The information presented here reflects EPA's modeling of the Clear Skies Act of 2002. The Agency is in the process of updating this information to reflect modifications included in the Clear Skies Act of 2003. The revised information will be posted on the Agency's Clear Skies Web site (www.epa.gov/clearskies) as soon as possible.

CLEAR SKIES IN TEXAS [1]

Human Health and Environmental Benefits of Clear Skies: Clear Skies would protect human health, improve air quality, and reduce deposition of sulfur dioxide (SO_2), nitrogen oxides (NO_x), and mercury.[2]

- Beginning in 2020, approximately $3 billion of the annual benefits of Clear Skies would occur in Texas. Every year, these would include:
  - over 300 fewer premature deaths;
  - approximately 300 fewer cases of chronic bronchitis;
  - approximately 19,000 fewer days with asthma attacks;
  - over 400 fewer hospitalizations and emergency room visits;
  - over 76,000 fewer days of work lost due to respiratory symptoms; and
  - over 610,000 fewer total days with respiratory-related symptoms.

Clear Skies Benefits Nationwide

- In 2020, annual health benefits from reductions in ozone and fine particles would total $93 billion, including 12,000 fewer premature deaths, far outweighing the $6.49 billion cost of the Clear Skies program.
- Using an alternative methodology results in over 7,000 premature deaths prevented and $11 billion in benefits by 2020—still exceeding the cost of the program.[3]
- Clear Skies would provide an additional $3 billion in benefits due to improved visibility in National Parks and wilderness areas in 2020.

- Currently, there is 1 county (Harris County) that is not expected to meet the annual fine particle standard in Texas and 12 counties that are not expected to meet the 8-hour ozone standard.
  - However, based on initial modeling, by 2020 Dallas county is projected to exceed the annual fine particle standard under the existing Clean Air Act.[4]

- By 2020, based on initial modeling, Clear Skies would:
  - bring Dallas county (population over 2 million) into attainment with the annual fine particle standard;
  - bring Brazoria county (population approximately 250,000) into attainment with the 8-hour ozone standard;
  - moderate the projected increase in fine particle concentrations in Harris county (population approximately 3.5 million) under the existing Clean Air Act; however Clear Skies would not bring Harris county into attainment with the standard; and
  - reduce ozone concentrations in Galveston and Harris counties.

- The other counties in Texas are expected to come into attainment with the fine particle and ozone standards under the existing Clean Air Act by 2020. Clear Skies would, however, achieve additional reductions in fine particles and ozone in those counties that will further protect human health.

- Clear Skies delivers numerous environmental benefits by 2020:
  - visibility would improve up to 1 deciview throughout most of the state (a change of 1 deciview is a perceptible change in visibility);
  - sulfur deposition would decrease by up to 30%; and
  - nitrogen deposition would be reduced by up to 30% in eastern portions of state and by up to 15% throughout the rest of the state.

[1] The projected impacts are the results of extensive emissions and regional air quality modeling and benefits analyses as summarized in the *Technical Addendum: Methodologies for Benefit Analysis of the Clear Skies Initiative, 2002*. While the policy analyses tools EPA used are among the best available, all such national scale policy assessments are subject to a number of uncertainties, particularly when projecting air quality or environmental impacts in particular locations.

[2] All human health and environmental benefits are calculated in comparison to existing Clean Air Act programs.

[3] The two sets of estimates reflect alternative assumptions and analytical approaches regarding quantifying and evaluating the effects of airborne particles on public health. All estimates assume that particles are causally associated with health effects, and that all components have the same toxicity. Linear concentration-response relationships between PM and all health effects are assumed, indicating that reductions in PM have the same impact on health outcomes regardless of the absolute level of PM in a given location. The base estimate relies on estimates of the potential cumulative effect of long-term exposure to particles, while the alternative estimate presumes that PM effects are limited to those that accumulate over much shorter time periods. All such estimates are subject to a number of assumptions and uncertainties. It is of note that, based on recent preliminary findings from the Health Effects Institute, the magnitude of mortality from short-term exposure (alternative estimates) and hospital/ER admissions estimates (both estimates) may be overstated. The alternatives also use different approaches to value health effects damages. The key assumptions, uncertainties, and valuation methodologies underlying the approaches used to produce these results are detailed in the *Technical Addendum* noted above.

[4] To permit comparisons among various analyses, the air quality data used in this analysis was fixed as the most complete and recently available as of mid-2001 (1997-1999 ozone monitoring data and 1999-2000 PM2.5 data). More complete and more recent air quality data for ozone and fine particles (1999-2001 data) indicates some differences in the likely attainment status of some counties. Future analyses of Clear Skies will incorporate the most recent data available.

Changes in Emissions Under Clear Skies: Clear Skies is projected to result in significant emissions reductions from power generators by 2020.

- In Texas, Clear Skies is projected to significantly reduce emissions from power generators by 2020 (relative to 2000 emissions):
  - SO_2 emissions would be reduced by 39%;
  - NO_x emissions would be reduced by 60%; and
  - mercury emissions would be reduced by 69%.

Nationwide Emissions under Clear Skies in 2020

- SO_2 emissions from power generators are projected to be 3.9 million tons (a 65% reduction from 2000 levels).
- NO_x emissions are projected to be 1.7 million tons (a 67% reduction from 2000 levels).
- Mercury emissions are projected to be 18 tons (a 63% reduction from 2000 levels).
- At full implementation, the emission reductions would be 73% for SO_2, 67% for NO_x, and 69% for mercury.

Figures 1a, 1b and 1c. *Existing Clean Air Act Regulations (base case[5]) vs. Clear Skies in Texas in 2010 and 2020*

Figure 1a. SO_2

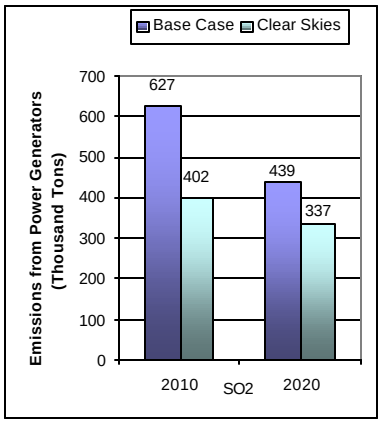


Figure 1b. NO_x

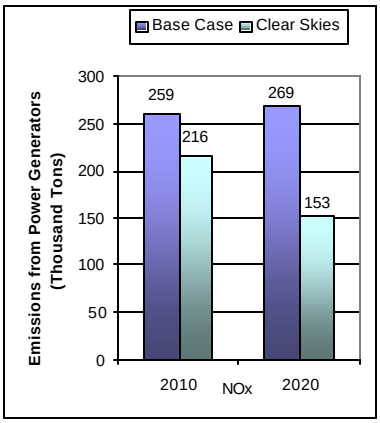
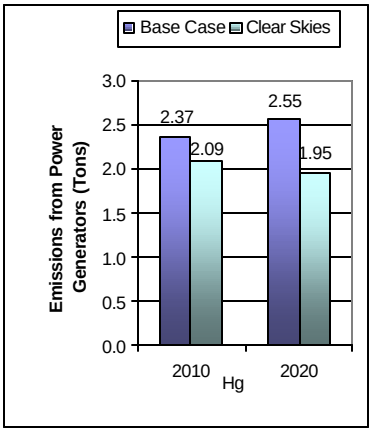


Figure 1c. Mercury



- Emissions rates in Texas in 2010 and 2020:

Table 1. *Projected Emissions Rates in 2010 and 2020 in Texas From Power Generators*

Year		SO_2	NO_x			Hg
		Coal	All	Coal	Gas	Coal
		lbs/MMBtu	lbs/MMBtu	lbs/MMBtu	lbs/MMBtu	lbs/TBtu
2010	Base Case	0.93	0.17	0.20	0.15	3.50
	Clear Skies	0.61	0.15	0.18	0.12	3.18
2020	Base Case	0.63	0.14	0.21	0.10	3.64
	Clear Skies	0.56	0.09	0.11	0.08	3.25

Costs: Nationwide, the projected annual costs of Clear Skies (in $1999) are $3.69 billion in 2010 and $6.49 billion in 2020.[6]

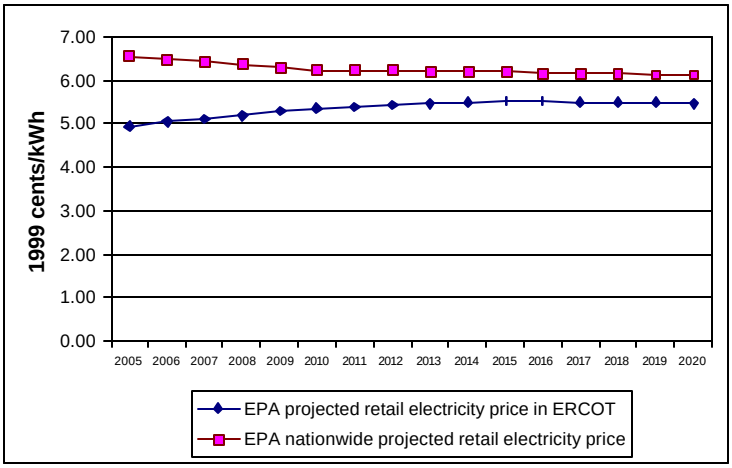
[5] The base case includes Title IV, the NO_x SIP call and State-specific caps in CT, MO and TX. It does not include mercury MACT in 2008 or any other potential future regulations to implement the current Clean Air Act.

[6] EPA uses the Integrated Planning Model (IPM) to project the economic impact of Clear Skies on the power generation sector. IPM disaggregates the power generation sector into specific regions based on properties of the electric transmission system, power market fundamentals, and regional environmental regulations. These regions do not conform to States or EPA region boundaries making some compliance options, such as dispatch, and associated costs impractical to differentiate at a State or Regional level.

Changes in Projected Retail Electricity Prices Under Clear Skies: Electricity prices in Texas would not be significantly affected by Clear Skies.

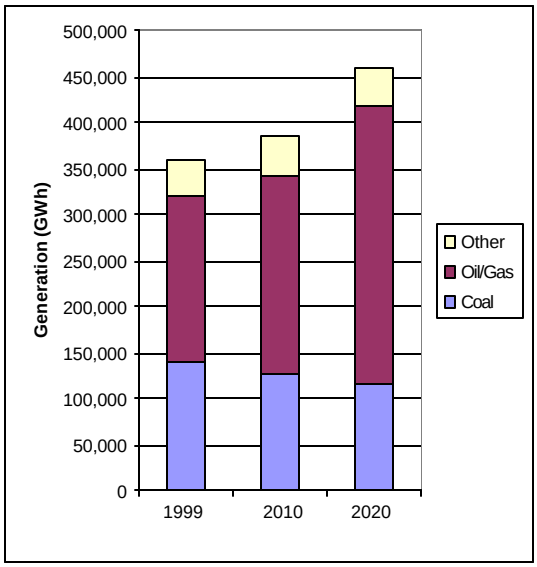
- In 1999, the average retail electricity price in Texas was approximately 6.04 cents/kWh, which was slightly below the average *national* retail price of approximately 6.66 cents/kWh.[7] As shown in Figure 3, retail prices in ERCOT (one of the North American Electric Reliability Council (NERC) regions that contain Texas[8]) are projected to increase and remain below the national average between 2005 and 2020.[9]

***Figure 2**. Projected Retail Electricity Prices in ERCOT under Clear Skies (2005-2020)*



Generation in Texas Under Clear Skies: Coal-fired power plants currently produce 39% of the electricity generated in Texas. This contribution of coal-fired generation would decrease in Texas under Clear Skies to approximately 33% by 2010 and 25% by 2020.

***Figure 3**. Current and Projected Generation by Fuel Type in Texas under Clear Skies (GWh)*[10]



[7] Source: 1999 EIA data available at http://www.eia.doe.gov/cneaf/electricity/page/fact_sheets/retailprice.html
[8] Texas falls under NERC regions ERCOT, SPP, SERC, and WSCC/Rocky Mountains. The region shown in the graph represents the largest capacity share of the state.
[9] State-level retail electricity prices vary considerably across the United States. Variation in prices can be caused by many factors including access to low cost fuels for generating power, State taxes, and the mix of power plants in the States.
[10] Source: 1999 data from EIA at http://www.eia.doe.gov/cneaf/electricity/st_profiles/texas/tx.html#t5 (Table 5).

- EPA does not project that any facilities in Texas would switch from coal to natural gas in response to the Clear Skies emissions caps. Instead, sources in Texas would reduce their emissions through the installation of control technologies.
  - By 2010, coal-fired capacity in Texas is projected to be approximately 19,400 MW under Clear Skies. Approximately 9,300 MW of Texas's coal capacity is projected to install Selective Catalytic Reduction (SCR) and 2,000 MW are projected to install scrubbers.
  - Between 2010 and 2020, an additional 4,600 MW are projected to install SCR and 200 MW are projected to install scrubbers.

- 66% of Texas's coal-fired generation is projected to come from coal units with emission control equipment in 2010, and 76% in 2020.[11]

Coal Production in Texas: Texas currently produces approximately 5% of the nation's coal supply, and has about 3% of the nation's coal reserves.[12]

- EPA projects a *nationwide* 7.2% increase in coal production by 2020, relative to 2000. Preliminary analysis shows a 48% increase in total coal production in the Interior between 2000 (145 million tons) and 2020 (214 million tons).[13]

- Based on preliminary analysis, EPA projects a slight increase in jobs by 2020 in the Interior relative to the base case.

Major Generation Companies in Texas: The ten largest plants in the State -- each over 1,500 MW -- are a combination of nuclear, coal-, petroleum- and gas-fired units. The major generation companies include: TXU Electric Co., Reliant Energy HL&P, Central Power and Light Co., San Antonio Public Service Bd, and Entergy Gulf States, Inc.

[11] Emissions control equipment includes, where applicable, scrubbers, selective catalytic reduction, selective non-catalytic reduction, gas-reburn and activated carbon injection.
[12] Source: 2000 Coal Industry Annual, Tables 1 and 33.
[13] Because coal supply regions generally do not confirm to State boundaries, it is impractical to project coal production at a State-level.