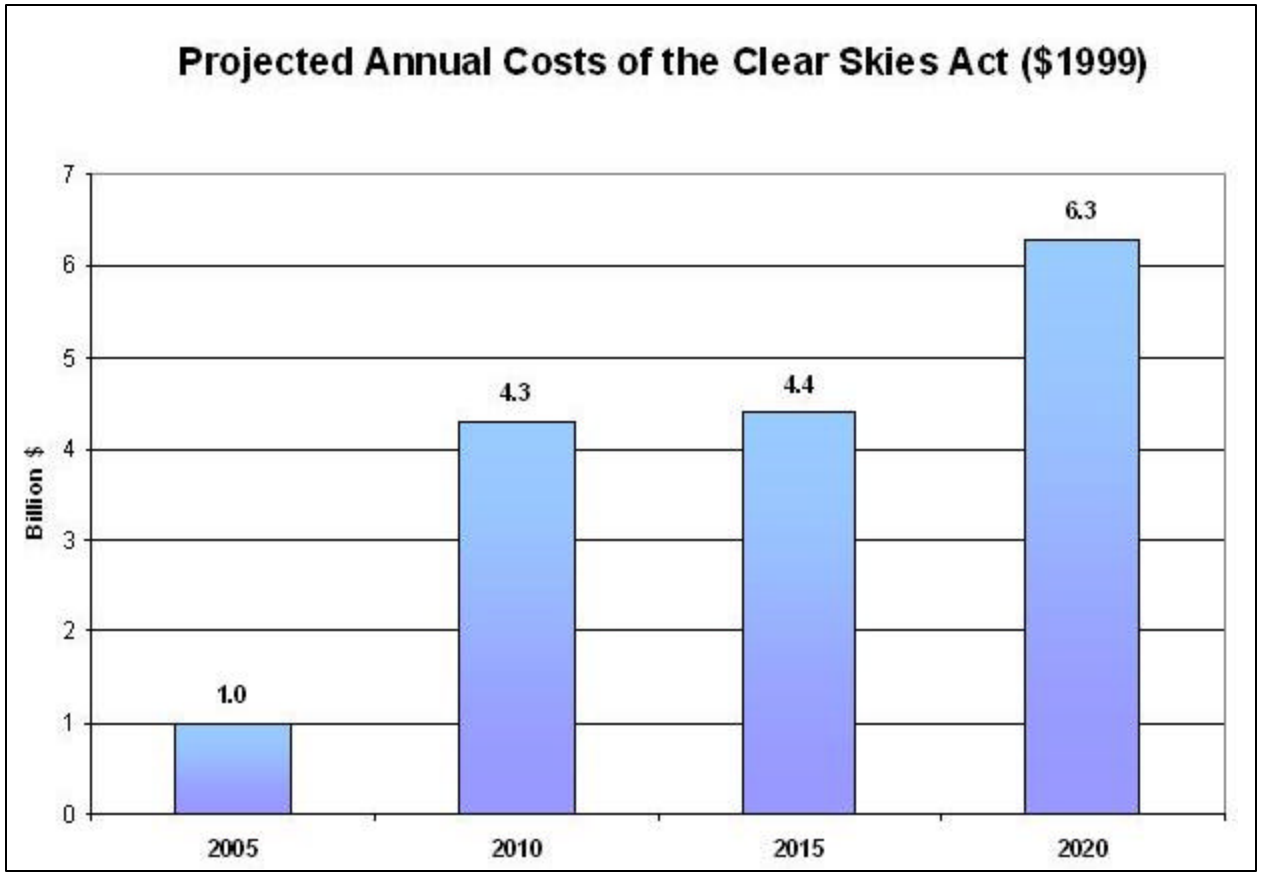
Section C:

Projected Costs

Projected Annual Costs of the Clear Skies Act



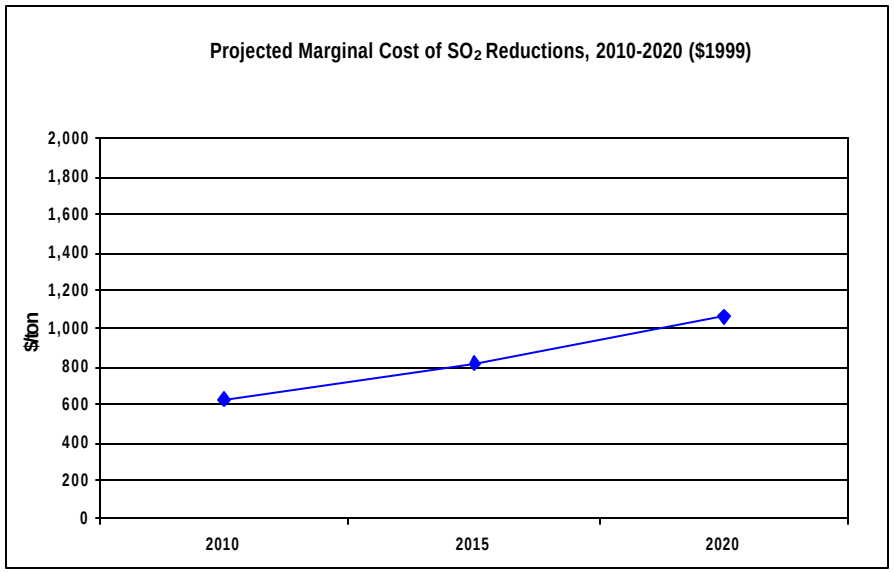
- Total annual costs of the Clear Skies Act are projected to be $6.3 billion ($1999) in 2020.
- The net present value (NPV) of the difference in costs between Clear Skies and the EPA Base Case is $52.5 billion ($1999) for the period between 2005 and 2025.
- The 2003 analysis projects annual costs slightly lower than projected by the 2002 analysis.

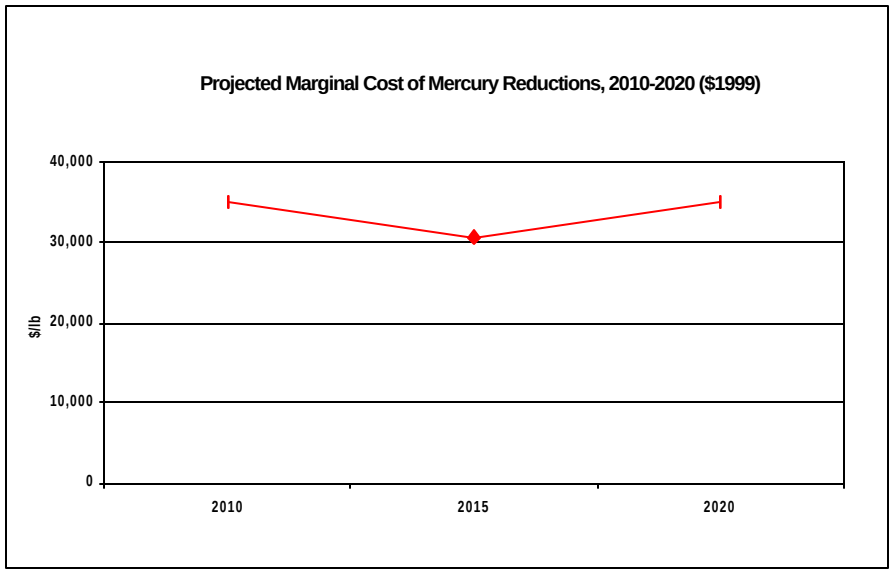
Note: Cost projections are based on modeling using IPM and are based on best available engineering estimates. These projections show the costs to power generators over and above the costs they will incur to meet statutory and regulatory requirements that are already in effect. The projections do not include costs associated with the purchase of allowances from the auction. Nor do the projections consider future technological changes that could lower compliance costs or electric demand response that would lower costs through reduced power generation. In the absence of Clear Skies legislation, there are existing statutory provisions that will, in the future, require EPA and states to impose additional requirements (and thus additional costs) on power generators between now and 2020 (e.g., states will be required to meet the PM2.5 and ozone NAAQS). When compared to existing Clean Air Act requirements, Clear Skies may actually result in cost savings because a cap-and-trade approach is more efficient than existing regulatory programs. When the Acid Rain Program was implemented using a cap-and-trade program, compliance costs to achieve the mandated reductions were significantly lower than predicted as sources took advantage of the flexibility provided by a cap and trade program.

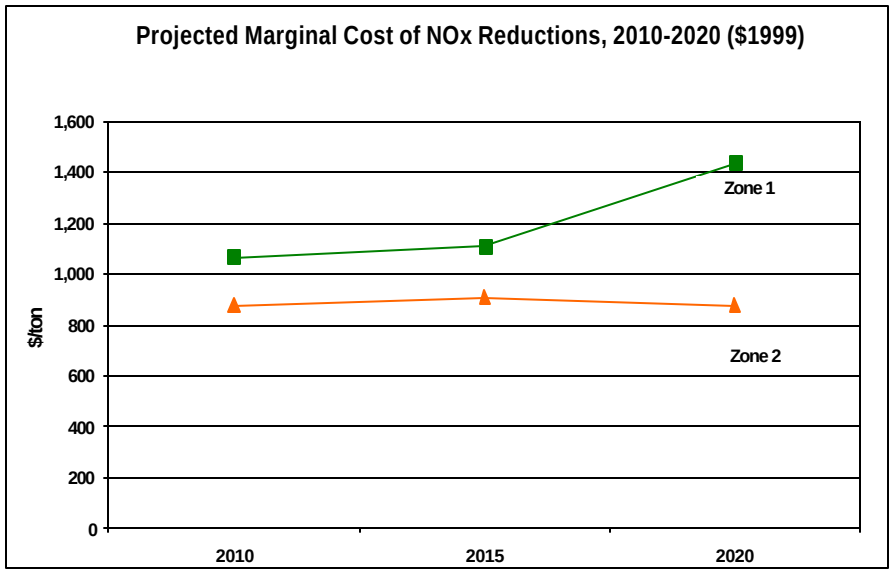
Note: EPA's net present value calculation is based on annual costs from IPM and cover the years 2005-2025. See chapter 7, table 7.1 of the IPM documentation for more information on the discount rates used for various plant types. (**www.epa.gov/airmarkets/epa-ipm/index.html#documentation**).

Note: The analysis presented represents EPA's estimates. EIA's modeling would likely show different impacts.

Projected Allowance Prices with Clear Skies







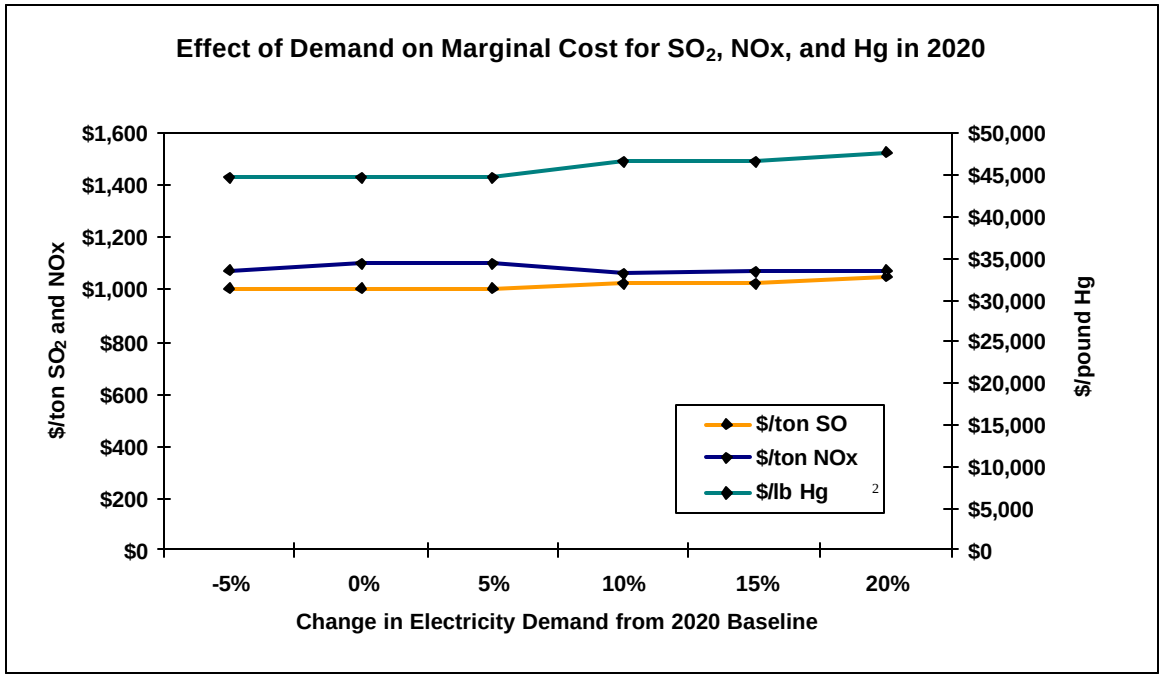
Note: The dollar value is the projected allowance price, representing the marginal cost (i.e., the cost of reducing the last ton) of emissions reductions. Marginal costs are based on modeling using IPM.

Note: The analysis presented represents EPA's estimates. EIA's modeling would likely show different impacts.

Varying Electricity Growth Rates

- The effects of increased demand on allowance prices is quite modest, due to the use of low-emitting gas units for most of the increase in generation (though there is some increase in capacity factors for coal units, leading to pressure on SO_2 and Hg prices).

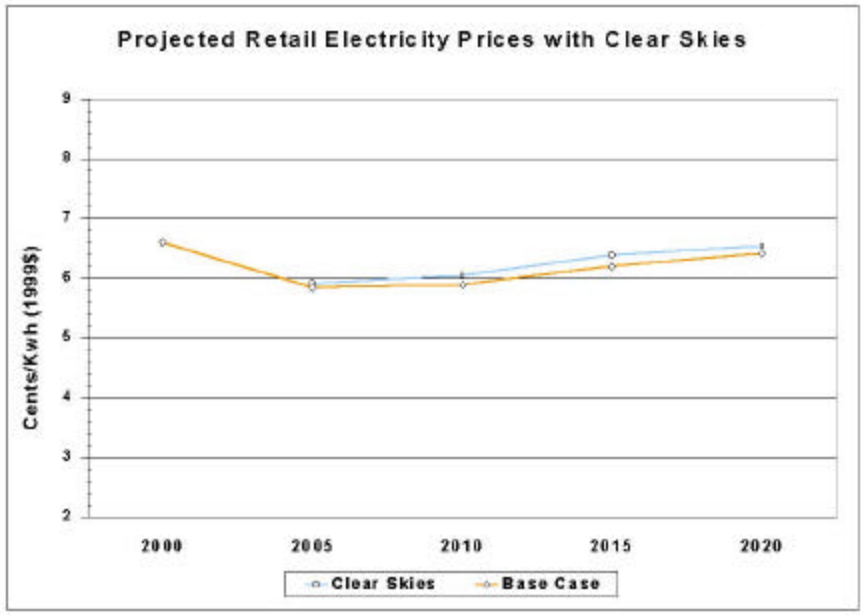
- Both SO_2 and Hg prices increase steadily at higher electricity demand levels in 2020, with the Hg price rising by 6.7% when demand is 20% higher. The price of NOx, however, drops at one point, reflecting interaction of Hg and NOx control strategies; as demand increases (and meeting the Hg cap becomes more difficult), the use of SCR+FGD is justified by the SO_2 and Hg prices, resulting in NOx co-benefits that permit a slight easing in the NOx price.

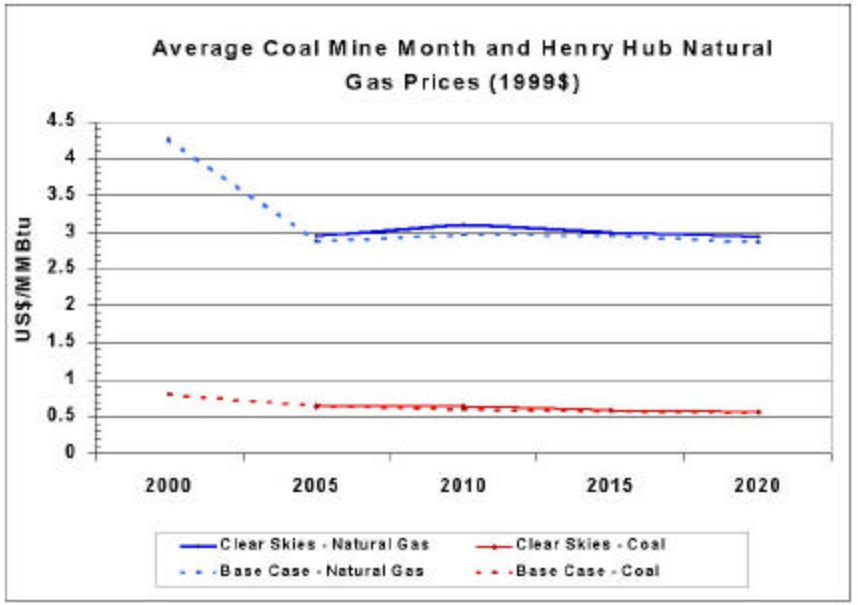


Note: In contrast, in 2010, increased demand leads to higher SO_2 and NOx prices, with the Hg allowance price dropping with the co-benefits. This effect on Hg reverses itself with 20% higher demand. Analysis uses the Technology Retrofit and Updating Model (see Section H for a description). To measure the pure impact of increasing growth, as opposed to the safety valve effect, a Clear Skies Case without the safety valve was used. Analysis of changes in IPM modeling assumptions can be found in Section D.

Impact on Electricity Prices and Fuel Prices

- Retail electricity prices are expected to gradually decline from today's levels but then rise over time with Clear Skies. (Prices are expected to drop initially due to the increase of excess generation capacity; in 2010 prices would begin to increase due to new capacity requirements, which lead to higher capital costs and greater natural gas use, and higher retail prices passed onto consumers.)
- Clear Skies will have a small effect on national electricity, coal, and natural gas prices.
- The impact on coal-fired capacity is small.





Note: Retail prices from 2000 are from AEO2003. Prices for the period 2005 and after were calculated using the Retail Electricity Price Model (see Section G for a description of the Model).

The coal price represents an average minemouth price across all twelve grades of coal in the model mined in 39 supply regions. The natural gas price is the Henry Hub price. Fuel prices for 2005 to 2020 are EPA's projections from IPM.

Note: The analysis presented represents EPA's estimates. EIA's modeling would likely show different impacts.