

## Reserve Margin Crisis? Coal Isn't the Right Answer for Texas.

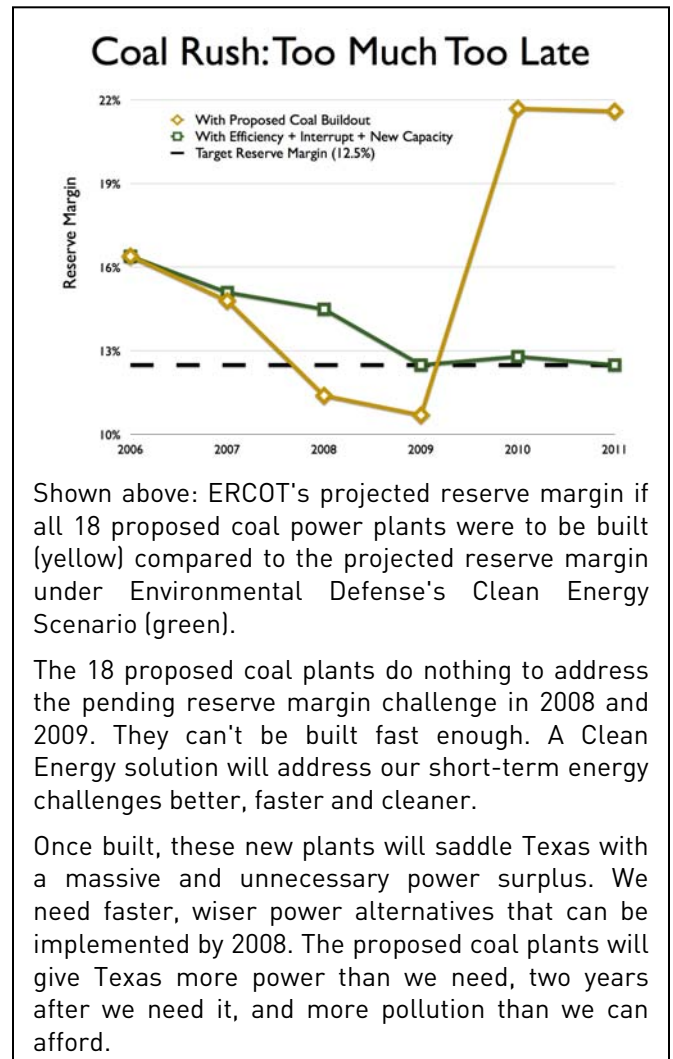
Among the most prominent arguments for the coal rush proposed in Texas has been the state's growing need for energy and the looming shortfall that energy experts have predicted over the next decade.

This "reserve margin" crisis has been misinterpreted and over-hyped. The State of Texas has failed to examine any energy option other than the building of 19 new coal plants. Environmental Defense conducted an analysis that shows that investing in energy efficiency measures and other proven demand-side measures offers Texas the best, fastest, cleanest and cheapest route to solving our short-term energy needs. Further, it illustrates how Texas can use such measures to reduce our long-term energy consumption and the need for new power plants.

There are four main problems with relying on new coal plants to answer Texas' energy challenge:

1. This exclusive focus on increasing supply by building coal plants fails to recognize the potential of energy efficiency and other demand-side measures which would save consumers money and can reduce the capacity gap by 2008 and 2009.
2. Coal plants take a long time to build. Assuming the most aggressive building schedule, none of these plants would be built until 2009 at the earliest. That means that Texas has no answer to the forecasted energy crunch in 2008 or 2009. By the time all the proposed plants come online, they will saddle Texas with a massive and unnecessary power surplus.
3. Coal is the dirtiest energy choice. Despite available clean technology, TXU and other companies have proposed old-style power plants that fail to use the most current emission control technology.
4. New coal plants will exacerbate Texas' standing as the number one global warming polluter. The kind of coal plants proposed for Texas is the worst choice when it comes to addressing global warming.

Neither the State of Texas nor the coal companies has offered a solution to the 2008-2009 peak reserve margin issue. Environmental Defense proposes a real solution to the short-term electricity problem faced by Texas. This proposal also alleviates the long term electricity needs of the state.



## Clean Energy Scenario – Faster, Cleaner, Cheaper

The analyzed Clean Energy scenario reduces the amount of peak demand through proven load-reduction programs. By increasing Texas' small yet successful energy efficiency programs fivefold and doubling the amount of interruptible load, Texas can keep the reserve margin above 12.5% in 2008 and 2009. This is an attainable goal. The current Texas energy efficiency program – reducing the projected load growth by 10% annually – is minimal. Reducing load growth by 50% is in line with the best practices identified in the National Action Plan for Energy Efficiency. Current state efficiency spending of roughly 0.4% of electric sales would be increased to a still-low 2%, which is consistent with the recommendation of the Western Governor's Association Energy Efficiency Task Force, of which Texas is a member.

This solution is quicker, cheaper and cleaner than the proposed coal plants. In addition to reducing peak demand enough to avoid five 700-megawatt (MW) plants by 2011, this scenario saves consumers money and strengthens Texas businesses. And it gives Texas time to plan more responsibly for our future energy needs.

There is no need to fast-track the proposed coal plants. Those plants won't help the short term margin problem, and they're not a responsible long-term solution. In this Clean Energy scenario, Texas would have to add only 700 MW of new generating capacity a year in 2010-2011 to keep the reserve margin at or above 12.5%. There are many responsible routes to that new capacity, including peak-load gas plants, combined heat and power projects like Austin's new Dell Children's Hospital and advanced coal technologies.

Texas has time to make the right choices about the way to meet this modest gap in generating capacity. The current fast-tracking proposal may be good for coal companies' profits, but it does nothing for our short term energy needs and is a dirty, irresponsible and gluttonous way to address our long term energy needs.

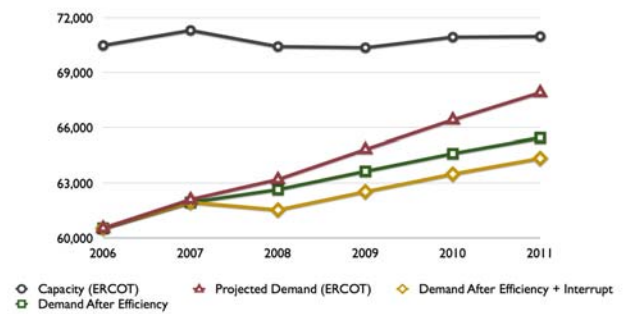
### Technical Background

The Electric Reliability Council of Texas (ERCOT) operates the electric grid carrying roughly 85% of the state's electric load. ERCOT's **reserve margin** is the percentage difference between available electric generating **capacity** and forecasted **peak demand**. The minimum reserve margin target for the ERCOT region is 12.5%, a level believed to ensure that adequate electric supply will be available in the event of extreme weather or unexpected loss of major generation units. ERCOT forecasts the reserve margin each year; the most recent forecast was in June 2006.

**Available capacity** is projected to remain around 71,000 MW in ERCOT's 2006-2011 forecast. Available capacity is mainly comprised of all existing power plants. Key exceptions include:

- Future generating plants are included only if they have signed interconnection agreements. The current reserve margin forecast includes only the following new generation: 550 MW from two new gas plants beginning in 2007 and 750 MW from the CPS Spruce 2 unit beginning in 2010.

### Wise Choices Reduce Demand Growth



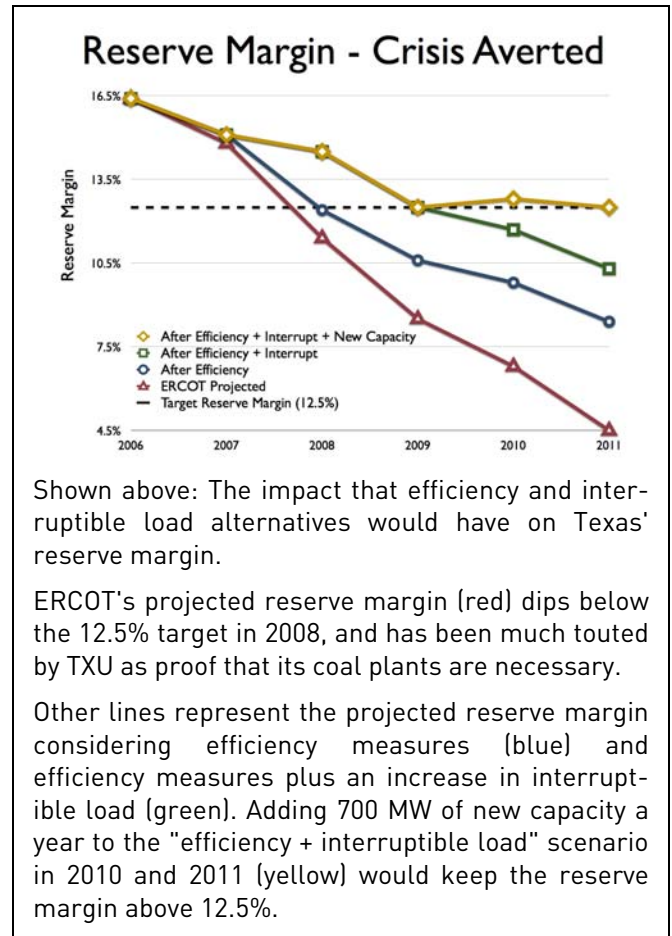
Shown above: The impact of demand reduction strategies on Texas' peak electricity demand through 2011. ERCOT's projected available capacity (gray) includes new capacity already permitted, but does not include the 18 proposed coal plants being considered today.

ERCOT's projected electricity demand (red) assumes a 2.3% a year increase. The green line represents future electricity demand if the efficiency measures discussed in this analysis were implemented. The yellow line represents the cumulative impact of implementing the efficiency measures AND doubling Texas' interruptible load.

By focusing on the demand side of the power equation, Texas can cut in half ERCOT's projected growth in demand. In 2011 alone, the amount of demand reduction is equivalent to avoiding the need for five 700 MW power plants.

- Only about 20% of the capacity from mothballed units is included based on probabilities provided by the owners that the mothballed capacity would return to service. About 7,000 MW out of 9,000 MW of mothballed capacity is currently projected to be unavailable through 2011.
- Wind plants are discounted by 97% based on historical average generation during peak demand hours.

**Peak demand** (or peak load) is the maximum amount of electricity used by all customers at a given time, typically occurring during 4-6 p.m. on a July or August afternoon. The highest recorded demand in ERCOT was 62,429 MW on August 17, 2006. ERCOT currently projects a load growth of 2.3% per year. ERCOT's peak demand forecast is based on an econometric model that uses long-term income and population trends for Texas and accounts for temperature variability. The reserve margin forecast reduces the predicted peak demand to account for so-called "Loads Acting as Resources" (LAAR), sometimes referred to as interruptible loads. Owners of LAARs have agreed to curtail those loads on short notice if ERCOT calls upon them to do so, typically when additional generation is lacking. Currently 1,100 MW of such interruptible loads are included in ERCOT's peak demand forecast.



Shown above: The impact that efficiency and interruptible load alternatives would have on Texas' reserve margin.

ERCOT's projected reserve margin (red) dips below the 12.5% target in 2008, and has been much touted by TXU as proof that its coal plants are necessary.

Other lines represent the projected reserve margin considering efficiency measures (blue) and efficiency measures plus an increase in interruptible load (green). Adding 700 MW of new capacity a year to the "efficiency + interruptible load" scenario in 2010 and 2011 (yellow) would keep the reserve margin above 12.5%.

## Energy Efficiency

Energy efficiency means the reduced use of energy to provide the same or improved level of service to the consumer. It refers to physical improvements (like a more efficient air conditioner) and not to lifestyle changes (like turning up individual thermostats). Environmental Defense proposes that Texas expand fivefold its successful energy efficiency programs so that the projected load growth would be cut in half. This would be in line with the best practices identified in the National Action Plan for Energy Efficiency, which found that well-funded and well-designed programs can offset up to 50% of expected energy growth.<sup>1</sup>

Current state efficiency spending is roughly 0.4% of electric sales.<sup>2</sup> This proposal would increase spending to roughly 2% of sales, which is consistent with the recent recommendation of the Western Governors' Association Energy Efficiency Task Force.<sup>3</sup>

The current efficiency programs in areas of Texas open to retail competition have resulted in a cumulative reduction in peak electric demand of 585 MW between 2002 and 2005.<sup>4</sup> This cut in demand has been achieved at a cost of about \$460 per kilowatt, which is much less expensive than the cost of building a new power plant and delivering that power to customers.<sup>5</sup> For example, TXU estimates the cost of its new coal-fired generating plants alone (without transmission and distribution costs) to be \$1,100 per kilowatt, although other companies project the cost of such plants to be even higher.

<sup>1</sup> National Action Plan for Energy Efficiency, July 2006, available at: <http://www.epa.gov/cleanenergy/actionplan/report.htm>

<sup>2</sup> Isser, Steve (September 2006). "Economic Review of the Texas Energy Efficiency Programs." Includes spending in areas open to retail competition only, which excludes municipally owned utilities and electric cooperatives.

<sup>3</sup> Western Governors' Association, Clean and Diversified Energy Initiative, Energy Efficiency Task Force Report, January 2006. Available at: <http://www.westgov.org/wga/initiatives/cdeac/Energy%20Efficiency-summary.pdf>. Note: Texas is a member of the WGA.

<sup>4</sup> Isser, S. (September 2006).

<sup>5</sup> Ibid.

The assumptions we used in our efficiency scenario were:

- Average Annual Projected Load Growth in ERCOT 2006-2011 = 1476 MW (2.3%, includes continued savings from current efficiency programs)
- Estimated Annual Load Growth in ERCOT 2006-2011 without current efficiency programs = 1586 MW (10% efficiency programs apply only in areas with retail competition, which account for 74% of total ERCOT demand)
- A 3-year ramp-up of the existing Energy Efficiency goal from 10% to 50% of Load Growth

### **Interruptible Load**

Interruptible loads are those that can be curtailed in real time if called upon to do so. This typically occurs during periods of extreme peak demand such as hot summer days, or days when demand is lower but too many generating plants are not in service due to maintenance. Interruptible loads are usually owned by industrial and large commercial or institutional users. Currently, 1,100 MW of interruptible loads are included in ERCOT's peak demand forecast. That could be much higher, however. Before 2000, for example, approximately 3,200 MW of load was served under interruptible tariffs.<sup>6</sup>

Our proposal is to double the amount of interruptible load available within ERCOT from 1,110 MW to 2,200 MW. An ERCOT subcommittee is currently developing an Emergency Interruptible Load Program (EILP) of 1,000 MW, but ERCOT says it will not factor this load into the reserve margin calculation. If the additional interruptible load being developed under the EILP is truly reliable, as it should be in order for it to meaningfully increase the reliability of our electric grid, then it should be counted toward the reserve margin.

We also encourage the statewide expansion of Austin Energy's "Power Partner" program, which is an interruptible load program targeted at small electric users. More than 50,000 residential and small business customers have received a free programmable thermostat with free installation. In return they agreed to allow Austin Energy to cycle off their air conditioners for brief periods during peak demand days (no more than 10 minutes every half hour). The program has reduced peak demand by 40-50 MW.<sup>7</sup> Expanding this program throughout the state could eliminate the need for at least one coal-fired power plant.

### **For More Information:**

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<sup>6</sup> "Report of the Generation Adequacy Task Force to The ERCOT Technical Advisory Committee: The ERCOT Reserve Margin Calculation," May 23, 2005, p. 6.

<sup>7</sup> Austin Energy 2004 Annual Report; with updates from Fred Yebra, personal communication October 2006.