Solutions To Texas Electric Reliability

by

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Philip Mosenthal and Optimal Energy

- **Optimal Energy (OEI)** is a recognized leader in energy efficiency planning, program design and analysis, particularly in the commercial, institutional, and industrial sectors. OEI is the chief architect of Efficiency Vermont, the nation's first and only *Efficiency Utility* which is recognized internationally as using one of the most innovative approaches to delivering energy efficiency education and savings to utility customers. OEI has designed and assisted in the implementation of "best practice" efficiency initiatives throughout the U.S., Canada and China. www.optenergy.com

- **Philip Mosenthal,** is a founding partner of Optimal Energy and an internationally recognized expert in efficiency with 24 years of experience in all aspects of energy efficiency and utility resource planning. Philip has designed numerous leading edge efficiency programs and portfolios, analyzed integrated efficiency and supply-side resources, and developed strategic models for large scale efficiency delivery. He is currently assisting China in ground-breaking work to develop and deploy "Energy Efficiency Powerplants" to defer the need for large scale investment in coal and nuclear plants.

Introduction

- Texas peak electric load is growing at 2.3% annually.
- Reliability criteria of 12.5% excess reserve may not be met in 2008 with current plans.
- TXU and others have proposed massive investment in new coal power plants.
- Optimal Energy — On Behalf of Natural Resources Defense Council and Ceres — analyzed an alternative to ensure reliability.
- Proven efficiency technologies and strategies offer a far better solution.

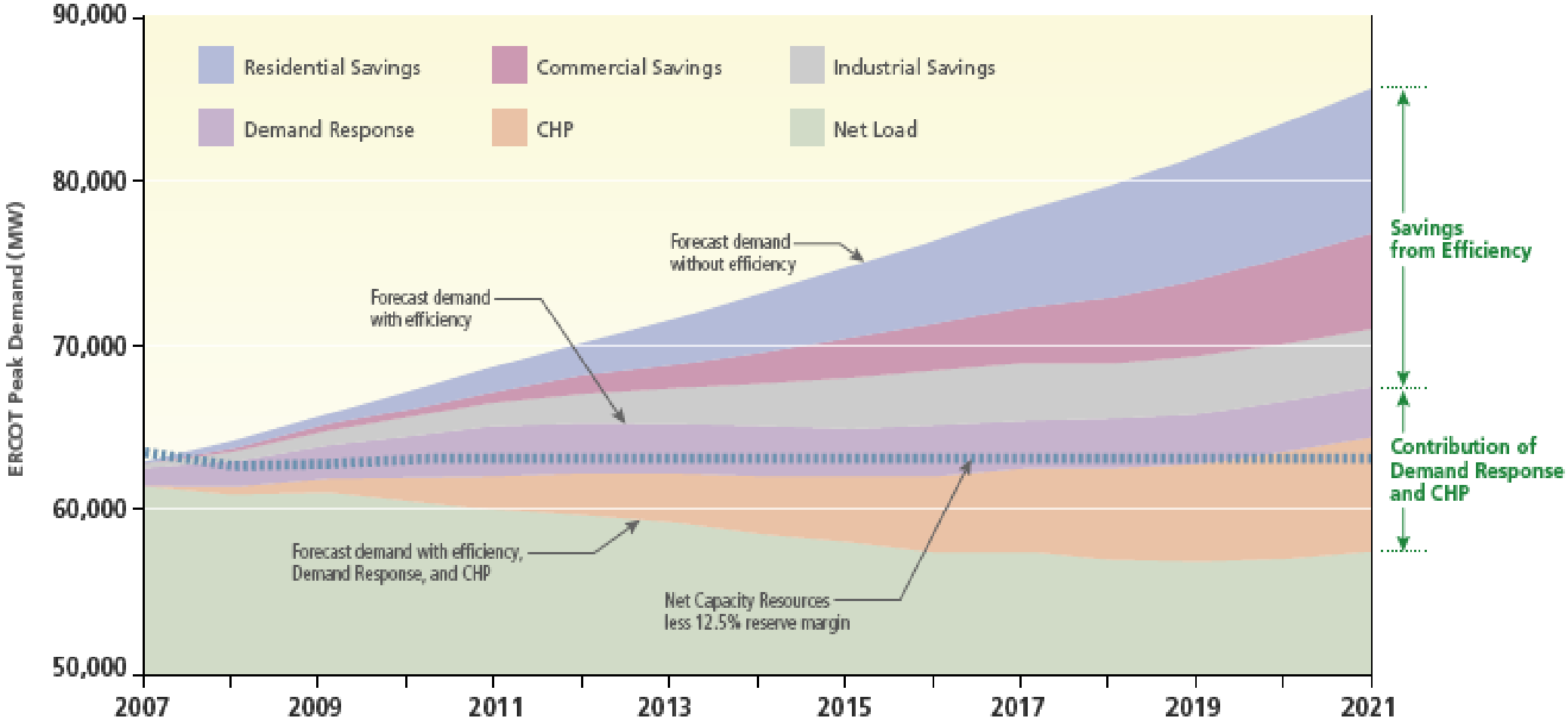
Texas Efficiency Opportunities

Efficiency:

- Eliminates 80% of all projected growth in electricity demand
- Costs 1/4 as much as traditional electric supply
- Returns $4 for every $1 invested
- Saves Texas $38 billion
- Improves the local economy and creates jobs
- Keeps Texas' air and water cleaner
- Helps avoid the need to build costly and polluting new coal plants
- Lowers long-term energy costs for consumers

Energy Efficiency, along with some other measures (DR, CHP), can *eliminate all growth in electric demand* over the next 15 years.

Effect of Demand-Side Resources on Forecast and Reserve Margin



What is Efficiency?

NOT Conservation = Lower level of service

Efficiency IS:

- Using energy smarter
- Same or better level of quality, reliability and service
- Improved comfort, aesthetics and productivity

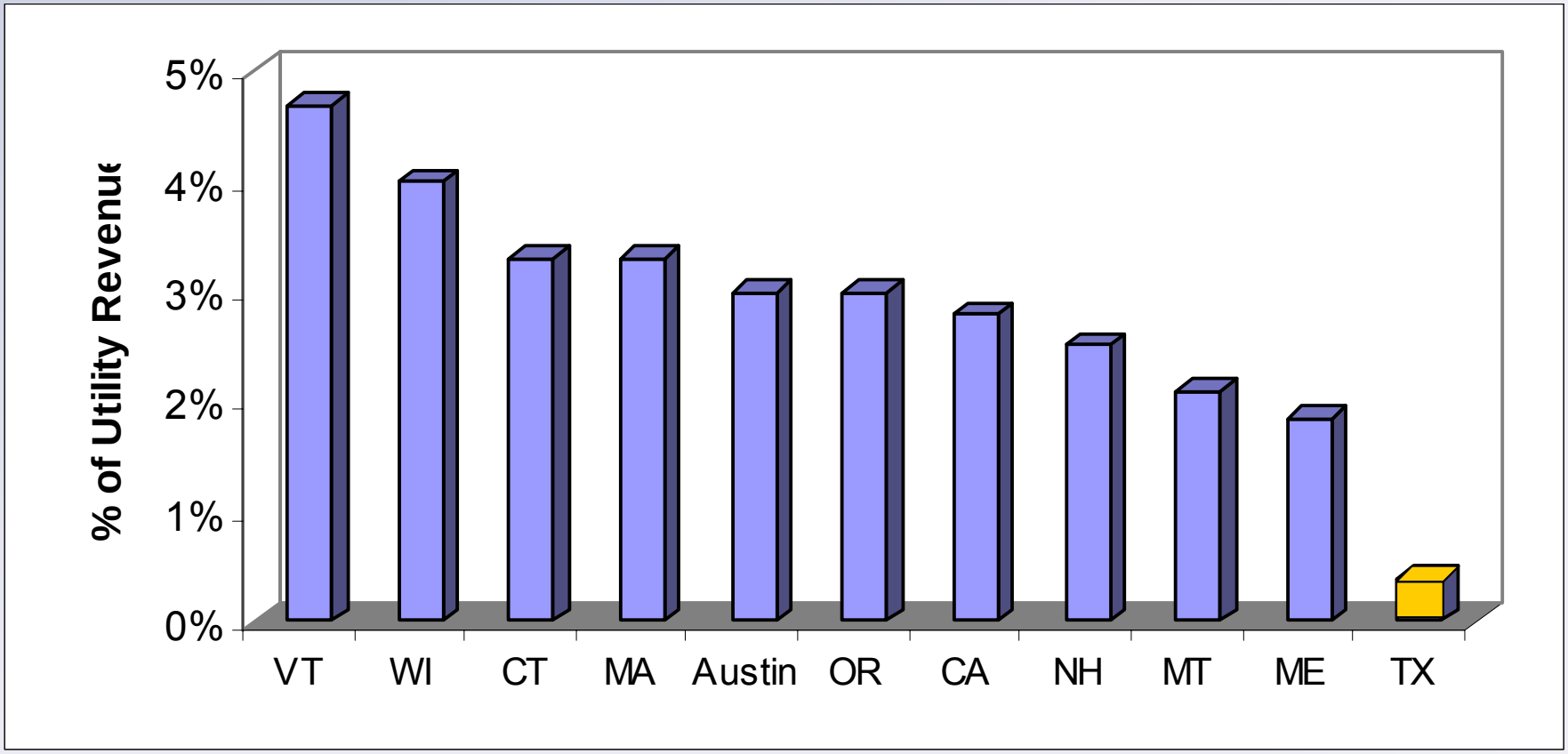
Texas 2005 Efficiency Accomplishments

	Funds Expended ($M)	Demand Savings (MW)	Energy Savings (MWh)	Levelized $/kWh Saved	$/kW Saved
2005	$80	181	508,604	$0.0136	$ 444

Source: Frontier Associates, 2006

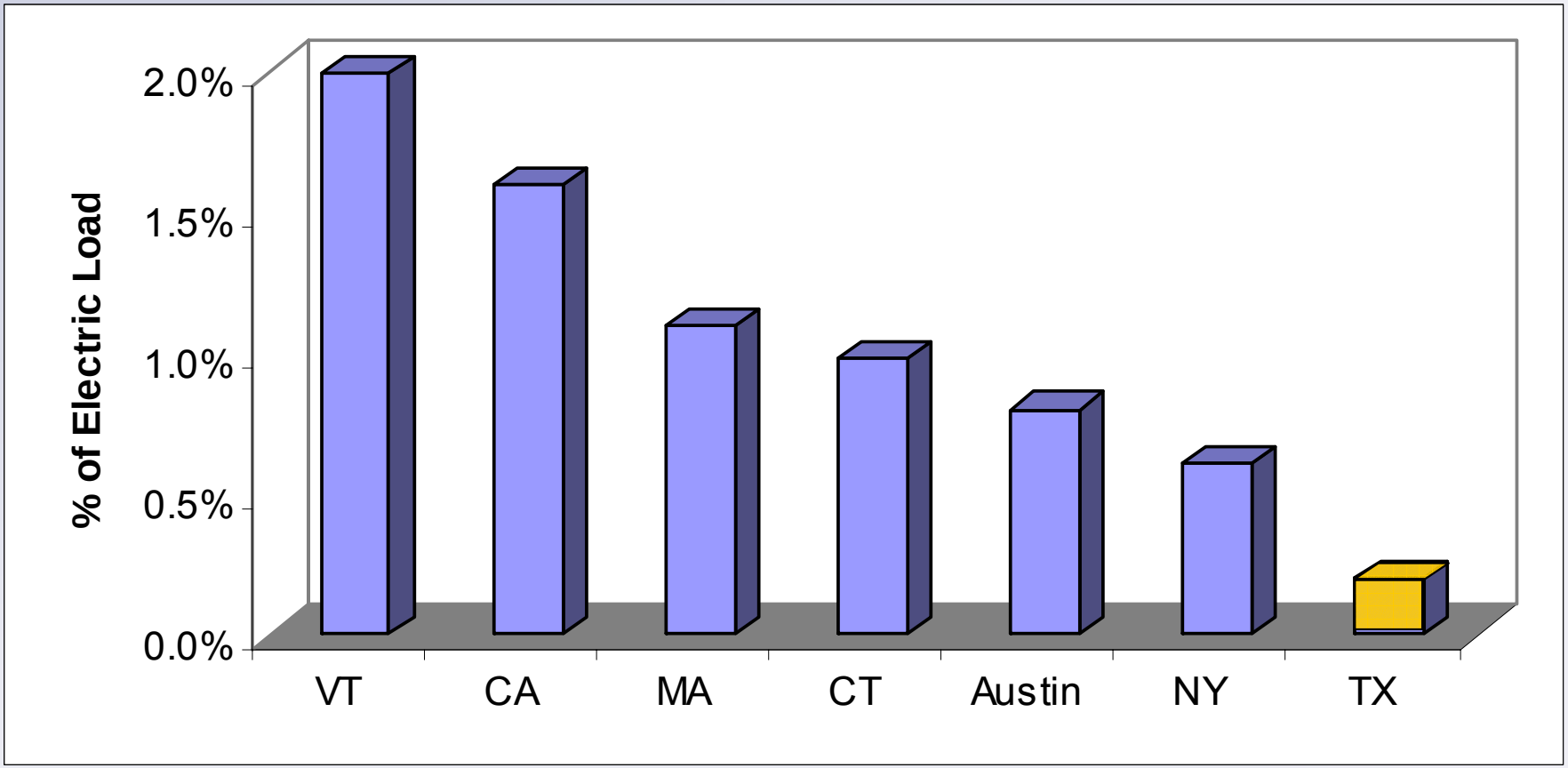
- Captured savings at less than ¼ the cost of electric supply. (current wholesale supply at about 7 cents/kWh).
- Peak demand savings at less than half the capital cost of new power plant capacity (TXU expects to spend about $1,100/kW)
- Expenditures and savings can be ramped up dramatically.

State Electric Efficiency Funding



- Data reflects either recent historic funding or planned levels as percent of revenue for those utilities participating in efficiency programs.
- VT planned funding 2008. CA data is for PG&E only. NY is for NYSERDA programs.
- States actual current funding may vary from that shown.
- Sources: Optimal Energy, EIA, ACEEE, WGA

State Electric Efficiency Savings



- Data reflects either recent historic or planned levels.
- VT projected savings goals with new funding in 2008. CA data is for PG&E only. NY is for NYSERDA programs only.
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Recommendations

- Expand Efficiency Resource Standard from 10% of load growth to 50-75%.
- Increase funding by utilities for efficiency programs.
- Enhance current building codes to match 2004 standards.
- Adopt appliance efficiency standards.
- Remove disincentives and provide incentives for efficiency.
  - Ensure utilities don't loose money with increased efficiency
  - Require utilities to analyze and pursue all efficiency that is lower cost than alternative supply
  - Allow utilities flexibility to optimize their efficiency investment portfolios

A Lower Risk Solution

Efficiency…

- can be ***ramped up or down*** as needed.
- ***follows the load***
- is a ***diversified*** resource
- ***faster*** than massive power plant permitting and construction
- is ***cheaper***
- is ***proven***
- ***kept the lights on in California***
  - Reduced peak load 14% in 1 year
  - Half of savings were permanent improvements.

Conclusions

An expanded efficiency effort is…

- Faster
- Cheaper
- Safer
- Cleaner

- **Smarter….**Texas can be a leader in Clean Energy Solutions