



Executive Summary

ENERGY ISSUES
IN THE SAN DIEGO/TIJUANA
REGION

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One of the San Diego/Tijuana region's indispensable lifebloods is energy. It makes homes and businesses comfortable, moves people and goods, operates the machinery of industry and powers the infrastructure that underpins the region's communities. This pervasive role makes energy a key issue in the binational region's future. New regulatory regimes in both Mexico and California offer new opportunities for the region to coordinate strategies for meeting the future energy needs of its citizens. By combining purchasing power from both sides of the border and rationalizing systems for sourcing energy, the San Diego/Tijuana region should be able to secure the energy required for its development well into the next century.

This executive summary reviews the major findings of a research paper prepared for San Diego Dialogue as a complement to its Forum *Fronterizo* program. The paper reports on forecasts of future energy demand, analyzes the energy sectors in San Diego and Baja California, and discusses collaborative opportunities for meeting the future energy needs of the region.

San Diego/Tijuana and, for that matter, the greater California/Baja California border region lack indigenous or nearby energy resources. Baja California is particularly vulnerable in terms of energy supplies because of the isolation of the Baja California power grid from the rest of Mexico. Partially as a result of this isolation and the lack of indigenous supply, both sides of the border experience relatively high costs for electricity and liquid fuels, resulting in an outflow of substantial amounts of capital each year to meet requirements for energy.

Recent Accomplishments

Over the last decade the San Diego/Tijuana region has developed new cooperative strategies to meet the growing energy needs of the region and to mitigate some of the adverse consequences of energy consumption. For example:

- Sempra Energy is constructing a natural gas pipeline to supply natural gas to Baja California's principal thermal power plant in Rosarito. When this plant is converted to a natural-gas-fired electrical generation facility, the region will be able to substantially reduce its levels of air pollution.
- Unleaded gasoline has widely replaced the use of leaded fuels for transportation in Baja California, creating a significant positive impact on regional air quality.
- A joint venture between Sempra Energy and Proxima is supplying natural gas via a cross-border pipeline to Mexicali, where it is ultimately projected to serve over 25,000 users.

Pending Challenges

Despite this progress, however, substantial challenges remain if the region is to meet its energy needs in the next century. The most recent projections suggest that energy use in the cross-border region will grow substantially in the coming decades, particularly in Baja California. According to a study by the *Universidad Autónoma de Baja California* (UABC), electricity sales in Baja California are expected to increase by an average of 4.6 percent per year through 2004. This is more than double what is expected in San Diego County. By 2004, Baja California's projected energy demand will outstrip available supply, even if all planned facilities are constructed and brought into operation, by over 185 megawatts. Unfortunately, these shortfalls are being

predicted at a time when the Mexican government has limited resources to invest in new power generation capacity. Countrywide, Mexico will require approximately \$25 billion worth of investment through 2006 to keep pace with projected demand.

New Regulatory Regimes

Multiple levels of regulation impact the production, transmission and use of energy in the cross-border region. At a bilateral level, the North American Free Trade Agreement (NAFTA) excludes foreign investment in energy “extraction” or in the direct sale of energy products to consumers in Mexico. However, it does provide new opportunities for private energy companies in the area of electricity generation. Under NAFTA, foreign companies can acquire, establish and operate electric generation facilities in Mexico. The opening of the Mexican government procurement market for energy will create opportunities for foreign companies to compete with Mexican entities for supply and service contracts with the government.

The opportunities created by NAFTA have been enhanced in recent years through a related set of energy reforms initiated by the Mexican federal government. Several new laws have recently been introduced to encourage private investment in Mexico's energy sector. Proposed reforms to the Electrical Power Law and related legislation would open the electric sector to private investment in independent power production, self-supply co-generation and small-scale production. The pace of these proposed reforms has accelerated this year, although the final form of these changes will likely not take shape until after the next Mexican presidential election.

Parallel to these efforts has been the restructuring of California's electric utility industry. Through these reforms, a significant new element of competition has been introduced into the electric utility sector in the state. The reforms have effectively separated, or “unbundled,” the generation of electricity from its transmission and distribution. This reorganization of the electric sector in California will have an important impact on San Diego and could result in increased trade in energy services between San Diego and Baja California; in fact, Mexico's national electric utility recently began purchasing electricity from California's power grid.

The combined effects of these changes on both sides of the border means that the binational region must now cooperate even more closely to effectively compete in the new energy markets.

Opportunities for Collaboration

The growing demand for energy in the region, when coupled with new regulatory regimes on both sides of the border, offers a rationale for developing increased cooperation in the energy field between California and Baja California. In particular, by opening power generation to competition and ensuring equal access to the transmission system, the way is open for greater integration of Baja California's power sector into California's energy markets.

The following are some of the possibilities opened by these reform efforts:

- It is now possible for private companies to generate electricity for their own use or for sale to Mexico's *Comisión Federal de Electricidad* (CFE). Private concerns acting as independent power producers (IPPs) can also build power plants and sell power to CFE. Under this

framework, California utilities such as Sempra Energy could bid on new power plant construction in Baja California.

- Generating facilities could be constructed on the U.S. side of the border to supply electric services to customers in Tijuana. Following a recent ruling of the U.S. Federal Energy Regulatory Commission (FERC), Sempra Energy/SDG&E will have to allow equal access to all qualifying generators to transmit power over its transmission and distribution system, at least up to the border connections. Beyond that point, power would flow in CFE-controlled lines. For example, US Generating, a subsidiary of Pacific Gas and Electric, has developed preliminary plans for a sizable power plant (510 MW) in Otay Mesa, presumably to supply customers in both San Diego and Tijuana.
- It may also be possible for generating facilities built in Baja California to supply customers on both sides of the border. As the Mexican energy sector continues to open up to private investment, the possibility exists for IPPs, Mexican or foreign, to build plants in Mexico and export their power to San Diego and other parts of the western United States.
- Renewable energy resources, such as solar and wind, are a source of future energy production in the binational region. Given the new regulatory structures, wind farms and solar facilities could be located in Baja California, where land and labor costs are less than in San Diego, and power sold to end users on both sides of the border. When joined with large-scale, cross-border energy conservation initiatives, these technologies might offer new sustainable approaches to meet the energy needs of the binational region.

Recommended Strategies

Meeting the future energy needs of the region will require closer collaboration between the privatized energy market players and local and state agencies still responsible for regulating the energy sector in California and Mexico. Complicating the development of new methods of planning for future energy-related infrastructure is the lack of formal cross-border energy planning, coordination and cooperation. The impediments to creating a healthy energy supply system in the binational region are not mainly technical or financial, but grow out of the absence of forecasting, planning and coordination at the *binational and regional* level.

Listed below are some suggestions for securing the energy needed by the San Diego/Tijuana region.

- **Create a *binational* collaborative effort to examine the future energy needs of San Diego, Tijuana and surrounding areas.** This group should have representatives from all the major stakeholders in the region: energy services companies, major energy consumers, relevant local and state agencies, environmental groups, appropriate non-governmental organizations (NGOs), ratepayer advocates and the general public. In addition, it could work with global entities such as the World Bank to encourage efforts toward maximizing energy efficiency.
- **Encourage even greater use of natural gas in Tijuana.** A secure supply of natural gas for industry and power generation in Tijuana will go a long way toward meeting the energy needs of the Tijuana region in a manner less harmful to the environment than fuels currently

in use. One possible way to assist in the transition to natural gas is to explore a national exchange between Mexico and the United States. Mexican natural gas could be imported to the United States via Texas and U.S. gas exported to Baja California by extending pipelines from San Diego into Tijuana.

- **Invest in renewable sources of energy.** Although the binational region will likely remain dependent on non-renewable sources of energy imported from outside the region for some time to come, more could be done to encourage and utilize existing renewable energy resources found on both sides of the border. The region has yet to fully exploit a combination of energy resources such as solar, wind, geothermal and biomass. The State of California has a wide range of programs to encourage greater use of renewable energy resources, and San Diego needs to take better advantage of these programs.
- **Prepare and maintain a comprehensive energy database for the binational region.** The region has no central database related to energy, and no entity is collecting and distributing such information. This would have to be a binational effort involving appropriate organizations in Tijuana and Baja California.

A secure supply of reasonably priced energy with a minimum of environmental impact will be needed for the San Diego/Tijuana region if it is to continue to prosper and remain competitive in the global economy. Given the high population growth expected both in San Diego and Tijuana over the next 10 to 20 years, meeting increased demand for energy services will prove to be one of the important challenges facing the region.

In the open market for energy services that is emerging on both sides of the border, final price to consumers will be the most important element in deciding where to purchase energy; the location of the energy source will become less relevant than it is today. Over time, the international border will likely become less of a barrier to energy flows, a consequence of the continued integration of the binational region.