

Pollution Without Borders



HOW POWER PLANTS IN U.S.-MEXICO BORDER STATES
THREATEN HUMAN HEALTH AND THE ENVIRONMENT

EXECUTIVE SUMMARY

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ENVIRONMENTAL DEFENSE

finding the ways that work

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Executive summary

The threat

The U.S.-Mexico border faces a number of challenging environmental problems. The majority of border residents live in areas that fail to meet U.S. and Mexican air quality standards and where sources of water are rapidly becoming depleted.

This report estimates that an additional 60,000 megawatts of electric generating capacity will be built in the ten U.S. and Mexican border states between 2001 and 2011. While Environmental Defense and other groups will be advocating that a substantial portion of this new capacity be from renewable energy, there is a high likelihood that much of it will be fossil fuel-fired power plants that will further stress already-impaired airsheds and watersheds. The economic and social need for electricity in this rapidly growing area of the world is compelling. At the same time, it is imperative that electricity sector expansion occurs in a responsible manner, with a minimum of additional adverse effects on the region's public health, environment and natural resources.

Impacts of power plants

Electricity is essential for many aspects of our lives: providing energy to homes, schools, offices and factories; powering hospitals and health care facilities; and ensuring safety on our streets at night. However, electricity production can also have harmful effects on human health and the environment.

HUMAN HEALTH

Air pollutants from fossil fuel-fired electricity generation are known to trigger asthma attacks and cause other respiratory problems in children and sensitive adults. Air pollution from electricity generation can weaken human cardiovascular systems and is associated with premature mortality. Communities near natural gas pipelines and storage facilities may risk exposure to dangerous accidents, such as pipeline leaks and explosions, that could result in immediate harm and acute pollution exposures.

ENVIRONMENT

Power plant emissions are the greatest source of acid rain that damages trees, plants, crops and surface waters. They are the chief cause of the haze that diminishes visibility in federally-protected areas such as Big Bend National Park in Texas, and Maderas del Carmen and Cañon Santa Elena in Mexico. Power plants are also a major source of carbon dioxide, the main greenhouse gas contributing to global climate change.

WATER RESOURCES

Power plant operation affects both water quantity and quality. Thermal power plants consume water for cooling which in the mostly arid border region could threaten limited water supplies. Cooling water discharges from power plants can reduce water quality and change aquatic habitats by adding chemical, biological and thermal pollution to receiving streams and rivers.

Findings

Using the power plant database Environmental Defense developed, this report conservatively estimates that 60,000 MW of electric generating capacity will be built in U.S.-Mexico border states between 2001 and 2011. This growth amounts to a 44% increase in power plant capacity in the region. It is approximately three-fourths of the generating capacity currently used to serve Texas, which consumes almost twice as much electricity as any other U.S. state. The vast majority of the new capacity will be fueled with natural gas, 6% will be oil fueled and 4% will consume coal.

We also estimated increased air pollution emissions and water use from the planned power plants, and compared them to existing levels. The new power plants are projected to release the following emissions in 2011: 56,000 tons per year (tpy) of nitrogen oxides; 83,000 tpy of sulfur dioxide; and 144 million tpy of carbon dioxide. The increased nitrogen oxide emissions are equal to those released annually from the tailpipes of about 3 million cars. The carbon dioxide emissions are roughly comparable to the annual CO₂ emissions of 29 million U.S. cars or the state of New Jersey.

Our research shows that projected increases in nitrogen oxides and sulfur dioxide emissions are cause for serious concern in already-threatened binational airsheds. On a relative basis (pollutant emissions per unit of electricity produced), the proposed plants are expected to operate more efficiently than most existing plants. However, the emissions from the proposed plants will add a significant increment to already overburdened airsheds. In addition, emissions from high-polluting, existing power plants in both countries will have to be substantially reduced both to meet the current challenge in attaining air quality standards and to address the additional problems that will result from the new pollution sources.

Recommendations

This report makes 12 recommendations aimed at preventing further declines in border air quality and water supplies while the region's electricity supply grows. In the short term, policies must be developed to prevent a bad situation from getting worse. Over the longer term, more comprehensive solutions must be developed and implemented to ensure border residents' access to healthy air and for water supplies to be effectively managed to better support human and ecological needs. Our principal recommendations are:

- **Establish equivalent standards for new power projects.** Establishing equivalent (or at least comparable) environmental requirements for all new power projects should be an immediate priority. Common requirements governing new power projects should be established border-wide at the most stringent level applicable in either country. More stringent requirements and transparent, enforceable emissions offsets should apply in impaired airsheds.
- **Establish caps on total emissions.** Equivalent environmental requirements alone will not bring polluted airsheds into compliance with health-based ambient air quality standards. Over the longer term, declining caps on total emissions from both new and existing power plants must be established within each country.

- **Require “electricity import pollution offsets.”** Whenever electricity is imported into one jurisdiction from a generating jurisdiction that lacks pollution caps, the electricity-importing jurisdiction should require the generator, as a condition of import, to provide offsetting emission reductions earned within the importing jurisdiction.
- **Increase use of renewable energy and energy efficiency.** The border region must take advantage of its supply of renewable resources such as wind, geothermal and solar as well as maximize the use of cost- and energy-saving efficiency programs.
- **Consider dry cooling where appropriate.** To reduce power plants’ water consumption, the United States can learn from Mexico. Mexico is a world leader in the use of dry cooling technology, which drastically reduces power plant water use and wastewater discharges.

Call to action

We have a variety of tools at our disposal to ensure sustainable growth in the border region’s electric generating capacity and now is the time to use them. Before the projected 60,000 MW of new capacity is developed, we have an opportunity to influence the way in which those future power plants will affect border communities and environmental health. We must take advantage of this opportunity while development plans are flexible enough to incorporate innovative solutions.

Many people have a stake in how this economically, socially and naturally vital area of North America develops. Among these stakeholders are those who live in border communities; federal, state and local government officials; non-governmental organizations; public health professionals; caretakers of our national parks; and business and industrial interests. Working cooperatively and binationally, we can make a difference during this critical time at our shared border.

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