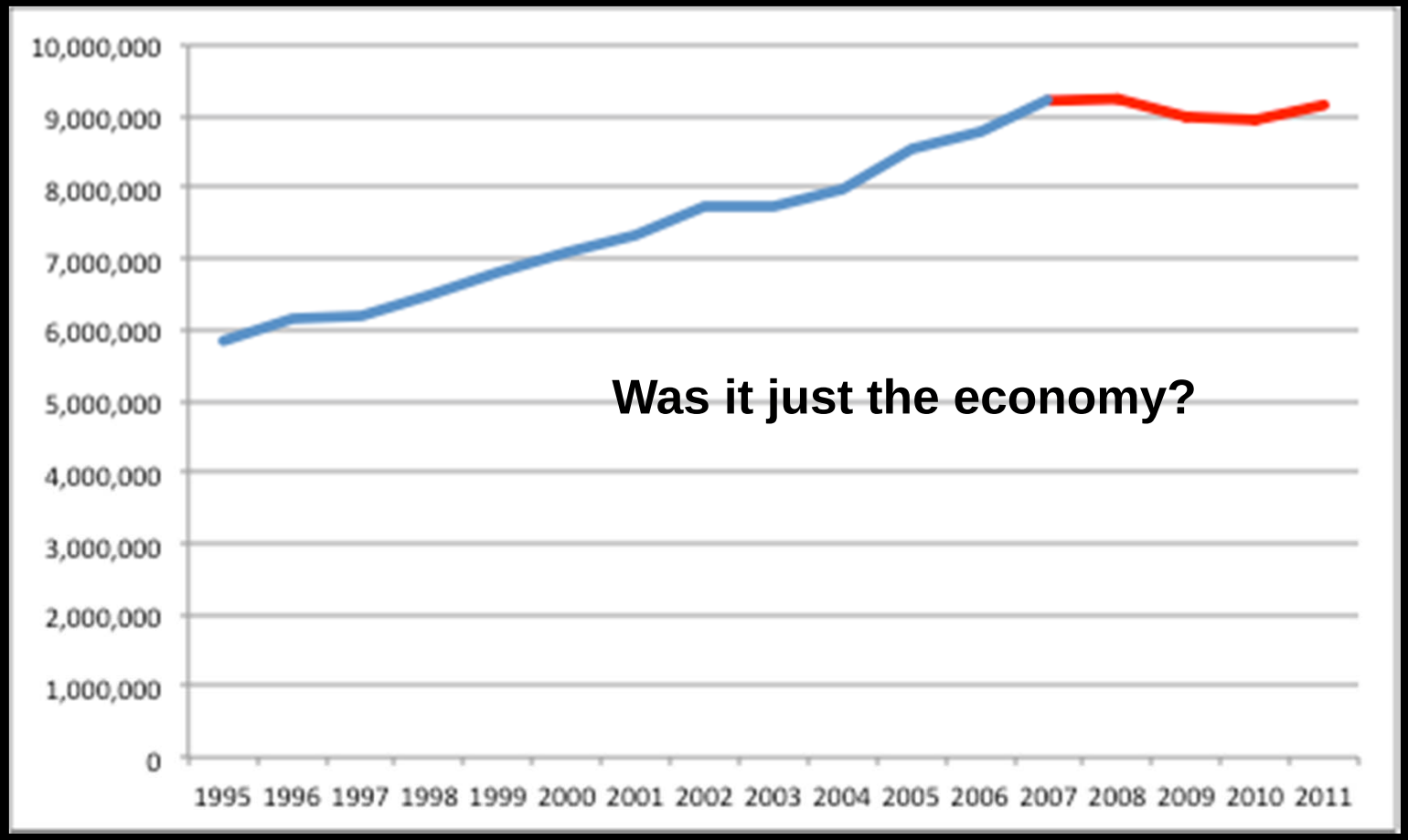
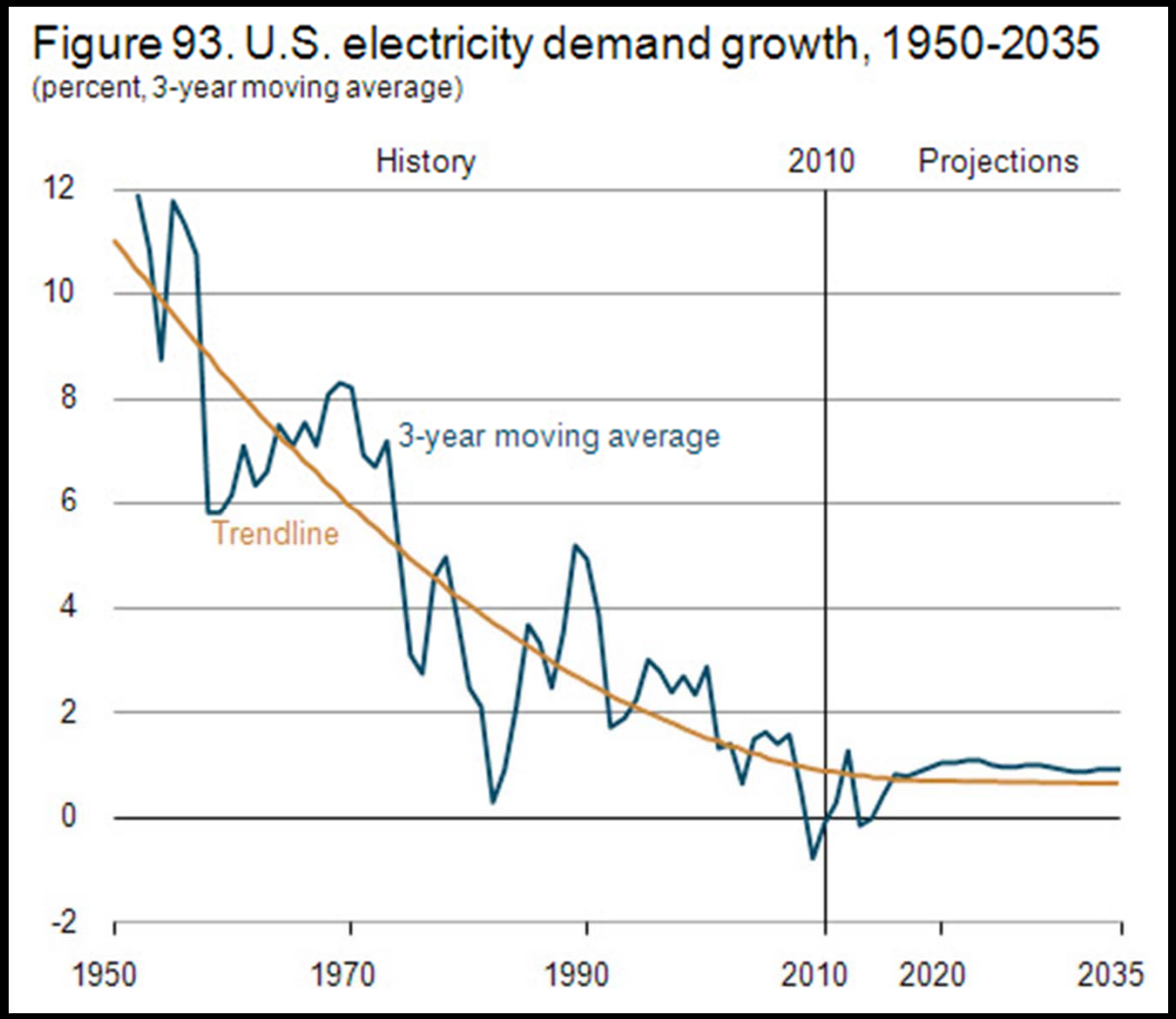


First Indication of Change…

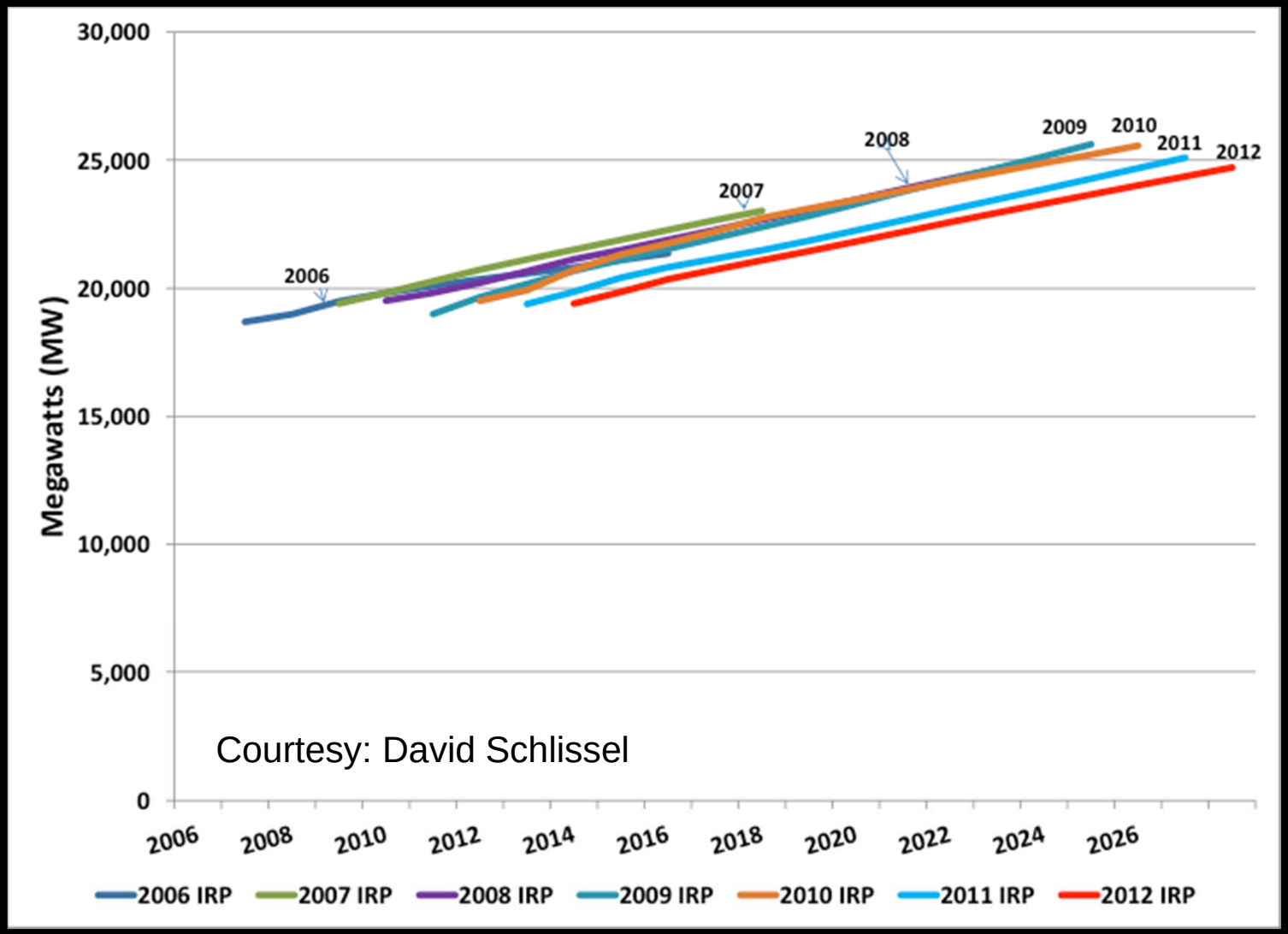


Modeling Load Forecasting Energy Efficiency

Then in Mid-2012...

- Statements on “structural changes” in demand from executives at AEP, Southern Company and Xcel Energy
- Report from Wood Mackenzie on *A Lost Decade of Demand Growth*
- Itron and Brattle Group say that declining rate of load growth is national phenomenon

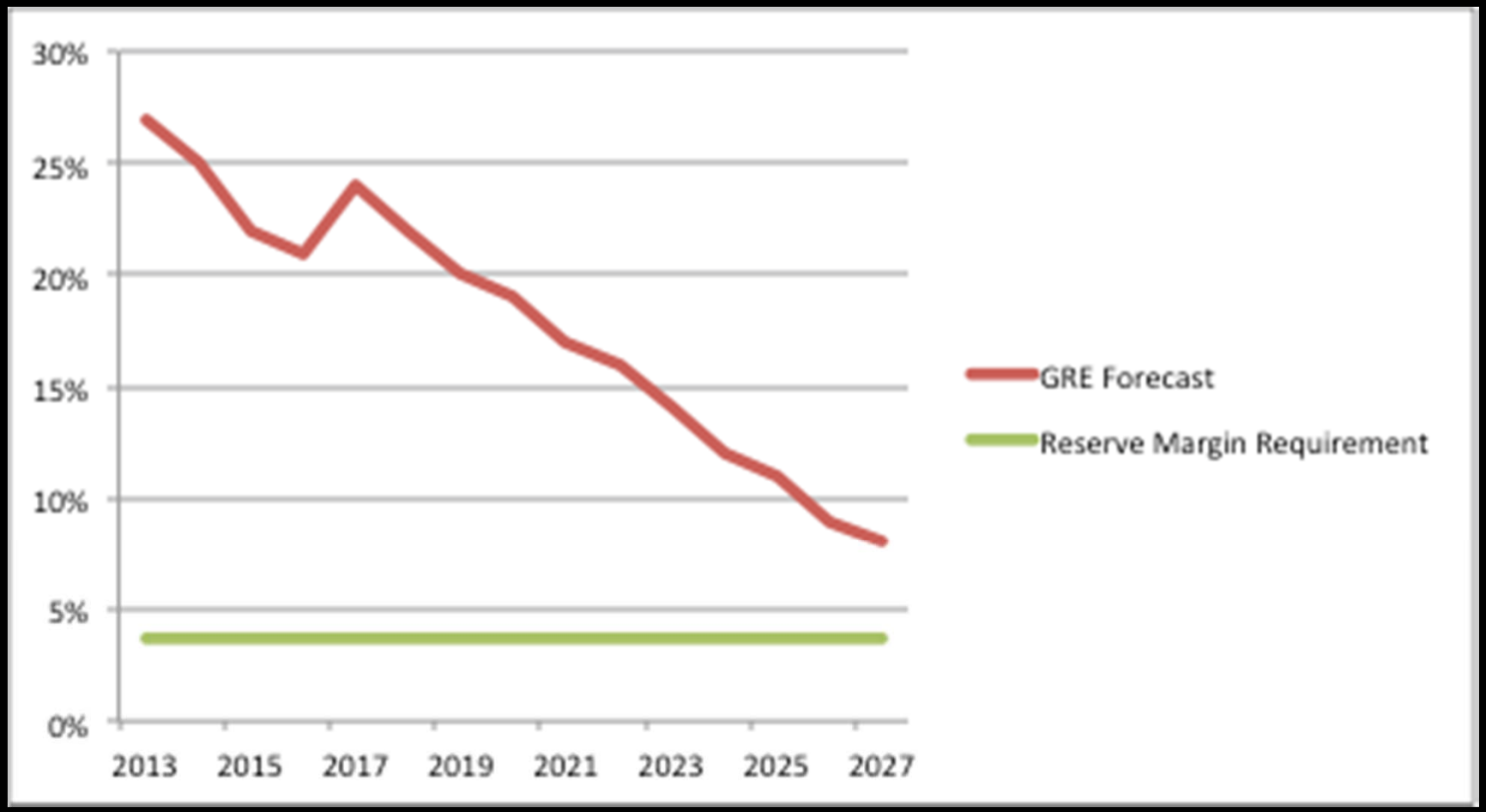
Dominion's Reaction is Typical...



Courtesy: David Schlissel

Modeling Load Forecasting Energy Efficiency

The Consequences: An Extreme (Hopefully) Example



Modeling Load Forecasting Energy Efficiency

What are the Causes?

- Utility energy efficiency programs
- Codes and standards
- Lingering economic woes
- Others?

What to Look Out For:

- Is the forecast adjusted for recently enacted codes and standards?
- Does the economic data match actuals? i.e., housing starts
- Is the economic data from Moody's.com?
- Is the trend justified by anything other than historical relationships?

How Does Energy Efficiency Fare in this New Era?

Utility	PURPA Avoided Cost (Rate per kWh)	IRP Model EE/DSM Benefit (Rate per kWh)	PURPA / Benefit
DEC (Study Period)	$0.055	$0.097	- 43%
PEC (Study Period)	$0.054	$0.113	- 52%
TVA	$0.035	$0.091	- 61%
Pacificorp (Utah)	$0.064	$0.087	- 26%
Avista (Washington)	$0.050	$0.088	- 31%

Courtesy: John Wilson

Avista Utilities, *2011 Electric Integrated Resource Plan* (August 31, 2011).
Avista Utilities, "Schedule 62: Small Power Production and Cogeneration Schedule," Washington Utilities and Transportation Commission, Docket UE-112001 (November 18, 2011).
PacifiCorp, *2011 Integrated Resource Plan,* Addendum (June 27, 2011).
Rocky Mountain Power, "Response to Utah Public Service Commission October 31, 2011 Order," Attachment B, Table 7, Docket No. 11-035-T06.
Sierra Club and Southern Alliance for Clean Energy, Initial Comments, Investigation of Integrated Resource Planning in North Carolina – 2012, North Carolina Utilities Commission Docket No. E-100, Sub 137 (Feb. 4, 2013).
Tennessee Valley Authority, "IRP Sensitivity Analysis," System Planning (March 31, 2011).

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- David Schlissel
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Questions?

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