

Five-year Report 1995-2000

COMISIÓN REGULADORA DE ENERGÍA

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Letter from the Chairman

Five years ago, Mexico's Congress conferred new powers on the Energy Regulatory Commission (CRE) with regard to natural gas and electricity regulation. Today, it brings great satisfaction to carry out a balance of the achievements attained throughout this term.

The reform of the energy sector, undertaken by president Ernesto Zedillo since the beginning of his Administration, was based on two core principles: the creation of a clear, transparent and predictable legal framework, on one hand, and the development of the institutions which would provide for its implementation and operation, on the other. With regard to institutional development, on October 31, 1995, the CRE Act (*Ley de la Comisión Reguladora de Energía*), which granted the CRE technical and operational autonomy, was issued. Since then, the Commission has performed its mandate in a resolute manner, creating new opportunities for private investment that have brought about the growth of regulated industries in benefit of end users.

With regard to natural gas, the CRE currently regulates 84 transportation and distribution projects that represent investment commitments of nearly US\$ 2.2 billion to build and operate 39,500 kilometers of pipeline. As a result, 10 million people in 24 of Mexico's 31 states and the Federal District will benefit from the use of this energy source. In addition, the countrywide expansion of natural gas infrastructure has encouraged the development of new electricity projects. To date, there are 162 generation and import permits that account for investments of more than US\$ 6.9 billion to build and operate 12 thousand Megawatts of new capacity.

The CRE is particularly proud of having realized the vision of a new energy industry such as natural gas. Throughout this process, the Commission was consolidated as a service-oriented authority, whose impartial and transparent operation is committed to total quality. The staff's continuous efforts were formally recognized when the CRE was recently awarded the ISO-9002 quality certification. I would like to thank all of my co-workers for their enthusiasm in contributing to the fulfillment of the Commission's objectives. We now feel satisfied for having participated in making a vision become reality.

Despite the efforts carried out during this term, we must acknowledge the need to continue with the comprehensive transformation of Mexico's energy sector. In the future, the fulfillment of economic development goals will only be feasible if the country is provided with a modern energy sector operating under conditions of sufficiency, efficiency and competitiveness. An energy sector lacking these characteristics will restrain the nation's future development and will hinder the competitiveness of domestic industry. Now more than ever, legal and institutional reforms must be intensified, in order to make the comprehensive transformation of the Mexican energy sector a reality.

HÉCTOR OLEA
CHAIRMAN

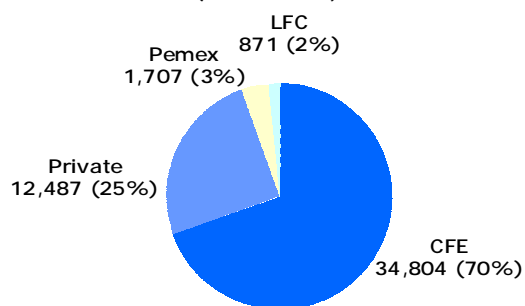
Five Years of Results

ELECTRICITY

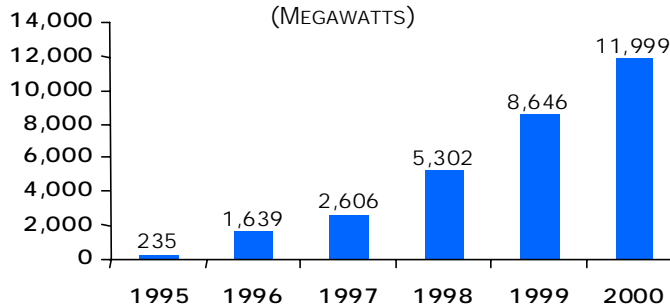
POWER GENERATION AND IMPORT PERMITS GRANTED FROM 1994 TO AUGUST 2000

Modality	Permits	Capacity (MW)	Investment (Million USD)
Self-supply and Cogeneration	144	6,703	4,409
Private	109	4,996	3,263
Pemex	35	1,707	1,146
IPP	11	5,028	2,396
Export	1	258	116
Import	6	10	3
Total	162	11,999	6,924

INSTALLED AND COMMITTED GENERATING CAPACITY PROJECTED TO 2003
(MEGAWATTS)

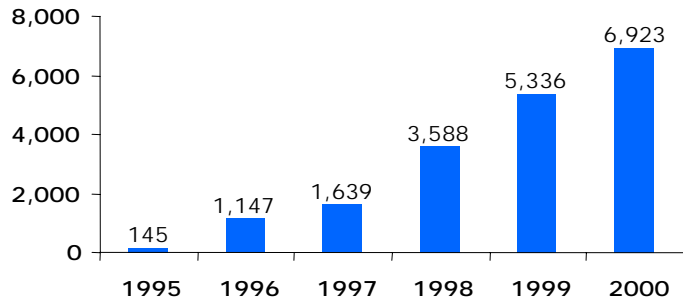


CAPACITY DERIVED FROM ELECTRICITY PERMITS*
(MEGAWATTS)



* ACCUMULATED FIGURES

INVESTMENT DERIVED FROM ELECTRICITY PERMITS*
(MILLION USD)



* ACCUMULATED FIGURES

NATURAL GAS

NATURAL GAS TRANSPORTATION AND DISTRIBUTION PERMITS
GRANTED FROM 1996 TO AUGUST 2000

Modality	Permits	Length (km)	Investment (Million USD)
Transportation	63	11,475	1,167
Open access	14	10,839	1,015
Self-use	49	636	152
Distribution	21	28,042	989
Total	84	39,517	2,156

OPEN ACCESS TRANSPORTATION
PROJECTS

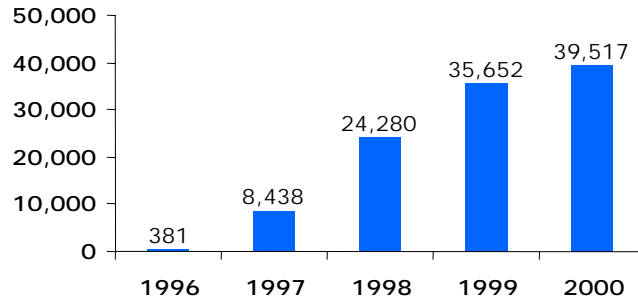


11 THOUSAND KILOMETERS OF OPEN
ACCESS PIPELINE ACROSS 24 STATES
AND THE FEDERAL DISTRICT

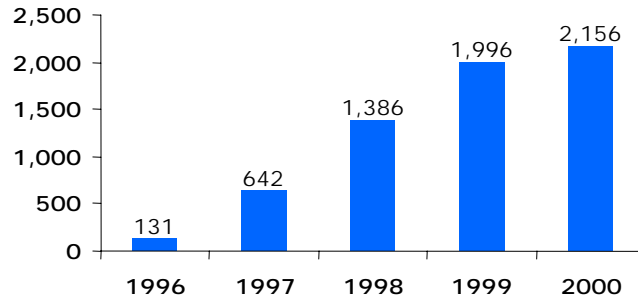
DISTRIBUTION PROJECTS



21 DISTRIBUTION GEOGRAPHIC
ZONES IN 16 STATES AND THE
FEDERAL DISTRICT

LENGTH DERIVED FROM NATURAL GAS PERMITS*
(KILOMETERS)

* ACCUMULATED FIGURES

INVESTMENT DERIVED FROM NATURAL GAS PERMITS*
(MILLION USD)

* ACCUMULATED FIGURES

SOURCE: CRE AND *PROSPECTIVA DEL SECTOR ELÉCTRICO 1999-2008*, SECRETARÍA DE ENERGÍA, 1999.

Strategic Vision

Spirit of Innovation

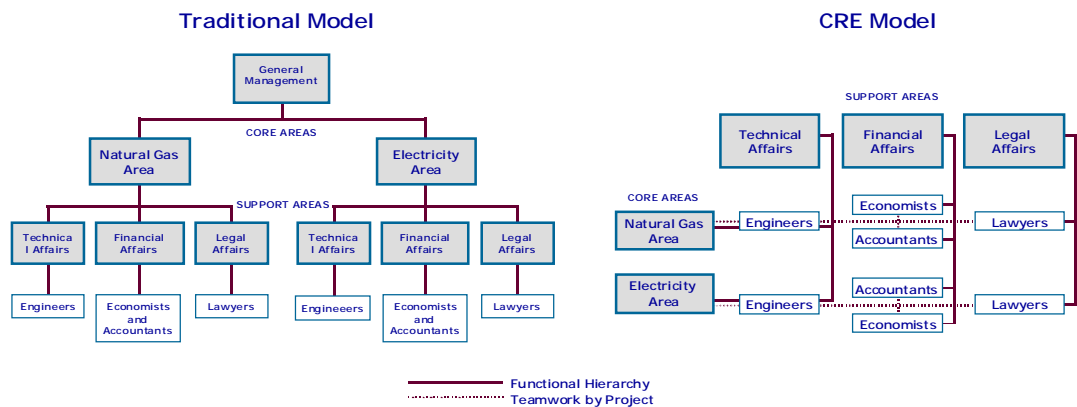
The CRE is part of a new generation of independent and specialized public sector entities. The implementation of advanced organization and management models, as well as the utilization of modern IT systems, characterize the Commission. Both elements encourage a working environment that privileges innovation among its staff.

The CRE’s organization is a valuable tool for making the most of human resources by means of a chiefly flat, compact and flexible structure. The benefit derived from this model is that technical staff, functionally appointed to different areas, is assigned to work by project according to the Commission’s changing needs. This favors efficient and non-bureaucratic action in an atmosphere of continuous professional development.

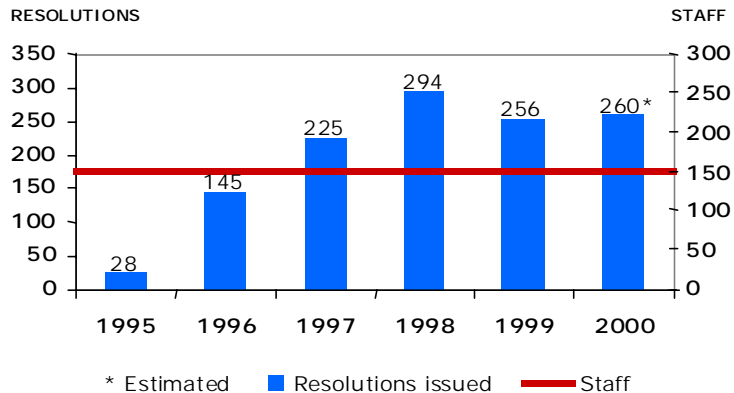
The ideal complement to the teamwork prevalent at the CRE has been the use of cutting-edge IT systems and communication networks, both in and out of the institution. For that purpose, every staff member has been provided with the tools that expedite procedures and integrate work and team flows in real time.

As a result of the CRE’s way of working, high productivity levels have been reached and operating costs have been reduced, without resorting to the recruitment of new personnel. While resolutions issued by the CRE have increased from 28 in 1995 to nearly 260 in 2000, the Commission’s staff has remained at approximately 150. Thus, the CRE has sustained its responsiveness through increasing efficiency, rather than the expansion of its organizational structure.

COMPARISON OF ORGANIZATION MODELS



RELATIONSHIP BETWEEN THE CRE'S STAFF AND RESOLUTIONS ISSUED



CASE STUDY

TEAM FOR GRANTING PGPB'S TRANSPORTATION PERMIT

One of the major challenges faced by the CRE was the granting of the definitive permit for the National Pipeline System (SNG) to *Pemex Gas and Petroquímica Básica* (PGPB). This project involved redefining the General Terms and Conditions for Service and fixing a set of rates for the thirteen sectors of the SNG, which is comprised by almost nine thousand kilometers of pipeline already in operation.

An interdisciplinary team, supervised by a commissioner and made up by lawyers, accountants, economists and engineers, was created within the CRE to evaluate the permit application. This team examined a significant amount of information, for which advanced IT systems, such as numerical fluid mechanics models for determining the SNG capacity, were used. Additionally, the project's nature required continuous interaction between the CRE team, as well as with other federal government agencies and the participants in the corresponding public consultation.

As a result of this institutional effort, the virtues of the CRE's management organization structure became evident. On account of the granting of PGPB's definitive transportation permit, there is now a set of clear rules that describe the conditions and procedures that PGPB must follow with respect to the operation, maintenance and safety of its system. With regard to service provision, this permit establishes a balance between the rights and duties of PGPB and its customers, thus preventing unduly discrimination toward users.

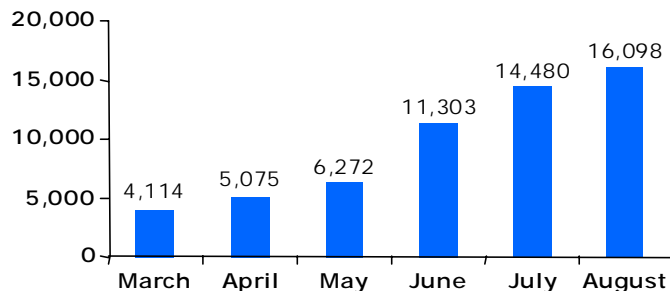
Transparency and Fairness, Foundation of Credibility

The CRE's transparent and impartial operation was a key factor in the success of the reforms undertaken in the energy sector and the atmosphere of certainty and credibility created among regulated agents and their customers. This aspect has been fundamental to attracting private investment in energy infrastructure without State guarantees.

Aware of the impact of transparency and fairness on the industries' development, the CRE has focused on the instrumentation of an active and permanent open-door policy. Essentially, this policy involves the prompt dissemination of information regarding the regulatory framework and the Commission's activities and resolutions. Following are some of the mechanisms adopted by the CRE to this end:

- Use of public consultations to develop new regulatory instruments, as well as the acceptance of appeals, in accordance with the applicable legal provisions, through which a decision by the CRE may be reviewed and even modified.
- Organization of a yearly conference with industry representatives in February in order to jointly establish the annual regulatory agenda.
- Active participation in over 150 national and international seminars at which the CRE's regulatory experiences are illustrated.
- General public access to the CRE's Documentation and Information Center (CID) which houses its Public Record of more than one thousand resolutions issued to date and the documents derived therefrom.
- Distribution of the free, bimonthly electronic newsletter *infoCRE* that summarizes the most relevant events on energy regulation in Mexico.
- Description of the regulatory framework by means of specialized publications; press releases and conferences; media interviews, and assistance to investors and users.
- Continuous updating of the CRE's web site (www.cre.gob.mx), which contains over 122 Megabytes of information, as well as immediate response to consultations received through the site by e-mail.

ACCESSES TO THE CRE'S WEB SITE, 2000
(USERS PER MONTH)



CASE STUDY

PUBLIC CONSULTATION ON THE NATURAL GAS REGULATION

In order to meet the challenge of promptly designing a regulatory framework that encourages the competitive development of the industry, the CRE has employed public consultation processes for every regulatory instrument it has published. For instance, the

Reglamento de Gas Natural (Natural Gas Regulation), issued in 1995, was the first legal instrument in the history of the energy sector derived from a formal public consultation process.

The call for the consultation was addressed to parties involved in the development of the natural gas industry. 104 representatives from domestic and international companies, consultants, industrial chambers, public utilities, financial institutions and Congress answered the invitation, and were requested to submit their comments in writing to the team in charge of preparing the proposal.

The participants in the public consultation responded with seriousness and enthusiasm, reason for which the initial period for consultation was extended. Opinions expressed throughout this process enhanced the original draft, giving rise to a final proposal that embraces three main features:

- **Consensus.** The interests of all participants in the sector were encompassed.
- **Balance.** The development of the sector was supported and user interests were overseen.
- **Commitment.** The government's commitment to promote the natural gas industry was confirmed by a well-defined policy decision.

Commitment to Quality

Over the last five years, the CRE has firmly aimed its efforts at becoming an agency with a well-defined mandate and mission. This permanent quality-oriented attitude allows for consistency with regard to goal keeping and service provision, despite changes to the Commission’s staff. As a result, the framework of predictability and stability in which the CRE operates has been strengthened, in order to continue attracting long-term productive investment in the sector to the benefit of end users.

The CRE has consolidated itself as an institution dedicated to solving the issues over which it has authority in an efficient and transparent manner. For this reason, it has devoted special attention to becoming an open authority, concerned with offering high quality services to regulated agents (its customers) and the public in general. In this sense, the Commission is a solid example of the government’s commitment to the modernization of the Federal Public Administration. The concrete benefits of these efforts are as follows:

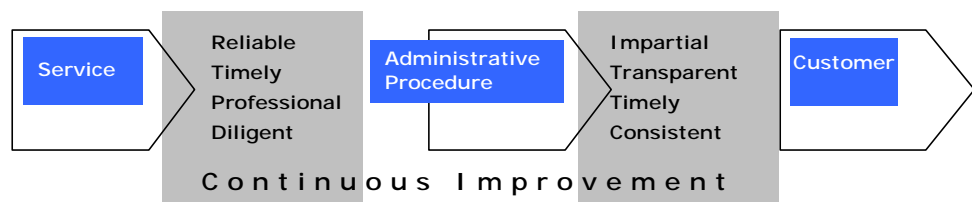
- **Reliability.** Homogenous procedures and work practices have been adopted, which contribute to consistency in service quality throughout time.
- **Professionalism.** Selecting highly specialized personnel, together with training, guarantees issues are solved consistently and promptly.
- **Impartiality.** All procedures comprise numerous quality records that are examined in order to guarantee decisions are made strictly pursuant to the legal framework.
- **Continuous improvement.** On a regular basis, audits are conducted from which corrective and preventive actions are derived, ratifying the CRE’s commitment to total quality.

CASE STUDY

ISO-9002 QUALITY CERTIFICATION

On August 22, 2000, the CRE’s Quality Assurance System (SAC) for the regulation of the natural gas and electricity industries was certified in accordance with the ISO-9002 international standard. As a result, the Commission has become a pioneer among energy regulatory agencies worldwide in obtaining this recognition. The SAC is chiefly aimed at providing high-quality services to potential investors and permit holders, who drive productive investment and the efficient functioning of the natural gas and electricity industries in benefit of end users.

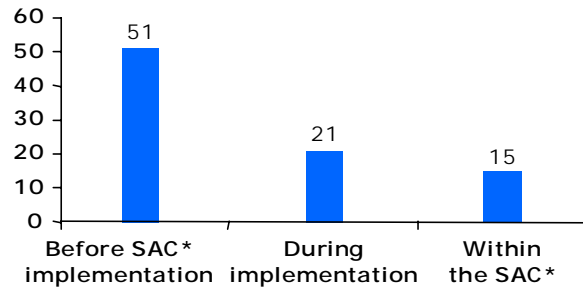
The quality values demonstrated day after day in the provision of its services gave rise to establishing a quality policy that outlines the general performance guidelines for the CRE’s activities. The Commission’s quality policy is *To provide reliable and timely services to our customers. The CRE is committed to offer a professional and diligent service, by means of an impartial, transparent, timely and consistent administrative procedure, subject to continuous improvement.*



The Quality Assurance System developed by the CRE includes 21 procedures, 34 instruction manuals and 66 records focused at providing enhanced reliability to any party requesting the Commission's services, as well as at retaining evidence which demonstrates that work is carried out in strict adherence to applicable legal provisions.

Despite the fact that the system was implemented a short time ago, there are already concrete results. For example, the period for granting electricity generation permits has decreased, on average, by 36 working days.

PERIOD FOR GRANTING ELECTRICITY GENERATION PERMITS
(AVERAGE NUMBER OF WORKING DAYS)



* QUALITY ASSURANCE SYSTEM

Our People, the Main Asset

The Commission has had to develop its own critical mass of staff specialized in the various technical issues related to its activities. In view of the objectives the CRE pursues as the regulatory authority in a strategic sector for the economy and the fact that its staff is its most valuable asset to carry out its tasks efficiently, it is essential for personnel to be highly qualified.

Since 1996, all of the staff has participated in over 340 training programs and seminars, both in Mexico and abroad. At the CRE, training has been conducted at the institutional level, to increase individual skills, as well as at the personal level, to optimize key working tools. This training is aimed at contributing to the staff's development while encouraging the consolidation of a professional civil service.

Institutional training programs cover topics on energy regulation, public administration, engineering analysis models and geographic information systems, among others. Additionally, English language, writing skills and IT training courses have also been provided at all levels as part of the individual training program. In particular, individual training has fostered improved computer skills at all hierarchical levels, increasing the CRE's overall productivity significantly.

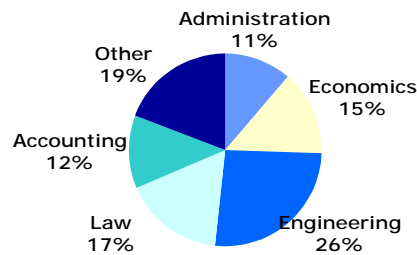
The Commission's effort to improve the quality of the working environment through respect and trust is reflected by the high percentage of original staff who remain working at the CRE. In addition, the outstanding results accomplished by the staff during the present Administration were acknowledged in September 1999, when the *Secretaría de Hacienda y Crédito Público* (Treasury Ministry) granted the CRE's personnel a two-level wage promotion.

CRE STAFF TRAINING, 1996-2000

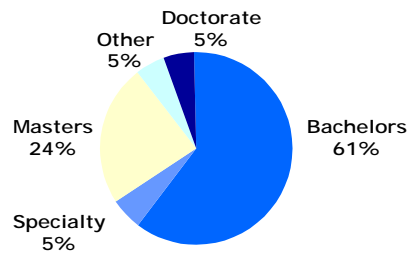
Year	Training Courses	Trained Staff	Investment (Thousand pesos)
1996	39	55	238
1997	74	87	364
1998	77	110	403
1999	77	124	880
2000*	77	110	750
Total	344	NA	2,635

* ESTIMATED
NA = NOT APPLICABLE

MIDDLE AND UPPER MANAGEMENT FIELDS OF EXPERTISE



MIDDLE AND UPPER MANAGEMENT MAXIMUM ACADEMIC LEVEL



CASE STUDY

SE-CIDE-CRE DIPLOMA

Since 1998, the CRE has sustained the General Agreement on Academic Cooperation with the *Centro de Investigación y Docencia Económicas* (CIDE) in order to organize courses, symposia and workshops on the economics of regulation, as well as general research on energy regulation. The Diploma in Energy Policy, which has been attended by over 68 medium-ranked staff from the CRE, the *Secretaría de Energía* (Energy Ministry) and other entities of the sector, is provided as part of this agreement in coordination with the Energy Ministry.

The Diploma, which is the first on this topic to be offered in Mexico, is aimed at endowing government personnel with the necessary technical and theoretical skills to construct and enforce public policies on energy and regulation. Consequently, the program covers the following modules: energy economics; energy regulation economics; legal issues; environmental economics; energy markets; industrial models and electricity markets, and planning and policy making.

The program includes keynote lectures by renowned specialists on energy topics, such as Dagobert Brito (Rice University), Michael Lynch (Center for International Studies of the Massachusetts Institute of Technology), William Hogan (John F. Kennedy School of Government, Harvard University), Eytan Sheshinski (Harvard Institute for International Development), José Luis Guasch (The World Bank) and Ingo Vogelsang (Boston University).



Energy for Mexico's Growth

Mexico's economic growth depends on a modern energy sector that is capable of driving the nation's development. Only an energy sector that operates under sufficient, efficient and competitive conditions will allow the new Administration's economic growth objectives to be met.

In order to configure an energy sector with these characteristics, it will be necessary to redefine the current industrial organization model, based on a long-term vision and a consistent and orderly instrumentation process. These factors are essential for the establishment of the conditions that will allow private investment to become the driving force behind the development of energy infrastructure required by the country over the coming years.

Energy companies throughout the world are progressing from merely producing primary inputs to providing comprehensive and cross-border energy services, which has encouraged the integration of energy sectors at the international level. In this context, Mexico is privileged by its geographic location, as it allows for energy integration both towards North and Central America. The establishment of a clear and transparent energy regulatory framework is crucial to this integration, aimed at efficient energy supply.

The feasibility and success of a comprehensive structural reform in Mexico's energy sector, based on the separation of activities and the concurrent participation of public and private companies, have been demonstrated by the recent restructuring of the natural gas industry. This experience is and will continue to serve as cornerstone in the modernization of other industries within the energy sector, such as electricity, LPG and other industrial fuels.

CASE STUDY

CHALLENGES FACED BY THE NATURAL GAS AND ELECTRICITY INDUSTRIES

In recent years, the accelerated growth in domestic energy demand has not been matched by an equivalent expansion of energy infrastructure. In order to meet demand over the next years, it is essential to upgrade and expand the reliability of supply, particularly in the following industries:

- **Electricity.** Investments undertaken by the CFE to date only guarantee electricity supply up to 2004. In addition, electricity demand will grow at an average annual rate of six per cent over the next years. Nearly US\$ 5 billion per year will be required in order to expand the capacity for electricity generation and upgrade the transmission and distribution grids.
- **Natural Gas.** Demand for this fuel will grow at an average annual rate of nine per cent, for which over US\$ 2 billion per year will be required to finance the exploration, extraction and processing programs needed to satisfy domestic demand. Insufficient investment may result in the import of almost 50 percent of industrial and commercial needs over the next years.

If the energy sector is not strengthened and modernized in due time, it will not have the capacity to sustain the projected growth rates of the Mexican economy. Therefore, the new Administration must guarantee that investment in the energy sector and in the range of services it offers match the country's economic growth outlook. For this purpose, the State's regulatory role will have to be strengthened by means of clear and stable rules, as well as solid and transparent institutions, in order to foster credibility among sector participants and a level playing field for competition to take place between private investors and public operators.

Vision Made Reality: Five Years of Energy Regulation

The 1995 amendments to the *Ley Reglamentaria del Artículo 27 Constitucional en el Ramo del Petróleo* (Oil and Gas Ruling Act), brought about the possibility for the private sector to build, operate and own natural gas transportation, storage and distribution systems—activities previously reserved to *Petróleos Mexicanos* (Pemex). This structural reform was the first step in the modernization process of Mexico's energy sector initiated by President Ernesto Zedillo and aimed at overcoming drawbacks, eliminating bottle necks in infrastructure and meeting the growing demand for energy under conditions of reliability, sufficiency, efficiency and safety.

The opening of the natural gas industry undertaken by the present Administration has brought about a significant increase in the use of this fuel. Today, the private sector constitutes the prime developer of natural gas infrastructure in Mexico, operating under a stable regulatory framework that brings certainty to long-term investment to the benefit of end users.

In addition, as a result of the natural gas industry opening, a significant transformation took place in the institutional framework of the energy sector with regard to the roles and powers of entities and agencies involved. Accordingly, the *Comisión Reguladora de Energía* (Energy Regulatory Commission, CRE) was established as a regulatory agency for the electricity and natural gas industries following the publication of the CRE Act, in order to provide credibility to, as well as instrument, legal reforms.

A successful reform, such as the one carried out in Mexico's natural gas industry, can and should be replicated in other areas, such as liquefied petroleum gas (LPG), other liquefied fuels and electricity. In the near future, these sectors will require adjustments to their legal frameworks in order to face challenges of demand, investment and competitiveness. The lessons learned from the natural gas industry structural reform process will be the cornerstone for the modernization of the Mexican energy sector.

Following is a description of the achievements attained with regard to the regulation of the natural gas, electricity and LPG industries, as well as the challenges they face in order to operate under competitive conditions, with adequate quality and efficiency levels, and become the driving force of Mexico's economic development.

Natural gas

BACKGROUND

Until 1995 Pemex was the only entity authorized to build, operate and own pipelines in Mexico, as well as the only one allowed to import, export and market natural gas in the country. This industrial structure led Pemex to become a self-regulated monopoly,

which limited the introduction of competitive conditions in the sector, both in terms of price and service quality to users.

Along with an economic environment of severe budgetary cuts in the eighties and beginning of the nineties, Pemex's situation limited the development of gas pipeline infrastructure, which discouraged the industrial, residential and commercial utilization of natural gas for many years. In this context, Mexico's low natural gas consumption profile stood out significantly against the fact that it is the fourth producer of natural gas in the American continent (after the United States, Venezuela and Canada) and owns sufficient reserves for the next 45 years (78 billion cubic feet).

In order to revert this situation and foster the use of an abundant, clean, low-cost, efficient and safe fuel such as natural gas, President Zedillo undertook a profound structural reform of this industry since the beginning of his Administration. Essentially, the reform involved opening certain activities to private investment that were previously reserved to the State through Pemex, such as storage, transportation and distribution of natural gas by pipeline and foreign trade and marketing activities in the national territory.

For this purpose, the *1995-2000 National Development Plan* and the *1995-2000 Program for the Development and Restructuring of the Energy Sector* set forth the policy guidelines of the reform process, which was aimed at promoting long-term development of the natural gas industry according to Mexico's needs. In addition, and strictly pursuant to the Constitutional mandates, the specific objectives of the natural gas structural reform were also established:

- Guaranteeing an adequate, timely and competitive supply that meets domestic demand and allows economic competitiveness in a global context;
- Promoting the use of clean fuels that meet new environmental standards;
- Opening new areas for productive investment and create new opportunities for permanent employment;
- Encouraging healthy competition in this industry to the benefit of end users;
- Fostering adequate national coverage in terms of natural gas availability, and
- Facilitating the development of new generation projects, in accordance with the activities allowed by the current legal framework since 1992 (self-supply, cogeneration, independent power production (IPP), small production and export).

STRUCTURAL REFORM PROCESS

To carry out the natural gas industry structural reform, the Administration carried out four core activities:

- Identification of the reasons for the sector's limited development in previous years;
- Analysis of similar reforms in other countries and studied their applicability to Mexico's case;
- Consultation of parties interested in the development of the sector, and
- Establishment of a logical and orderly sequence for the industry's restructuring.

Diagnosis. The Energy Ministry carried out a thorough review of the sector's evolution during the previous years and analyzed the reasons behind the limited development of

natural gas infrastructure and private sector participation in distribution activities. Following are the results of this analysis:

- Pemex was a self-regulated monopoly, which limited the introduction of competitive conditions in the industry;
- The State's roles as owner and operator of natural gas systems were concentrated in Pemex, while regulatory activities were scattered across several government institutions, and
- The lack of legal transparency and a clear regulatory framework limited private sector participation in distribution.

In order for the structural reform of the natural gas industry to succeed, it would have to overcome these three limitations in a clear and precise manner.

International Experience. With a view toward incorporating international experience in the design of Mexico's natural gas industry structural reform, a detailed analysis of its operation in several countries (i.e. Argentina, Canada, United States, New Zealand and United Kingdom) was carried out. This analysis indicated that the following conditions were crucial for the success of Mexico's structural reform:

- The State roles of owner, regulator and operator had to be clearly defined, and
- A clear and predictable institutional and legal framework had to be in place in order to promote private sector participation.

Public Consultation. Based on the conclusions of the analysis and international experience, the Administration formulated a structural reform proposal, which was submitted to public consultation for the first time in the history of the energy sector.

The call for this consultation was addressed to parties interested in the development of Mexico's energy sector and was answered by the Legislative branch, government agencies, end users and by potential investors, specialized financial and academic institutions, as well as regulating agencies from other countries.

The opinions expressed throughout this process enriched the proposal, giving rise to a final proposal that incorporated three main features:

- **Consensus.** The interests of all participants in the sector were encompassed.
- **Balance.** The development of the sector was taken into account at the same time that user interests were safeguarded.
- **Commitment.** The government's commitment to promote the natural gas industry was a policy decision.

Reform Process. As a final point for restructuring the natural gas industry, the Administration established the fundamental elements of reform, as well as the logical order for each stage to take place.

LOGICAL SEQUENCE FOR THE INDUSTRY'S RESTRUCTURING



Long-term Vision. The first step in the reform involved the development of an industrial organization based on a long-term vision that included the participation of both Pemex and private operators. The design of a long-term vision would allow for overcoming obstacles and maintaining an attitude consistent with the established goals. This vision involved the following actions:

- The various participants that comprise the industry were identified;
- Activities exclusively reserved to the State and those open to private sector participation were distinguished.
- Natural and legal monopolies were identified and, therefore, considered subject to regulation, and
- Activities with competitive potential were detected, which would be subject to market regulation.

Policy Decisions. The implementation of the policy decisions on which to base the reform ensured that the government agencies involved would maintain a consistent attitude toward goals when facing challenges. During the development of the final draft of the reform, the Administration decided not to found the reform's success on the privatization of Pemex's transportation assets. The privatization of Pemex's infrastructure was not considered a necessary requirement nor was its withdrawal from the natural gas industry judged as a prerequisite for meeting reform objectives for the following reasons:

- Pemex had developed an adequate natural gas transportation network that provided service to the *Comisión Federal de Electricidad* (CFE) and several industrial customers, but it was underused due to the lack of distribution systems for transporting the fuel to a significant amount of end users, and
- Investment was not required due to a poor quality of service, but rather to expand transportation and distribution infrastructure in order to offer an effective energy alternative at competitive prices compared to other fuels, such as LPG, fuel oil and diesel.

As the introduction of a competitive industrial scheme was feasible, where private sector participation would add to the State's efforts to develop new infrastructure, the use of privatization schemes was generally avoided. Although these schemes might have helped maximize public revenue in the short term, they would also have increased service charges to users, thus conflicting with the goal of providing new energy alternatives at the lowest possible cost.

Legal Reform. The restructuring of the natural gas industry created the need to amend the Oil and Gas Ruling Act. This reform brought about the possibility for the private sector to build, operate and own natural gas transportation, storage and distribution systems. The amendments to this Act were passed in May 1995 by Congress and initiated the legal reform process and the development of the regulatory framework.

The CRE Act, the Natural Gas Regulation and the CRE's directives on prices and rates, accounting and geographic zones were issued during the remainder of 1995 and the beginning of 1996. This regulatory framework provided for the granting of permits, during the second half of 1996, to companies that were to participate in natural gas transportation and distribution projects.

In order to meet the challenge of quickly developing a regulatory framework that would promote the industry's competitive development, the CRE carried out public consultation

processes involving industrial chambers and consumer associations; financial sector representatives; academic institutions, and domestic and foreign companies interested in the development of Mexico's energy sector.

The outcome of these consultations has been positive and through them, the Commission has conveyed a message of transparency and openness in matters that had never been dealt with in public before. Moreover, the CRE has committed itself to maintain this attitude in the future. Since the very beginning, the public consultations have allowed for:

- The involvement of all participants in the industry —specifically, potential investors— in determining the rules of the game (directives, official Mexican standards, etc.);
- Reaching consensus and obtaining general approval of regulatory instruments, minimizing confrontations during their instrumentation;
- The development of a regulatory framework that balances the interests of different participants in the industry (i.e. end users, transportation companies and distributors), and
- Providing legal certainty to companies interested in investing in Mexico's energy sector for the first time.

One of the CRE's achievements in the development of the regulatory framework was that the building blocks of the basic regulatory model were established in just twelve months. The main feature of this model is that it provides certainty and predictability to investors and their customers. Thus, the use of public consultation processes has not only created confidence among investors, but it also avoided the risk of regulation being disputed, which would have delayed the development of infrastructure.

The opportunity, transparency and credibility attained through this effort drew the attention of foreign governments (Venezuela, Peru and Vietnam), multinational organizations (the World Bank; the Inter-American Development Bank; and the Organization for Economic Co-operation and Development) and academic institutions (*Centro para la Investigación y Docencia Económicas*, CIDE). These organizations have carried out research that highlights the virtues of the regulatory model used in Mexico and have repeatedly invited CRE officials to forums where its main features are discussed.

In addition, the efforts to issue the new regulatory framework called the attention of leading domestic and international companies in the field, who acknowledged the new business opportunities that had been opened and which would allow them to develop an efficient and competitive natural gas market in Mexico. To date, the CRE has been involved in the development of the following regulatory instruments for the natural gas industry:

- **Natural Gas Regulation (RGN).** The Administration published the RGN in November 1995, in compliance with the term established in the Oil and Gas Ruling Act. This regulation details the regulatory principles and guidelines of the Oil and Gas Ruling Act, and empowers the entity in charge of developing and implementing regulation.

The RGN also establishes the provisions that rule the participation of Pemex and individual parties in natural gas regulated activities. For this purpose, the CRE was granted powers to issue general provisions (directives), which provide a more detailed description of the regulation. In addition, the participation of the public and private sector in transportation, storage and distribution is subject to a permit regime.

- **Price and Rate Determination Directive for Natural Gas Regulated Activities** (March 20, 1996). This Directive establishes the methodologies, criteria and foundations that Pemex and permit holders must apply to determine prices and rates, as well as the information that must be submitted to the CRE, among other general provisions.

First-hand sales are subject to a price cap methodology and are determined with reference to international markets and considering gas transportation costs in Mexico. The objective of this methodology is aimed at reproducing the conditions that prevail in a competitive market and determining the price of natural gas based on its opportunity cost.

Natural gas transportation, storage and distribution rates are determined by means of regulation by incentives that establish a maximum revenue per permit holder over a five-year period, based on the cost of a high quality service.

- **Accounting Directive for Natural Gas Regulated Activities** (June 3, 1996). This Directive establishes the general accounting principles for permit holders and includes an account catalog that must be used, in accordance with generally accepted accounting principles in Mexico. This Directive is intended to standardize the information that Pemex and permit holders submit to the CRE, in order to facilitate its regulation and comparison.
- **Geographic Zone Directive for Natural Gas Distribution** (September 27, 1996). This Directive establishes the general procedure used by the CRE to determine geographic zones for natural gas distribution purposes. Geographic zones are established considering a number of economic, technical and urban planning factors in order to ensure the development of profitable and efficient distribution systems, according to national and regional development programs.
- **Natural Gas First-hand Sales Directive** (February 23, 2000). This Directive establishes the criteria and procedures that must be followed by Pemex and its subsidiaries for natural gas first-hand sales. Its purpose is to bring certainty and monitor compliance with regulation.

The general terms and conditions for first-hand sales are governed by the following principles:

- Transparency and balance in the contractual relation between Pemex and natural gas buyers;
 - Monitoring that Pemex does not impose unilateral or discriminatory conditions, and
 - Establishment of reciprocal conditions between Pemex and natural gas buyers.
- **Official Mexican Standards (NOM)**
 - NOM-001-SECRE-97 on natural gas quality (January 27, 1998);
 - NOM-002-SECRE-97 on connections for natural gas facilities (January 26, 1998);
 - NOM-003-SECRE-97 on the construction and maintenance of natural gas distribution systems (May 15, 1998);
 - NOM-004-SECRE-97 on liquefied natural gas and automotive vehicle facilities (January 26, 1998);
 - NOM-005-SECRE-97 on liquefied natural gas and automotive vehicle service stations (January 28, 1998);
 - NOM-006-SECRE-99 on natural gas odorization (January 27, 2000);
 - NOM-007-SECRE-99 on natural gas transportation (February 4, 2000);

- NOM-008-SECRE-99 on the cathode protection of natural gas and LPG steel pipelines (January 27, 2000);
- NOM-009-SECRE-99 draft on natural gas and LPG pipeline leakage (December 27, 1999);
- NOM-010-SECRE-1999 draft on compressed natural gas (CNG) service stations (in progress), and
- NOM-011-SECRE-1999 draft on CNG automotive vehicle facilities (in progress).

Additionally, and in compliance with the *Ley Federal sobre Metrología y Normalización* (Federal Metrology and Standardization Act), the CRE began to outline the procedures for conformity assessment in order to determine the degree of compliance with NOMs. The aim of this procedure is to describe the specifications that inspection units, testing or calibrating laboratories and certifying organizations should attend.

The consolidation of the natural gas industry has brought about an increase in the CRE's permit holder oversight activities. Whenever a permit is granted, the Commission becomes responsible for ensuring and verifying compliance with the obligations acquired by the permit holder. Besides submitting information to the CRE, permit holders are also subject to receive inspections at their facilities. As a result, the CRE has carried out nearly 35 inspections, by means of which adequate compliance with industry standards has been verified.

Institutional reform. In order to invest the proposed industrial organization with credibility and effectiveness and encourage its efficient development, the State's regulatory capacity had to be strengthened by means of an efficient scheme that would be applied impartially to public and private operators.

Before the reform, Pemex was operating as a self-regulated natural gas monopoly, which reflected uncertainty with regard to the State's roles as owner, operator and regulator of energy resources. Regulatory authority was spread across several government institutions (i.e. Energy Ministry, Treasury Ministry (SHCP), Commerce Ministry (Secofi), Comptrollership Ministry (Secodam), and Pemex), which originated a lack of consistency among regulatory instruments, as well as conflicts of interest during the decision-making process.

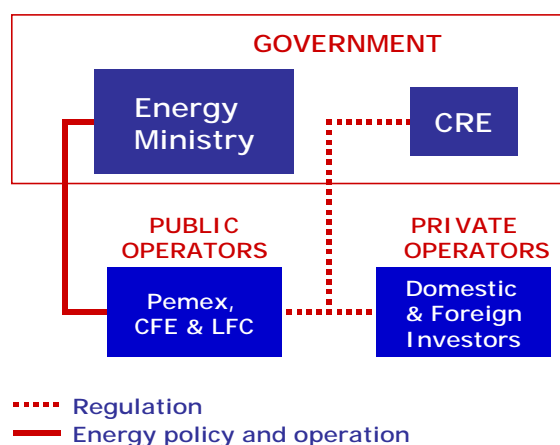
In order to correct this situation, the next stage of the reform process consisted in clearly defining the powers and duties of the governmental institutions involved in the natural gas restructuring process. In this manner, these institutions had clear objectives in place and acted in a consistent and coordinated manner, thus avoiding conflicting actions that might thwart the reform's success.

Consequently, the duties of the Energy Ministry (SE) as owner were strengthened. The SE is in charge of outlining Mexico's energy policy and overseeing the operations of the sector's public entities. In addition, Pemex maintained its role as operator, while the Commission was constituted as the sole regulatory authority following the publication of the CRE Act in October 1995.

The CRE Act transformed the Commission from a strictly advisory body on electricity (as set out in its 1993 creation decree) into a decentralized agency, in charge of regulating the electricity and natural gas industries. In addition, this Act broadened the CRE's powers and concentrated therein duties previously scattered across other offices and agencies, which was an essential condition for bringing clarity and stability to the natural gas industry's regulatory framework.

This differentiation and designation of roles has allowed governmental institutions involved in the sector to carry out their activities in a straightforward and transparent manner, as a result of having clear and defined objectives in place, thus preventing conflicts of interest.

INSTITUTIONAL FRAMEWORK OF MEXICO'S ENERGY SECTOR



RESULTS

As a result of the reform initiated by President Zedillo's Administration, the private sector is currently the driving force behind the development of Mexico's natural gas infrastructure. Moreover, the private sector operates under an efficient regulatory framework that provides certainty to long-term investment in benefit of end users. The availability of a low-cost and clean fuel throughout the country is a key factor for regional development, which provides for sustainable development, improves competitiveness within the productive plant, enhances the economy's capacity to generate employment and improves the population's welfare.

Increasing private participation in the development of natural gas infrastructure is reflected in the 84 natural gas transportation and distribution permits regulated by the CRE. These permits represent investment commitments of nearly US\$ 2.2 billion for the construction and operation of 39,517 kilometers (km) of pipelines in 24 of Mexico's 31 states, by leading Belgian, Canadian, Spanish, American, French and Mexican companies engaged in the development of energy infrastructure.

NATURAL GAS TRANSPORTATION AND DISTRIBUTION PERMITS GRANTED FROM 1996 TO AUGUST 2000

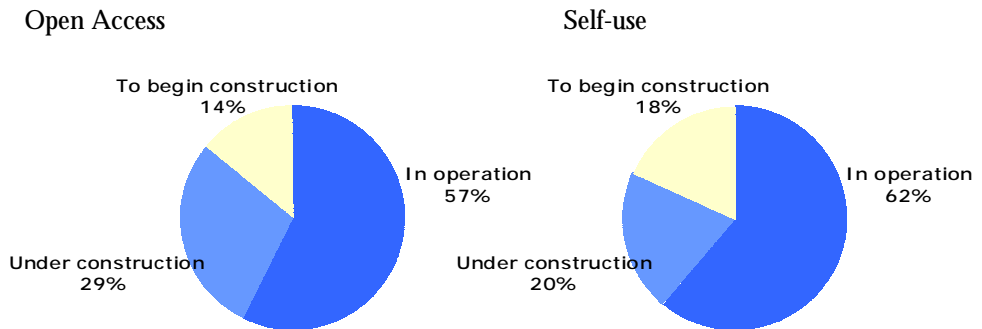
Modality	Permits	Length (km)	Investment (Million USD)
Transportation	63	11,475	1,167.5
Open access	14	10,839	1,015.2
Self-use	49	636	152.3
Distribution	21	28,042	988.7
Total	84	39,517	2,156.2

SOURCE: CRE

These projects will contribute to meeting a natural gas demand that will increase at an average annual rate of nine per cent over the next ten years. With regard to open access and self-use transportation projects, 57 and 62 per cent, respectively, are in operation, while all projects related to distribution permits are in operation.

In particular, open access transportation permits granted to Pemex and private operators by the CRE account for a 10,839-km pipeline network with a capacity of 7.42 billion cubic feet per day (Bcf/d). These infrastructure projects will help to supply natural gas to end users, either through self-use transportation, distribution or marketing activities.

CURRENT STATUS OF TRANSPORTATION PERMITS GRANTED FROM 1996 TO AUGUST 2000
(PERMIT PERCENTAGE)



SOURCE: CRE

Permits granted for self-use purposes are aimed at providing industrials with an alternative supply option. These projects account for the construction of 636 km of pipeline with a 2,438-MMcfd capacity and allow the transport of natural gas from open access systems directly to the permit holder's operating facilities.

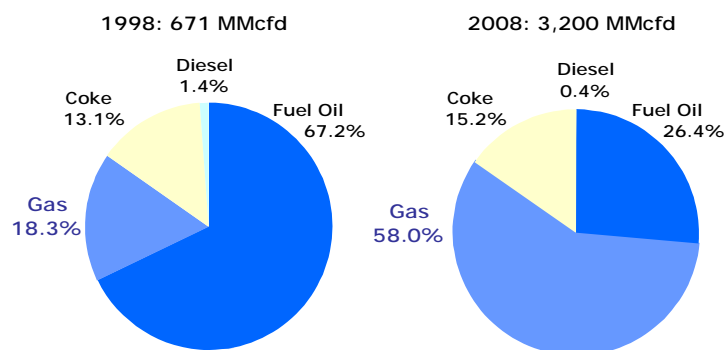
Distribution permits, on the other hand, are issued for specific geographic zones determined by the CRE in accordance with the objectives and strategies set forth in the *1995-2000 National Urban Development Program*. In this regard, the CRE has defined 21 geographic zones that comprise Mexico's four major metropolitan areas (Mexico City, Guadalajara, Monterrey and Puebla), as well as almost one third of the cities included in the *100 Cities Program*. These mid-sized communities, along with the metropolitan areas, constitute the main urban centers of the country.

In this context, distribution permits represent a new fuel alternative in 149 municipalities within 16 states of the country, as well as the 16 districts within Mexico City. The corresponding permit holders have committed to connect and bill over 2.3 million industrial, commercial and residential users over the next five years, giving access to natural gas to nearly ten million people nationwide.

Although permit holder commitments are projected to the fifth year of operations, compliance is assured through financial guarantees that currently amount to more than US\$ 180 million. In case commitments are unfulfilled, these bonds will be settled in favor of the federal treasury.

Additionally, in 15 geographic zones where there are distribution projects, the assets of the state-owned natural gas distribution companies were divested and account for an additional amount of approximately US\$ 400 million for the federal budget.

PROJECTED EVOLUTION OF FOSSIL FUEL CONSUMPTION FOR ELECTRICITY GENERATION



SOURCE: *PROSPECTIVA DEL SECTOR ELÉCTRICO 1999-2008*, SECRETARÍA DE ENERGÍA, 1999.

The active involvement of private firms in natural gas transportation and distribution within a clear and predictable regulatory framework has increased natural gas demand for electricity generation. The availability of this fuel will sustain the construction and operation of over 22 thousand Megawatts (MW) of new generating capacity over the next ten years and the conversion to natural gas of 4 thousand MW of capacity. The use of this energy source compared with other fossil fuels will rise from 18 per cent in 1998 to 58 per cent in 2008.

NEW GENERATION OF REFORMS

The natural gas reform initiated during 1995 was aimed mainly at establishing adequate conditions to promote private investment in storage, transportation and distribution activities. For that purpose, restrictions to foreign trade were eliminated, and marketing was opened to private participation not subject to regulation due to its competitive potential.

Although the reform was successful in this regard since the private sector is now the prime participant in Mexico's infrastructure development, significant drawbacks still prevail due to Pemex's dominating position in the market. If this situation is not addressed, the introduction of effective competition to the industry will be hindered, and an efficient and opportune supply of natural gas in the country will not be possible. In particular, Mexico's gas industry is still burdened by five core problems:

- **Marketing.** Pemex currently exerts a legal monopoly over natural gas production and a natural monopoly with respect to the National Pipeline System (SNG). Control over these activities by a single agent significantly limits the development of marketing activities carried out by third parties, which lessens the likelihood of effective competition in the industry. This has in turn strengthened the monopoly of *Pemex-Gas y Petroquímica Básica* (PGPB) over this activity.
- **Transportation.** Although the development of natural gas transportation infrastructure is open to private participation, Pemex has continued to build transportation pipelines, primarily related to electricity projects. This situation conflicts with the objectives of the 1995 reform, as Pemex is using resources for an activity that may be carried out by private parties, instead of concentrating them on strategic activities reserved to the State, such as natural gas exploration and production.

- **Exploration and production of non-associated natural gas.** With the instrumentation of the structural reform in the natural gas industry and the application of environmental standards, the percentage of natural gas in the overall fuel consumption profile has increased. However, if certain structural conditions in the fuel production chain are not modified, the supply growth rate will not match the expected growth in demand.
- **Development of underground storage projects.** The development of natural and LPG storage systems is currently experiencing significant drawbacks. This type of project is needed to encourage the dynamic development of gas markets since it will allow changes in gas demand and production to be efficiently confronted and sudden price fluctuations to be moderated.
- **CNG for automotive vehicle use.** By using natural gas, approximately 80 percent of harmful vehicle emissions in environmentally critical areas may be eliminated. Nevertheless, from the economic viewpoint, the use of CNG is currently unfeasible, regardless of its advantages to Mexico's population. This is due to the fact that its price to the end user is subject to the Special Products and Services Tax (IEPS), unlike LPG (its closest competitor).

In order to improve production and supply alternatives, as well as strengthen the role of gas in Mexico's economic development, the 1995 reform will have to advance, so as to significantly increase investment in non-associated gas production and effectively segregate marketing and transportation activities, among other actions.

If these objectives are met, the country's natural gas consumption sectors would see significant improvements in gas supply, as this would complement the instrumentation of the first-hand sales price methodology. This formula has proven its effectiveness by incorporating solid economic fundamentals that allow the opportunity cost of fuel to be reflected and the conditions of highly competitive international markets to be emulated.

In addition, storage infrastructure would contribute to preventing price distortions due to unbalanced supply and demand and minimizing supply costs by providing for transportation logistics and inventory management. On the other hand, storage would also allow marketers to establish fuel buying and selling policies according to market conditions and thus smooth seasonal price volatility.

If CNG were subject to the same fiscal treatment as other fuels, the development of programs for massive vehicle conversion to this fuel in environmentally critical areas would be possible. The elimination of IEPS from the price of CNG would also ease the stress on Pemex with regard to the import of increasingly higher volumes of fuels (gasoline, diesel and mainly LPG) in order to meet the growing domestic automotive vehicle fuel demand.

The identification of these limitations has led the CRE to call for a national public consultation, in order to gather information from all parties involved in the natural gas industry concerning a new generation of reforms to the current legal framework. As a result of this public consultation process, the CRE will produce a final policy document that will further consolidate the energy sector reform in Mexico.

Electricity

BACKGROUND

Two vertically integrated companies comprise the Mexican electricity industry. The CFE and *Luz y Fuerza del Centro* (LFC) have traditionally held control over electricity production, transmission, distribution and sale to the public, as set forth in the Constitution.

Over several decades, a State monopoly was the most adequate scheme for integrating the country's electricity grid and expanding coverage throughout the national territory. The available technology and the scale of projects, as well as the required sources of investment, called for the centralization of the electricity industry in the public sector as the natural foundation for the consolidation of infrastructure. Under these conditions, the electricity industry became a strategic area exclusively run by the State.

The 1992 amendments to the *Ley del Servicio Público de Energía Eléctrica* (Public Electricity Service Act) provided for limited private domestic and international participation in the sector. This change came about as a result of the need to add private efforts to the government's in order to increase electricity supply in view of budgetary constraints. As a result of these reforms, the private sector participates in electricity generation under the following modalities:

- Self-supply. The generation of electricity to meet an industrial facility's own energy needs.
- Cogeneration. Electricity generated simultaneously with steam or other types of secondary thermal energy to be used in an industrial process, or the generation of electricity from the surplus thermal energy of an industrial process.
- Independent power producer (IPP). Generation of electricity to be sold to CFE, which is obliged to purchase power pursuant to a long-term agreement.
- Small production. Generation of a capacity under 30 MW to be sold to the CFE under a power purchase agreement (PPA).
- Exports of electricity produced under the cogeneration, IPP or small production modalities.
- Import of electricity exclusively for self-supply purposes.
- Emergency electricity generation during public service breakdowns.

The State still holds the exclusive right to generate electricity for public service; thus, the private sector is not allowed to sell energy to end users.

DESIGN AND INSTRUMENTATION OF THE REGULATORY FRAMEWORK

Pursuant to the CRE Act, the purpose of the Commission with regard to the electricity industry is to promote the efficient development of the following activities:

- Supply and sale of electricity to end users;
- Electricity generation, power export and import by private parties;
- Purchase of electricity for public service, and

- Electricity transmission, transformation and delivery services between State-owned public utilities (CFE and LFC), and between these and electricity generation, export and import permit holders.

As a result, the CRE has sought to facilitate procedures, provide greater flexibility to private parties and establish a clear relationship between permit holders and CFE and LFC, within the scope of the regulatory framework. The following legal instruments have been issued to this end:

- Methodology and agreement models;
- Public Electricity Service Ruling Act on Contributions, and
- Permit holder regularization.

Methodology and Agreement Models. These new regulatory instruments offer a variety of possibilities for permit holders to achieve more efficient management of electricity supply, depending on the features of their projects:

- **Interconnection Contract.** Interconnection between permit holders and the national electricity grid is allowed. Technical characteristics, metering equipment, required investment, service provision and determination of charges are regulated.
- **Backup Service Contract.** CFE and LFC may provide permit holders with backup service. The types of service that may be contracted are backup due to failure, backup due to maintenance and backup due to failure and maintenance.
- **Surplus Electricity Purchase Agreement.** The guidelines, procedures and terms and conditions under which permit holders shall deliver low cost electricity to CFE and LFC are established and may be carried out through bidding or automatically.
- **Transmission Service Agreement (Wheeling).** Guidelines, procedures and terms and conditions under which CFE and LFC shall transport electricity from permit holder energy sources to the loads. Wheeling may occur at high (greater than 69 kilovolts, kV) and low voltage (lower than 69 kV).
- **Methodology for Calculating Transmission Service Charges.** The guidelines, procedures and terms and conditions under which CFE and LFC may recover transmission service charges are defined. Fair and proportional payments are ensured to permit holders for high- and low voltage energy transmission.
- **Methodology for Determining Ancillary Service Charges.** The charges for frequency and voltage control services, among others provided to permit holders by CFE and LFC on account of interconnection, are established.

Public Electricity Service Ruling Act on Contributions. The CRE, by request of the Energy Ministry and in coordination with CFE and LFC, supervised the development of this regulatory instrument published in November 1998. The Contributions Ruling Act brings transparency and clarity to the rules for obtaining public electricity service in exchange for a contribution, or payment, to the national electricity system.

In addition, this instrument is aimed at specifically defining the cases and conditions in which public electricity service applicants must pay for the completion of specific construction work, or the extension or modification of existing facilities. The Act also determines the situations in which payment refunds are applicable, in accordance with the general provisions set forth in the Public Electricity Service Act. The Contributions Ruling Act includes the following instruments:

- **Technical Specifications.** General guidelines for design, construction, safety and quality, as well as connection and metering procedures that equipment and facilities interconnected to the national electricity grid at low, medium and high voltages must comply with.
- **Electricity Service Request Form.** A format that simplifies the preparation of the complementary technical and economic information to obtain electricity service when facilities must be built, expanded or modified.
- **Agreement Models.** Obligations of applicants and CFE and LFC regarding specific construction work; expansion or modification of existing facilities, and payment refunds. The agreement provides three payment alternatives: contributions in cash, contributions in cash and in kind, and specific construction work on behalf of the applicant.
- **Price Catalogs.** The unit price lists for labor, material and equipment used by CFE and LFC to determine charges for specific construction work or expansion of existing facilities.
- **Criteria and Guidelines for Determining and Updating Contribution Amounts.** Rules for CFE and LFC to calculate, determine and update the payments to obtain public electricity service.

Permit Holder Regularization. To oversee the activities of facilities that do not serve the public and that operate without a permit, the Commission has extended the permit registration deadline for parties in this situation to December 2000. In this context, the owners of 117 electricity facilities have preferred to obtain permits from the CRE, rather than face sanctions.

Inspections. To verify compliance with the Public Electricity Service Act and its Ruling Act, as well as with the conditions set forth in permit holder's titles, the CRE has carried out 162 inspections to power generation and import facilities to date.

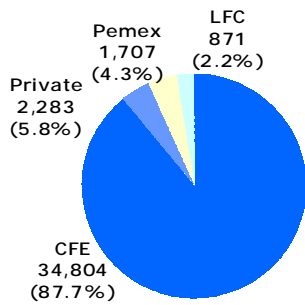
RESULTS

Following the amendments to the Public Electricity Service Act, the development of natural gas infrastructure has encouraged the granting of electricity generation permits by the CRE. To date, 162 electricity permits are in effect for power generation under the self-supply (111), cogeneration (33), IPP (11) and export (1) modalities, as well as for import activities (6). These permits account for investment commitments of over US\$ 6.9 billion for the construction and operation of nearly 12 thousand MW of capacity. 29 per cent of this capacity is in operation (3,472 MW), 45 per cent is under construction (5,447 MW), 23 per cent is about to begin construction (2,748 MW) and 3 per cent is inactive (332 MW).

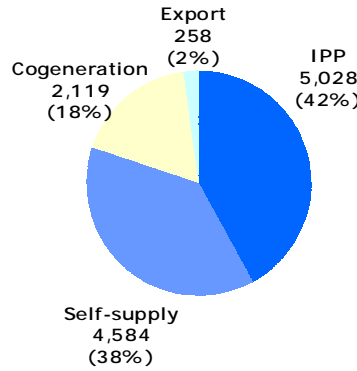
Of total permits, 35 belong to Pemex for self-supply and cogeneration activities. These represent 14 per cent of the total capacity and 17 per cent of the total investment committed to electricity generation that is not for service to the public. The private sector, on the other hand, currently operates 2,283 MW (5.8 per cent of the country's total installed capacity) through self-supply and cogeneration projects.

This result does not include IPPs that will begin operations between 2000 and 2003, the most significant generating activity in terms of capacity and investment. These permits represent 42 per cent of the generation capacity assigned thus far to the private sector and 35 per cent of the investment committed toward projects that are not for public service purposes.

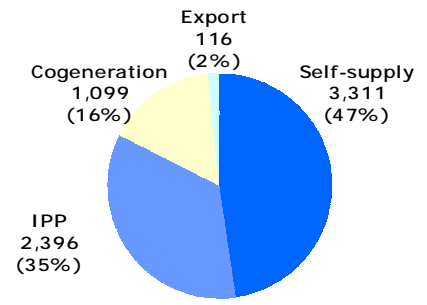
Generation Capacity Currently Installed in Mexico (MW)



Capacity by Modality (MW)



Investment by Modality (Million USD)



SOURCE: CRE AND COMPENDIO ESTADÍSTICO DEL SECTOR ENERGÍA 1980-1999, SECRETARÍA DE ENERGÍA, 1999.

SOURCE: CRE

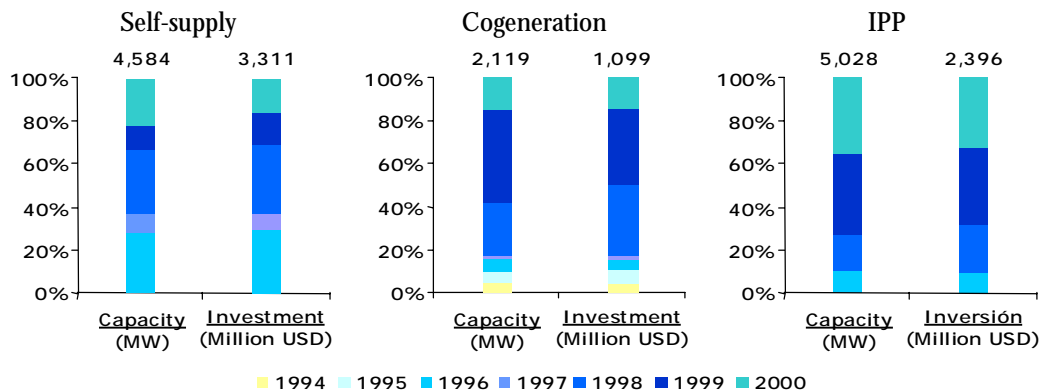
SOURCE: CRE

GENERATION AND IMPORT PERMITS GRANTED FROM 1994 TO AUGUST 2000

Modality	Permits	Capacity (MW)	Estimated Investment (Million USD)
Self-supply and Cogeneration	144	6,703	4,409.4
Private	109	4,996	3,263.4
Pemex	35	1,707	1,146.0
IPP	11	5,028	2,395.6
Export	1	258	116.0
Import	6	10	2.6
Total	162	11,999	6,923.6

SOURCE: CRE

CAPACITY AND INVESTMENT DERIVED FROM GENERATION PERMITS GRANTED FROM 1994 TO AUGUST 2000



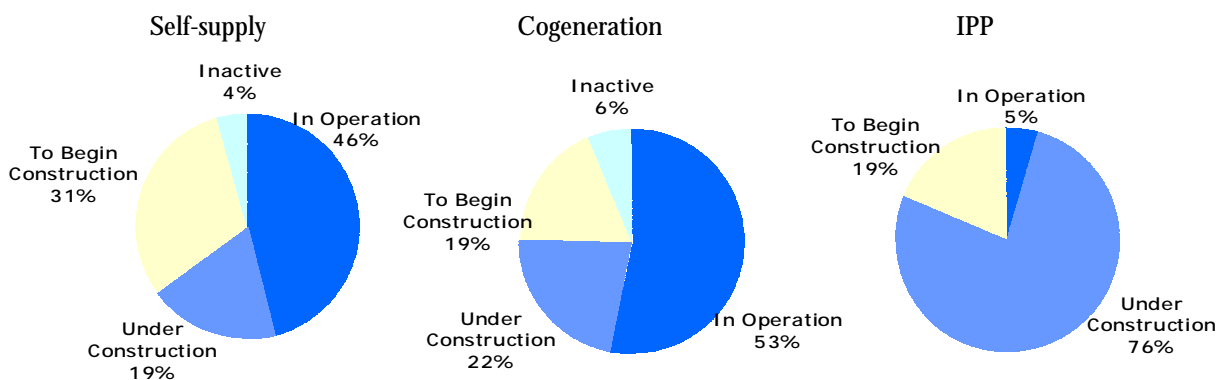
SOURCE: CRE

STATUS OF GENERATION AND IMPORT PERMITS
GRANTED FROM 1994 TO AUGUST 2000

Status	Capacity (MW)	Percentage	Estimated Investment (Million USD)
New Projects	9,676	81	5,237.1
Under Construction	5,447	45	3,163.6
To Begin Construction	2,748	23	1,275.8
In Operation	1,149	10	477.4
Inactive	332	3	320.3
Regularizations*	2,323	19	1,686.5
Total	11,999	100	6,923.6

* GENERATING STATIONS IN OPERATION THAT HAVE OBTAINED PERMITS FROM THE CRE
SOURCE: CRE

STATUS OF GENERATION PERMITS GRANTED FROM 1994 TO AUGUST 2000
(CAPACITY PERCENTAGE)



SOURCE: CRE

COMPREHENSIVE RESTRUCTURING OF THE ELECTRICITY INDUSTRY

Despite the 1992 amendments to the Public Electricity Service Act, private participation has been limited. The sector's monopolistic conditions and the restrictions of the current legal framework have made private investment in self-supply, cogeneration and small production unattractive. As a result of the lack of a market in which generators may sell their surplus energy in a competitive manner, projects are only cost-effective when capacity is allocated for self-supply.

Conversely, private financing for building new generation capacity has been obtained through IPPs. For this purpose, the CFE carries out public bidding processes where private investors compete for a long-term PPA. This type of contract guarantees independent producers the return on their investment, as payments derived from the sale of capacity and energy allow them to recover their fixed and variable costs, respectively.

The State bears the investment risks with regard to the IPP modality, since producers receive compensation for capacity throughout the contract term (25 years), even when power plants are not dispatched. In addition, if electricity may be produced at a lower

cost due to technological developments within five or ten years, the State's only choice is to continue paying the price agreed to in the PPA.

Other schemes used by the government for financing electricity infrastructure are the Financed Public Work (OPF) and Build-Lease-Transfer (BLT) schemes. As in IPPs, the State bears all investment risks, and the corresponding investments comprise Long-term Productive Infrastructure Projects with Deferred Impact on the Budget (Pidiregas). Once in operation, these projects create payment liabilities to the government that must be included in the federal budget each year and are, therefore, accounted for as public debt.

Mexico must avoid using Pidiregas to face the challenges that the development of its electricity industry poses. This scheme allows for meeting short-term investment needs, but it does not guarantee the best conditions for the State in the medium and long term. This type of financing represents a palliative, and not a permanent solution, to the electricity industry's expansion problem. The following Pidiregas will be used in Mexico for guaranteeing electricity supply until 2004:

CFE GENERATING STATION EXPANSION PROGRAM, 1995-2000

Name	Type of Financing	Type of station	Capacity (MW)	Status
Samalayuca II	BLT	Combined Cycle	522.0	In Operation
Cerro Prieto	BLT	Geothermic	107.8	In Operation
Mérida III	IPP	Combined Cycle	531.5	In Operation
Monterrey II	BLT	Combined Cycle	489.9	Under Construction
Chihuahua	BLT	Combined Cycle	417.8	Under Construction
Tres Virgenes	BLT	Geothermic	10.9	Under Construction
Río Bravo II	IPP	Combined Cycle	511.4	Under Construction
Rosarito III	BLT	Combined Cycle	559.0	Under Construction
Hermosillo	IPP	Combined Cycle	258.3	Under Construction
Saltillo	IPP	Combined Cycle	255.7	Under Construction
Bajío	IPP	Combined Cycle	511.4	Under Construction
Tuxpan II	IPP	Combined Cycle	511.4	Under Construction
Puerto San Carlos	BLT	Diesel	40.6	Under Construction
Monterrey III	IPP	Combined Cycle	450.0	Under Construction
Altamira II	IPP	Combined Cycle	450.0	To Begin Construction
Naco-Nogales	IPP	Combined Cycle	225.0	To Begin Construction
Campeche	IPP	Combined Cycle	225.0	To Begin Construction
Rosarito IV	IPP	Combined Cycle	450.0	To Begin Construction
Altamira III & IV	IPP	Combined Cycle	900.0	Undergoing Bidding
Tuxpan III & IV	IPP	Combined Cycle	900.0	Undergoing Bidding
Chihuahua III	IPP	Combined Cycle	225.0	Undergoing Bidding
Chicoasén	OPF	Hydroelectric	900.0	Undergoing Bidding
Los Azufres II	OPF	Geothermic	100.0	Undergoing Bidding
Guerrero Negro	IPP	Diesel	9.0	Undergoing Bidding
Total Investment: US\$ 5,634 million			9,561.0	

NOTE: THIS TABLE DOES NOT INCLUDE 2,367 MW OF ADDITIONAL CAPACITY THAT WILL UNDERGO BIDDING AS OF 2001: ALTAMIRA V & VI, LA LAGUNA II, RÍO BRAVO III, EL SAUZ (2) AND EL ENCINO.

SOURCE: CRE; *PROSPECTIVA DEL SECTOR ELÉCTRICO 1999-2008*, SECRETARÍA DE ENERGÍA, 1999, AND DATA PROVIDED BY THE CFE.

According to the *Prospectiva del Sector Eléctrico 1999-2008* (Electricity Sector Prospective 1999-2008), published by the Energy Ministry, demand for electricity will grow at an average annual rate of six per cent over the next eight years. Therefore, an additional generation capacity of approximately 22 thousand MW will be required, equivalent to two thirds of Mexico's current installed capacity. Transmission and distribution systems also need to be modernized and expanded in order to avoid bottlenecks and make efficient use of the available generation capacity. Total investment required for this purpose amounts to nearly US\$ 50 billion, almost 40 percent of the federal budget for 2000.

Although these needs represent a significant challenge with regard to investment, they also represent an enormous opportunity concerning the creation of a new industrial organization that accommodates the latest technological developments and reaching optimal levels of efficiency, competitiveness and reliability in electricity supply. An electricity industry without these features will hinder the sustained growth of Mexico's economy.

The technological developments of the last 20 years have improved quality standards and the reliability of transmission and distribution networks, and have brought about competition in electricity generation and marketing activities. As a result, several countries have created open and competitive electricity markets involving both public and private companies. This new way of operating the electricity industry has drawn the private sector's attention.

The countries that have thoroughly restructured their electricity sectors to guarantee industrial growth and development include Argentina, Australia, Bolivia, Canada, Colombia, El Salvador, Spain, United States, Guatemala, England, Norway, New Zealand and Peru. Although with different features, in all of these cases, structural reform has brought about significant benefits to the domestic economy. These countries have carried out changes to improve and redirect the operation of their electricity industries, without reverting their course as of yet.

Conversely, the experience of countries that have attempted partial or insufficient reforms has been unfortunate. This type of reform usually becomes an obstacle for growth and development in the electricity industry. In addition, due to the uncertainty frequently caused by the lack of depth of partial reforms, the State is usually forced to provide additional guarantees (i.e. long-term contracts) to attract private investment.

In Mexico, a profound structural change must be undertaken in order to meet the pressing challenges of the electricity industry. For this purpose, activities currently carried out by CFE and LFC must be vertically separated; openings for private sector participation need to be provided, mainly with regard to electricity generation, distribution and marketing, and equal conditions must be guaranteed to public and private companies.

The opening of the Mexican electricity sector to private capital will be essential. However, the private sector will not risk investment if it must confront monopolistic structures. Thus, it is crucial to transform CFE and LFC and create new State-owned companies that may compete among themselves and private companies.

In February 1999, President Zedillo submitted a proposal to amend articles 27 and 28 of the Constitution to Congress. The initiative was aimed at achieving a profound structural change in the electricity industry and attaining the following objectives:

- Guaranteeing that electricity supply meets the growing needs of the population;

- Providing reliable, high quality and competitively priced electricity supply in order to encourage the economy's growth;
- Attracting private investment to strengthen the development of the electricity industry;
- Fostering a rational and efficient rate policy, where subsidies are granted in a transparent manner to those who really need them;
- Creating new and better employment opportunities for workers of the electricity industry;
- Committing additional government resources to education, health, water supply and poverty combat programs, and
- Reaffirming the State's regulatory role in a strengthened electricity sector.

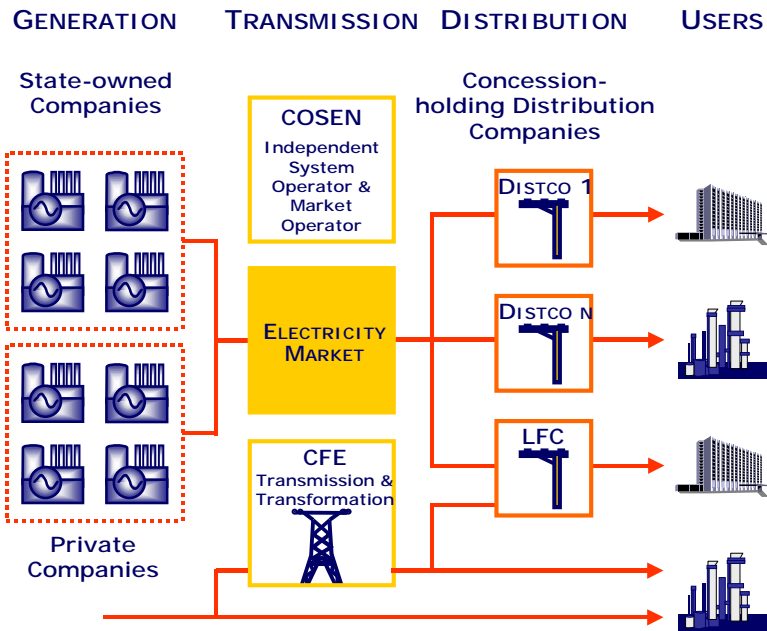
The structural reform set forth in this Constitutional amendment proposal considers the particular situation of the Mexican economy and its electricity sector, and comprises the best practices adopted in other countries' electricity sectors. Following are the main elements of the reform program:

1. Nuclear and geothermal electricity generation will continue to be strategic activities exclusively reserved to the State. All states will be able to generate electricity through publicly-owned geothermal stations.
2. Concessions for hydraulic infrastructure currently used to generate electricity will be granted exclusively to companies in which the State is a majority shareholder.
3. Except as provided above, the private sector will be allowed to participate in electricity generation.
4. The State will guarantee the sustainable use of natural resources required for electricity generation and will encourage generation derived from renewable natural resources.
5. The national transmission grid will be held within public domain, and concessions for this activity will not be granted to private parties.
6. CFE will be in charge of the physical operation, surveillance, preservation, maintenance and expansion of the national transmission grid.
7. The operation of the transmission grid (ISO) will be the responsibility of a new public organism (COSEN), who will also be in charge of operating the wholesale electricity market (MO).
8. General distribution grids will be held within public domain, but the State will be able to grant concessions to private parties for their use. Distribution companies will operate within different geographic regions that will be determined based on the economic feasibility of the service's efficient development.
9. The planning of investment in the national transmission grid and the establishment of incentives for the efficient and competitive development of the electricity sector will be the responsibility of the Energy Ministry. The CRE, as the independent regulatory authority, will regulate the industry by means of a clear, transparent and

predictable regulatory framework that provides legal certainty to private investment and safeguards service provision to final users.

10. The reform will in no way affect the rights of active, retired and pensioned employees of CFE and LFC.

PROPOSED INDUSTRIAL ORGANIZATION



The instrumentation of this proposal would reduce the budgetary impact and risks sustained by the Government for expanding electricity capacity, which would release resources that could be allocated to social priorities. Additionally, the reform would allow for attracting private investment to finance the expansion of necessary electricity infrastructure and create adequate conditions for private companies to compete with State-owned companies under equal conditions.

Competition in electricity production and marketing would reduce electricity costs and encourage companies to be more efficient. These benefits would be conveyed to end users by means of more competitive rates and a higher quality of service. Finally, by ensuring that companies cover their costs and obtain an adequate investment yield, the market would provide sufficient electricity supply.

LPG

BACKGROUND

Mexico is a major liquid petroleum gas consumer and holds the first place worldwide with regard to the residential use of this fuel. Despite its significance, the LPG industry has undergone a number of drawbacks as a result of the monopolistic or oligopolistic nature of its core activities.

Pemex's current LPG infrastructure consists of thirteen processing centers, 1,800 km of pipeline and 25 supply stations, 13 of which are connected to the main line. Nevertheless, this infrastructure is not enough, as Pemex's budgetary limitations and the reallocation of resources to more profitable activities have created bottlenecks in transportation and hindered the development of private large-scale storage projects.

In recent years, the growth in domestic LPG demand has exceeded all expectations. As a result, increasingly higher volumes of fuel have been imported in order to satisfy nearly one third of the demand. This situation, in the current international context of considerable price volatility, has brought about the increase of import costs for Pemex.

FIRST STEPS TOWARD STRUCTURAL REFORM

With the purpose of promoting more efficient LPG supply, the government resolved to carry out a structural reform that would foster competition throughout the industrial chain (supply, transportation, storage and distribution) by separating each activity. To this end, on June 26, 1999 the Energy Ministry issued the new *Reglamento de Gas Licuado de Petróleo* (LPG Regulation).

The CRE has the following powers in order to promote the efficient development of LPG first-hand sales, transportation and distribution by pipeline:

- Approval of the terms and conditions for first-hand sales and determination of the methodology for price calculation;
- Approval of the terms and conditions for the provision of transportation (including self-use transportation) and distribution services by pipeline;
- Determination of the methodologies for calculating the rates for the above mentioned services, unless the Federal Competition Commission determines that effective competition exists;
- Notification to the Energy Ministry when actions must be taken to guarantee supply reliability, and
- Granting and revoking of permits and authorizations required to provide transportation and distribution services by pipeline.

The LPG Regulation establishes the scope of action of the Energy Ministry, Profeco (Federal Consumer Protection Bureau), the CRE and the Federal Competition Commission; the rules for first-hand sales by Pemex within Mexican territory, and free LPG trade under the terms of the Foreign Trade Act. The Regulation also foresees the substitution of authorizations granted under preceding regulations by a permit regime for regulated activities.

With regard to distribution, the LPG Regulation emphasizes the thorough surveillance of vehicles and the portable containers that they supply, which must be identifiable according to each permit holder's logos and designated colors. This monitoring of these activities is aimed at improving efficiency and safety.

To this effect, the Regulation includes a program to substitute all portable containers currently in use with new cylinders. The calendar for replacement began in 1999 and is scheduled to end on March 30, 2005. This is the first time that this type of program is undertaken in the LPG industry's history, aimed at ensuring that containers used on a daily basis by consumers at home are built in accordance with the applicable NOM and comply with safety requirements.

The LPG Regulation clearly identifies the following four segments within the industry:

- First-hand sales, as the first sale of domestic gas by Pemex to a third party for delivery within Mexican territory, or of imported gas by Pemex to a third party within Mexican territory, provided it contains domestic LPG.
- Transportation, which includes receiving, carrying and delivering LPG by trucks, trailers, cars, ships and pipeline.
- Storage, comprising LPG receiving and storage activities at supply plants or storage facilities, and
- Distribution, which encompasses receiving, carrying, storage and delivery to end users.

Under the new structure of the LPG industry, Pemex will focus its efforts on first-hand sales, transportation by pipeline and operation of its supply plants. The private sector, on the other hand, will be able to participate for the first time in other activities such as transportation by pipeline or other means, distribution and storage. Both Pemex and the private sector will be allowed to participate in LPG foreign trade.

According to the LPG Regulation, activities subject to prior permit from the CRE are transportation and distribution by pipeline. Permits granted by the CRE to this effect are valid for an initial 30-year term and may be renewed every 15 years; are granted to applicants with technically and economically sound projects, and do not confer exclusive rights.

Until August 2000, the CRE had granted five authorizations for LPG transportation pipelines, three of which were issued to PGPB and two to private companies (*Penn Octane de México* and *Invalle*). These projects account for 537 km of pipeline and 5.32-Bcfd capacity. As regards LPG distribution by pipeline, the CRE registered the authorization under which *Compañía de Gas de Tijuana* had been operating. The above mentioned companies were operating before the RGLP came into effect and were issued provisional permits by the CRE, while definitive permit applications are assessed.

PENDING CHALLENGES IN THE LPG INDUSTRY

In order to complete the basic regulatory structure established in the LPG Regulation, the CRE will carry out the following actions within its scope of authority:

- Publication of the LPG first-hand sales directive and the directive for calculating the rates for this activity;
- Approval of Pemex's general terms and conditions proposal for first-hand sales;
- Publication of the directive for calculating pipeline transportation and distribution rates, and
- Granting of transportation permits to Pemex for its pipelines.

The assessment of opening foreign trade and fostering domestic and foreign investment in transportation, storage and distribution activities must take place in the short term. Opening foreign trade would diversify supply sources for distributors and minimize the risk of domestic lack of supply.

The opening of the LPG gas market to foreign trade would be complemented by increased domestic and foreign private investment in the full range of activities not

reserved to the State. This would encourage a higher degree of competition which, in turn, would contribute to service quality, better pricing conditions and supply safety in consumers' benefit.

Institutional Development

Since the outset of the energy sector reform, institutional consolidation and the CRE's transparent and impartial operation were identified as key factors for its success. The first step was to organize the Commission in a very short period of time by making the most of available resources, an effort that implied significant innovation and creativity. Thus, the CRE implemented new resource management and organization methods, and focused on five issues:

- **Organizational Structure.** Consolidation of a specialized, non-bureaucratic and flexible organization characterized by a continuous improvement culture that favors innovation.
- **Management Systems and Information Technologies.** Utilization of best administrative practices and support of operations through advanced IT systems.
- **Inter-institutional Relations.** Interaction with regulatory and academic institutions, in order to share experiences, join efforts and maintain the effectiveness of regulation.
- **Regulatory Framework Dissemination.** Transparency and availability of information concerning the regulatory framework as fundamental factors for providing certainty to participants in Mexico's energy sector.
- **Credibility.** The CRE's experience in the structural reform of the natural gas industry viewed from an international standpoint as an example for other emerging economies.

ORGANIZATIONAL STRUCTURE

The development of the CRE's organizational structure has taken into account the objectives established both in the CRE Act and the *National Development Plan*, the experience of international energy regulatory institutions and the analysis of vanguard management models. The Commission's operating procedures were established in its *Institutional Strategic Plan*, which establishes the CRE's mandate and vision, and identifies the strategic objectives and key projects and processes to fulfill them.

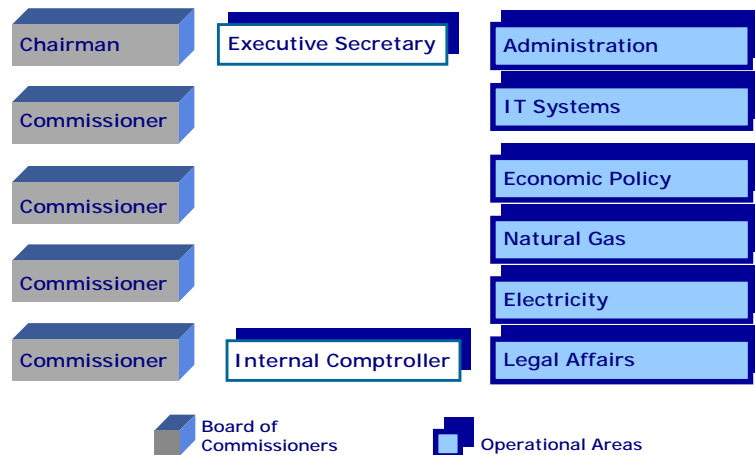
The design of a chiefly horizontal and compact organizational structure has been crucial to facilitating communication and the exchange of ideas between various areas of the Commission, favoring effective and non-bureaucratic action in a highly specialized atmosphere and offering personnel an opportunity to interact in an environment of continuous professional development. This structure has allowed the CRE to adapt its activities to the numerous challenges it has faced, due to the increasing technical complexity of its tasks, as well as higher workloads. It is important to highlight that, despite the fact that the workload has duplicated over the last years, the staff has practically remained constant since 1995.

The CRE has a staff of 157. Of these positions, 99 comprise middle and upper management and 58 consist of support staff. The Commission's middle and upper ranks hold a high academic level: 95 per cent have obtained bachelor's degree; 23 per cent, master's degrees, and 6 per cent, PhDs. The most frequently occurring fields of expertise among the staff are engineering, economics, law and accounting. An additional feature

that differentiates the CRE from other public and private companies is that women’s participation in middle and upper management reaches 25 per cent.

The CRE’s decision-making body includes five commissioners who are appointed by Mexico’s President for five-year staggered and renewable terms. The Board of Commissioners is an interdisciplinary group whose members are widely experienced in their professional fields. The resolutions of the Board are issued by a majority of votes, with the Chairman holding the casting vote, and entered in a public record. Whenever a project is undertaken, the CRE designates a leading commissioner, who is in charge of monitoring its progress and submitting it to the Board of Commissioners for discussion and the approval of the corresponding resolution.

CRE STRUCTURE



The Executive Secretary is in charge of managing the CRE; supervising the design and application of systems and procedures; carrying out public and institutional relations; organizing the CRE’s Board sessions, and consolidating its Public Record. The Management Department supports the Executive Secretary with the administration of human, financial and material resources, as well as general services.

The Electricity and Natural Gas departments are the core areas of the CRE, in charge of analyzing and evaluating permit applications and overseeing projects related to the operation of permit holders. These areas submit work to leading commissioners and aid them in developing final projects and resolution drafts for the Board’s approval. These areas also participate in the design and implementation of new regulations that contribute to the efficient and competitive development of the natural gas and electricity industries.

Legal Affairs and the Economic Policy Unit are the Commission’s auxiliary areas. The first provides legal support and monitors that procedures established in the legal framework are applied correctly. The Economic Policy Unit, on the other hand, develops regulatory strategies for the energy sector, in compliance with the policy set out by the Energy Ministry.

The CRE’s regulatory experience is enriched by its staff’s skills, and professional innovation by means of a multidisciplinary teamwork system is encouraged. Team members are highly qualified with respect to technical, economic, accounting and legal issues. Teamwork at the Commission not only responds to the emergence of new activities, but also makes the most of the expertise progressively acquired by the staff.

Since most of the CRE's core activities take place in the form of specific projects that must be assessed in order to issue a resolution, working by project is a highly valuable tool for maximizing human resources.

An understanding of the CRE's mandate and vision plays a decisive role in having the staff focus their efforts consistently towards attaining regulatory goals. The fulfillment of the Commission's mandate and vision depends largely upon the application of the following key operating principles:

- **Clarity.** The Commission establishes clear and precise rules for carrying out regulated activities;
- **Stability.** The rules of the game are consistent with the long-term vision of the industry, in order to encourage the required investment;
- **Transparency.** The development of the regulatory framework involves public consultations, and the CRE's resolutions are entered in its Public Record;
- **Equality.** The legal framework makes no distinction between public and private permit holders; provisions are general, and consistent analysis criteria are applied in a predictable manner, and
- **Autonomy.** Decisions are made according to the long-term objectives and vision set forth in the applicable legal provisions, and they are not subject to political considerations.

A specific challenge that the CRE confronts is to guarantee that the spirit of innovation by which it is characterized is maintained as the regulated industries advance toward their maturity. In order to respond to this challenge, the "account executive" was established as a new figure to oversee each permit holder's operation and gather a body of information on the various stages of Mexico's natural gas industry.

Thus, each permit holder has been assigned to a staff member who will be accountable for the corresponding project follow-up. The establishment of this position not only allows for the provision of personalized attention, but also for supporting management and supervisory decision-making by executive personnel through cutting-edge IT systems.

This new working method within the Commission's core areas is a further step within the culture of continuous improvement fostered at the CRE that contributes to its high quality of service. Account executives will also provide for an orderly transition to the next administration, as they will aid the consolidation and continuity of internal procedures.

MANAGEMENT SYSTEMS AND INFORMATION TECHNOLOGY

In order to support the CRE's timely completion of its regulatory duties, the creation of a progressive, compact and efficient management area has been emphasized. This, along with continuous training and advanced IT systems, allows the staff to take on a greater workload without affecting service quality. The Commission owns modern facilities and advanced equipment for its staff to perform their activities in optimum circumstances, within an environment of trust and respect. As a result of these efforts, the average seniority at the CRE is one of the highest in the government.

Given that its personnel is the Commission's most valuable asset for successfully accomplishing its regulatory tasks, training is fundamental for the professional development of the staff. Therefore, the CRE has invested in training programs that focus

on energy regulation, computer skills and individual and professional growth. On account of the intensive training policy, all staff members (157 employees) have participated in over 340 courses, seminars and conferences since 1996, both in Mexico and abroad.

The staff's acquisition of experience is encouraged by the implementation of a professional civil service. This specialty will allow the CRE to gather a workforce of professionals from various disciplines, who are qualified to perform core and auxiliary activities, in accordance with the CRE's powers, functions, objectives and organizational structure. The civil service philosophy involves working under the principles of legitimacy, transparency and impartiality as a measure to ensure the staff's optimum performance.

In order to support the staff's efforts, the CRE has applied an informatics policy aimed at the utilization of advanced computer systems at all levels of the institution. This policy is integrally focused on the medium and long term and responds in an open and progressive manner to the Commission's changing needs. For this purpose, not only has each staff member been provided with a computer, but IT systems have also been developed which expedite work procedures by means of the local network (intranet) and provide access to reliable, relevant and updated information.

The Commission's intranet was designed to dynamically integrate work and group flows in real time. As a result of the implementation of the various systems that comprise this network, staff productivity levels have increased significantly, and the CRE continues to be an institution at the vanguard of the development of an informatics culture, both at the public and private level. Other benefits obtained by using the intranet include immediate exchange of information between all areas and levels of the Commission, a significant reduction in operating costs on account of increasing electronic transfers among staff members and the simplification of information filing and searching procedures.

INTER-INSTITUTIONAL RELATIONS

As part of its strategic planning, the CRE has maintained a steady relationship with other regulatory and academic institutions, as well as industrial organizations. This has allowed the Commission to remain updated with respect to the latest regulatory advances and be actively involved in the development of the natural gas market. Among the activities carried out jointly with other institutions are:

- **General Academic Cooperation Agreement with the Centro de Investigación y Docencia Económicas (CIDE).** This channel allows the CRE to maintain academic ties and analyze in theoretical terms the regulatory difficulties it faces without having to divert internal resources, and at the same time, the CIDE is provided with research topics taken from real cases. During 1999, for example, the CRE benefited from research on the following topics:

Alternatives for price regulation in the energy sector.

Average revenue regulation and uncertainty.

Natural gas pricing in Mexico.

Regulation of natural gas marketing activities in Mexico.

Evaluation of the structural reform process in Mexico's natural gas industry.

Stochastic model of the regulation of natural gas distribution rate regulation in Mexico.

Due to its quality, some of this research has been or will be published by renowned academic and financial journals, both at the domestic and international level, such as

El Trimestre Económico, the *Energy Journal* and the *Southern Economic Journal*. In addition, several papers have been presented at international conventions, such as the 54th European Meeting of the Econometric Society, in Santiago de Compostela, Spain; the XII Latin American Meeting of the Econometric Society, in Cancun, Mexico and Access Mexico 99, Five Years of Nafta, in Houston, Texas.

- **Cooperation Agreements with Regulatory Entities.** The most noteworthy are the agreements held with Canada's National Energy Board, Quebec's *Régie de l'Énergie*, Argentina's *Ente Nacional Regulador del Gas (ENARGAS)*, the Texas Railroad Commission and the California Energy Commission. These agreements formalize collaboration and the exchange of experiences concerning energy regulation and institutional training programs. As a result, all institutions involved have benefited from information that supports the performance of their regulatory duties.
- **Labor Training Agreement with the Mexican Natural Gas Association (AMGN).** The CRE has subscribed an agreement with industrials involved in natural gas transportation and distribution, aimed at promoting reliable, consistent and safe development of infrastructure. Through this agreement, technical staff who build and operate natural gas facilities will be provided with adequate training, in order for the industry to comply with official Mexican standards on natural gas issued by the Energy Ministry and the CRE.

The AMGN will verify that job descriptions, training program contents and instructor qualifications fit the industry's requirements. The CRE, on the other hand, will incorporate the essential aspects of this agreement to conformity assessment procedures of the applicable NOM, in order to guarantee that only qualified technical personnel is involved in the construction of natural gas infrastructure.

REGULATORY FRAMEWORK DISSEMINATION

Since 1995, the CRE has emphasized dissemination of its activities as part of a resolved policy of transparency and openness to the public, in general, and to investors, in particular. Some of the mechanisms used by the CRE to this end are the following:

- Active involvement in national and international forums;
- Attention to media representatives;
- Distribution of a free, bimonthly electronic newsletter (*infoCRE*);
- Running of the Information and Documentation Center (CDI), and
- Hosting and constant updating of its web site (www.cre.gob.mx).

The CRE has participated in numerous international forums and seminars and has organized domestic and international events where the dissemination of its experience with the reform process and the conditions leading to its success and short-term implementation in Mexico are presented. The actions undertaken with regard to institutional building and its important role in the establishment of a clear, predictable and impartial regulatory framework have also been illustrated at these forums.

On account of the domestic and international interest drawn by the CRE as a result of the successful implementation of Mexico's natural gas reform, its staff members have participated in over 144 forums. These events have been related to energy regulation; international experience with reform processes in service sectors; market competition and liberalization theories, and standardization, among other topics.

In 1996, the CRE organized the First Hemispheric Conference on Energy Regulation in Mexico City. The heads of regulatory agencies from 13 countries (Argentina, Bolivia, Brazil, Canada, Costa Rica, Chile, United States, Jamaica, Mexico, Nicaragua, Peru, Dominican Republic and Venezuela), as well as from three U.S. regulatory agencies (California, Oregon and Texas) participated at the conference. Domestic and internationally renowned experts were also present, among other guests.

The primary aim of this conference was the exchange of ideas and recent experiences, in order to foster cooperation and consistent regulatory frameworks. Since the conference was held during the development of Mexico's natural gas regulatory framework, the experience was especially useful to the CRE. The issues discussed include the situation of energy regulation in the hemisphere at the time; market structure and regulatory strategies for the sector; institutional development of regulatory authorities, and hemispheric cooperation.

In addition, since 1998 the CRE has sponsored the Natural Gas Seminar on a yearly basis. This event brings the Commission, other sector authorities, Pemex and private participants in the industry together at an open forum, where opinions on regulatory criteria and procedures are exchanged. The forum is structured around discussion panels on relevant regulatory topics, based on CRE's recent experiences.

The consistent and timely announcement of the CRE's activities to the media is part of its commitment to transparency regarding the dissemination of its activities. The objective of this policy is to promote the development of a new natural gas culture in Mexico, and, to this effect, the Commission periodically emits press releases concerning regulatory developments and holds press conferences when these are relevant.

The CRE's Chairman has offered numerous exclusive interviews with correspondents from specialized publications and journals, both in Mexico and abroad, and has attended radio and television programs in order to expound upon the benefits of using natural gas. In this sense, the Commission's dissemination of the regulatory framework reflects its pledge toward offering a high quality service to the public, by giving account of its activities, contributing to efficiency among its permit holders and providing the necessary information for compliance with standards.

InfoCRE is a bimonthly, electronic newsletter that is distributed free of charge, and in which the most relevant news about the CRE's activities and the gas and electricity industries in Mexico is summarized. E-mail was selected for distributing the newsletter to over 1,800 subscribers, in order to minimize dissemination expenses and expedite delivery.

At the CRE's facilities, the CDI constitutes an excellent option for the public to study an extensive collection of energy policy documents. In addition, the CDI houses the Commission's Public Record, which open to the public for investigation. Visitors to the Center have been identified within eight categories according to their specific information needs (CRE staff, permit holders, investors, researchers, reporters, public servants, consultants and students), although most parties use the computers provided to access the CRE's web site.

Remote access to Mexico's energy regulatory framework is made possible by means of the Commission's web site, regarded as one of the most comprehensive with respect to other public institutions and private companies. The CRE's web site includes the regulatory instruments issued to date; information about gas and electricity permit holders and their projects; resolutions issued by the Board of Commissioners; the white

books of distribution permit bidding processes; press information; the CRE's publications, and statistics on the sector and Mexico's economy.

Since more information is concentrated in a single site (122 Megabytes) and is constantly being updated, the CRE's web site is a mandatory source for research, not only by regulated operators, but by its own staff also. Recently, the CRE's web site was regarded as one of the best ten in Mexico, in the Government/Associations category, due to its design, contents and easy navigation.

CREDIBILITY

Five years after the beginning of the natural gas reform process, the current perception — both at the domestic and international level— is that it has been successful and represents an innovative example of the design and implementation of a new regulatory framework. Public consultations to develop regulation and the leadership exercised by the CRE have been key elements in the perception that other emerging economies may consider the fundamental lessons obtained from this experience useful. In this regard, the Commission has received more than ten requests for technical support from energy authorities in Costa Rica; Guatemala; Honduras; Nicaragua; Quebec, Canada; Dominican Republic, and Vietnam over the last years.

In addition, several organizations such as the World Bank, the Inter-American Development Bank (IDB), the Asia-Pacific Economic Cooperation forum (APEC) and the Organization for Economic Co-operation and Development (OECD) have studied the Mexican case as an example of a successful structural reform. One of these studies, titled *Regulatory Reform in Mexico's Natural Gas Sector*, was conducted by the OECD in 1996 and outlines that the CRE's evolution stands out as a promising element for investment in infrastructure. The document also states that Mexico's creative and advanced regulatory framework establishes the groundwork necessary for introducing competition and the efficient development of the natural gas industry.

The natural gas structural reform experience should be the basis and example for the urgent modernization of the Mexican electricity sector, as well as the cornerstone for an efficient industrial sector and the capacity for the economy to generate employment. In this sense, investors, as well as end users, may continue to expect the high quality of service in the future that has characterized the CRE in its effort to bring about the vision of a competitive natural gas industry.

ISO-9002 QUALITY CERTIFICATION

Pursuant to the Secodam's *1995-2000 Program for the Modernization of the Federal Public Administration (PROMAP)* and the CRE's *Institutional Strategic Plan*, the *Quality Assurance System (SAC)* has been implemented at the Commission, in accordance with the international trend toward total quality. The SAC comprises all of services related to regulation and operation of natural gas and electricity projects with permits from the CRE. The certification ceremony was held in August 2000 in the presence of Energy Minister Luis Téllez.

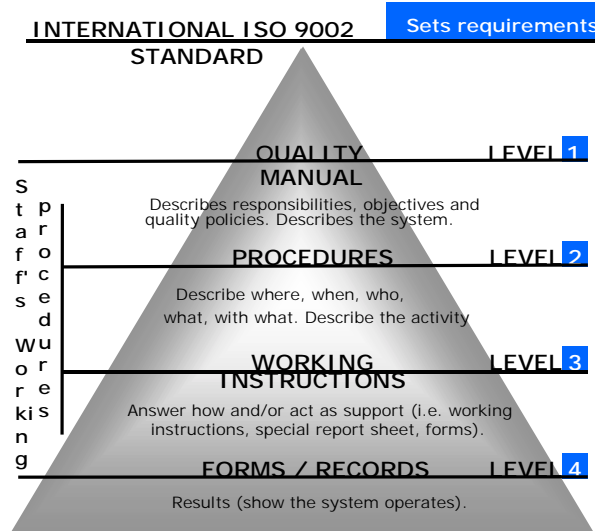
The CRE's SAC was certified under the ISO 9002 standard, making it a pioneer among regulatory agencies worldwide in this regard. Although the CRE obtained the ISO-9002 certification on account of fulfilling audits conducted by the Spanish certification organism *Laboratori General D'Assaigs i Investigacions (LGAI)*, a quality policy has

been implemented since the Commission's creation. The CRE's efforts toward quality are reflected in its transparent and impartial procedures for providing an efficient service.

The ISO-9002 certification was sought as a means to formalize the CRE's commitment to continuous improvement and the fulfillment of the goals set forth in the *National Development Plan 1995-2000* and the *Program for the Restructuring of the Energy Sector 1995-2000*. From now on, the Commission's customers —investors in Mexico's natural gas and electricity industries— have the CRE's guarantee that service quality will be maintained and continuously improved.

The SAC includes the *Quality Assurance Manual*, where the CRE's commitment to quality is established, and the *Procedure Manual*, which includes 21 procedures, 34 instruction manuals and 66 quality forms. These formats allow for information to be registered in a clear and organized manner to the benefit of customer needs. Following is the structure of the CRE's *Quality Assurance System*:

STRUCTURE OF THE CRE'S QUALITY ASSURANCE SYSTEM



As procedures develop, the SAC will provide advantages, such as the prevention of mistakes; detection of areas for improvement; strengthening of the CRE's internal structure; optimum application of personnel qualifications and experience, and the revision of results on a regular basis, in order to ensure client satisfaction.

The CRE's pledge to offer a high quality of service will reinforce domestic and foreign investors' confidence in the regulatory framework and demonstrates the Commission's commitment to successfully carrying out the structural reform in the Mexican energy sector. At the same time, this effort consolidates the CRE as an institution at the forefront of the Mexican government.

Challenges faced by Mexico's Energy Sector

The energy sector is the engine of the nation's industrial activity. As a result, the economy's growth will only be possible if the provision of energy goods and services is

reliable, efficient and competitive. An energy sector without these features will hinder Mexico's development.

Until now, a monopolistic industrial organization dominated by Pemex, CFE and LFC has prevailed in the energy sector. Although these public companies have generally developed natural gas and electricity infrastructure sufficient for Mexico's needs, it is undeniable that this infrastructure has reached its maximum capacity.

During the last years, the accelerated growth in domestic energy demand has not been matched by the adequate development of infrastructure. The energy sector must be expanded and modernized in order to meet the demand that is expected in the near future.

According to conservative estimates, the expansion and modernization of the energy sector will require investments of US\$ 70 billion over the next years in infrastructure development, in order for the next administration to reach economic growth goals. Until now, the State has made use of the following instruments to finance the expansion of the sector:

- Public debt-incurring programs (mainly Pidiregas);
- Utilization of tax schemes that affect public energy companies;
- Reallocation of budget resources from social expenditure (health, education and poverty) to energy projects, and
- Import of energy goods and services.

The State cannot continue financing the energy sector's investment requirements on its own, due to either macroeconomic or income distribution issues. The limitations of State-owned monopolies and their effects on the competitiveness of the domestic industrial sector are becoming increasingly evident since the import of energy goods and services is restricted by legal or logistic restrictions.

This contrasts with the development of other countries' energy sectors where competition has been encouraged by allowing private investment in activities previously reserved to the State. This new industrial organization has proven successful on account of technological changes that have evolved over the last years, which have brought about a reduction in required investments, making them more appealing to the private sector.

International experience demonstrates that the participation of private firms in the energy sector is not only possible, but also the only way to encourage reliability, efficiency and competitiveness in the sector. It is crucial for the State to provide adequate conditions for the private sector to become the driving force behind the development of energy infrastructure that the country requires over the next years and to guarantee that benefits are passed on to the population.

In order to accomplish this, the State's regulatory role must be strengthened through clear and predictable rules, as well as solid, transparent and reliable institutions. Private investment in the energy sector will only be feasible if vertical and horizontal separation of State-owned monopolies is carried out, allowing for public and private companies to compete on an equal footing. The following actions must be undertaken to this effect:

- Redefinition of areas reserved exclusively to the State and focusing public companies' efforts on those areas;
- Opening of new areas to private investment and focusing the public sector's efforts on priority areas;

- Vertical and horizontal separation of State-owned monopolies and their transformation into various public institutions and companies with an authentic business sense, and
- Introduction of effective competition conditions, in order for State operators and private companies to participate in the energy on a level playing field.

The energy sector's transformation from a monopolist industrial structure into an arrangement where various public and private companies compete with each other to provide services to end users will allow meeting the following objectives:

- **Reliability.** Private participation will increase investment in the sector and provide industry with the inputs required to sustain economic growth;
- **Efficiency and Competitiveness.** The transformation of public institutions and coexistence of public and private companies will introduce incentives for expanding the range of available goods and services, and
- **Regulation.** The creation of clear and transparent legal and institutional frameworks will reorient and strengthen the State's regulatory role in the development of the energy sector.

The feasibility of and capacity for success of a comprehensive structural reform in Mexico's energy sector, based on demonopolizing various industries and the coexistence of public and private companies, was confirmed during the recent restructuring of the natural gas industry. The lessons learned from the instrumentation of this reform are fully documented and are a fundamental part of the material assets and human resources that belong to the energy sector's institutions.

Annex 1 General Permit Register

This guide refers permits authorized by the CRE to the resolutions issued for their modification, tariff updates, postponements, inspections and termination, where applicable. The complete text of each resolution is available at: www.cre.gob.mx/english/records/resolutions.html

NATURAL GAS

Permit Number and Date	Permittee	Issuing	Modifications	Tariffs	Postponements	Inspections	Termination
G/001/TUP/96 20/09/96	Arancia Corn Products	100/96	132/96				
G/002/DIS/96 27/09/96	DGN de Mexicali	102/96		277/98 141/97		064/2000	
G/003/TRA/96 14/10/96	MidCon Gas Natural de México	104/96	033/99 090/97	031/99			
G/004/TUP/96 17/12/96	Gas Industrial de Monterrey	142/96				054/97	
G/005/TUP/96 17/12/96	Sociedad de Autoabastecimiento de Gas Natural Lajat	143/96	147/99			120/96	
G/006/TUP/96 17/12/96	Servicios Industriales y Administrativos del Noreste	144/96					
G/007/TUP/97 11/02/97	Pemex Refinación	004/97					
G/008/TUP/97 11/02/97	Fibras Nacionales de Acrílico	005/97					
G/009/TUP/97 11/02/97	Soluciones Ecológicas Integrales	006/97	117/97				250/99
G/010/TUP/97 14/03/97	KMG de México	026/97					
G/011/DIS/97 20/03/97	Compañía Nacional de Gas	027/97		180/99 015/99 105/98		078/2000 090/99	
G/012/TUP/97 08/05/97	Minera Nyco	047/97	171/97				
G/013/DIS/97 20/05/97	DGN de Chihuahua	048/97		158/99 075/99 191/98 278/98		243/99 077/99	
G/014/DIS/97 09/06/97	Gas Natural del Noroeste	053/97	075/98	146/98		042/2000	
G/015/DIS/97 20/06/97	Gas Natural México (Saltillo)	062/97		170/99 065/99 028/99 196/98 152/98		042/98	
G/016/TRA/97 04/07/97	Gasoductos de Chihuahua	069/97	109/99	131/99 018/99 171/98		240/99	

Permit Number and Date	Permittee	Issuing	Modifications	Tariffs	Postponements	Inspections	Termination
G/017/TRA/97 31/07/97	Igasamex Bajío	088/97	059/99 087/98				
G/018/DIS/97 03/09/97	Gas Natural México (Toluca)	118/97		141/99 066/99 012/99 270/98		219/99	
G/019/DIS/97 19/09/97	Compañía Mexicana de Gas	138/97		168/99 069/99 013/99 233/98		027/2000	
G/020/TRA/97 10/10/97	Energía Mayakan	157/97					
G/021/DIS/97 17/11/97	Gas Natural México (Nuevo Laredo)	181/97		142/99 067/99 027/99			
G/022/DIS/97 02/12/97	Gas Natural de Juárez	204/97		017/99	151/99	037/2000	
G/023/TUP/97 15/12/97	Muelles y Servicios de Coahuila	211/97	002/99		144/99		069/2000
G/024/TUP/97 17/12/97	Compañía de Autoabastecedores de Gas Natural del Norte	212/97	241/99 150/99 290/98			072/2000 041/99	
G/025/TUP/97 15/12/97	Camiones y Motores Internacional de México	213/97					
G/026/TUP/97 17/12/97	Plásticos y Alambres	214/97					
G/027/DIS/97 19/12/97	Gas Natural del Río Pánuco	225/97	256/99 210/98 069/98	096/99		079/99	
G/028/TRA/98 23/01/98	Tejas Gas de México	011/98		112/99	183/98		
G/029/TRA/98 23/01/98	Transnevado Gas	012/98			046/99 177/98	046/99	109/2000
G/030/TUP/98 24/02/98	Manufacturas Denimex	039/98					
G/031/TUP/98 20/03/98	Mexicana de Cobre	065/98	148/99				
G/032/DIS/98 27/03/98	Tamauligas	070/98		029/99			
G/033/DIS/98 24/04/98	Gas Natural México (Monterrey)	082/98	167/99	167/99 011/99 068/99		235/99	
G/034/TUP/98 12/06/98	CFE. Central Turbogás El Sauz	117/98					
G/035/TUP/98 12/06/98	CFE. Central Turbogás Hermosillo	118/98					
G/036/TRA/98 19/06/98	Finsa Energéticos	133/98				237/99	
G/037/TUP/98 26/06/98	CFE. Central Turbogás Río Bravo	138/98					

Permit Number and Date	Permittee	Issuing	Modifications	Tariffs	Postponements	Inspections	Termination
G/038/TRA/98 15/07/98	Compañía Mexicana de Gas	144/98		196/99 076/99 014/99			
G/039/TRA/98 15/07/98	Transportadora de Gas Zapata	145/98	247/99				
G/040/TUP/98 22/07/98	CFE. Central Turbogas Huinalá	153/98					
G/041/DIS/98 03/09/98	Comercializadora Metrogas	185/98	097/2000	234/99 129/99 070/99 030/99	078/99	079/2000	
G/042/DIS/98 03/09/98	Consortio Mexi-Gas	186/98		171/99 071/99 016/99	061/99		
G/043/TUP/98 04/09/98	Motor Coils de México	193/98					
G/044/TUP/98 18/09/98	Oxiquímica	195/98					198/99
G/045/TRA/98 07/10/98	Transcanada del Bajío	219/98	108/99		033/2000 193/99 060/99		
G/046/TUP/98 03/11/98	Compañía de Nitrógeno de Cantarell	246/98					
G/047/TUP/98 03/12/98	Bimbo de Puebla	272/98					
G/048/TUP/98 03/12/98	Bimbo del Golfo	273/98				238/99	
G/049/TUP/98 10/12/98	Consumidora Gaspiq	276/98	126/2000 004/2000				
G/050/DIS/98 10/12/98	Distribuidora de Gas de Querétaro	283/98		169/99 072/99	159/99		
G/051/TRA/98 16/12/98	Transportadora de Gas Natural de Baja California	294/98					
G/052/TRA/99 15/01/99	Transportadora de Gas Natural del Centro	004/99			130/99		127/2000
G/053/TUP/99 15/01/99	Transportadora Industrial de Gas	005/99			121/99		
G/054/DIS/99 15/01/99	Gas Natural México (Bajío)	006/99					
G/055/TUP/99 29/01/99	Gas Regio del Bajío	019/99					
G/056/TUP/99 08/02/99	CFE. Central de Ciclo Combinado Chihuahua	022/99			149/99		
G/057/TUP/99 19/03/99	Agroindustrias Deandar de Delicias	047/99					
G/058/TRA/99 18/03/99	Midcoast del Bajío	048/99	149/2000		070/2000 194/99		

Permit Number and Date	Permittee	Issuing	Modifications	Tariffs	Postponements	Inspections	Termination
G/059/TRA/99 18/03/99	PGPB. Sistema Naco-Hermosillo	049/99					
G/060/TUP/99 14/05/99	Cordogas	074/99	096/2000				
G/061/TRA/99 02/06/99	PGPB. Sistema Nacional de Gasoductos	080/99					
G/062/TUP/99 02/06/99	Smurfit Cartón y Papel de México	081/99					
G/063/DIS/99 18/06/99	DGN de La Laguna-Durango	097/99				125/2000	
G/064/TUP/99 12/07/99	Vetrotex América	117/99	195/99				
G/065/DIS/99 09/08/99	Distribuidora de Gas de Occidente	132/99				043/2000	
G/066/TUP/99 16/08/99	Autoabastecedora de Gas Natural de Tepeji del Río	144/99					
G/067/TUP/99 27/08/99	Manufacturas Kaltex	146/99				244/99	
G/068/TRA/99 15/09/99	TGT de México	163/99			071/2000		
G/069/TUP/99 15/09/99	Autoabastecedora de Gas Natural de Hidalgo	164/99					
G/070/TUP/99 27/09/99	Siderúrgica del Golfo	179/99					
G/071/TUP/99 08/10/99	Soceni	192/99					
G/072/TUP/99 15/10/99	Texmegas	198/99					
G/073/TUP/99 22/10/99	Cartonajes Estrella	200/99					
G/074/TUP/99 05/11/99	Celulosa de Fibras Mexicanas	216/99					
G/075/TUP/99 15/11/99	Schneider Electric México	222/99					
G/076/TUP/99 29/11/99	Gas Purépecha	236/99					
G/077/TUP/99 08/12/99	Servicios Industriales Parque Fundidores	245/99			141/2000		
G/078/TUP/99 08/12/99	Fuerza y Energía de Hermosillo	246/99					
G/079/TUP/2000 07/01/2000	Central Anáhuac	003/2000					
G/080/TUP/2000 25/01/2000	Compañía de Autoabastecedores de Gas Natural de Durango	017/2000				115/2000	

Permit Number and Date	Permittee	Issuing	Modifications	Tariffs	Postponements	Inspections	Termination
G/081/DIS/2000 02/02/2000	Gas Natural México (Bajío Norte)	024/2000					
G/082/DIS/2000 28/02/2000	Natgasmex	038/2000					
G/083/TUP/2000 28/02/2000	Agro Industrial Madero	039/2000					
G/084/TUP/2000 03/03/2000	Energía Azteca VIII	041/2000					
G/085/TUP/2000 06/04/2000	Dal-Tile México	062/2000					
G/086/TUP/2000 14/04/2000	Tizagas	069/2000					
G/087/TUP/2000 03/05/2000	Fabricaciones Especializadas	080/2000					
G/088/TUP/2000 14/07/2000	Enron Energía Industrial de México	139/2000					
G/089/DIS/2000 21/07/2000	Distribuidora de Gas Natural de Jalisco	144/2000					

TRA: Open Access Transportation

TUP: Self-use Transportation

DIS: Distribution

ELECTRICITY

Permit Number and Date	Permittee	Issuing	Modifications	Inspections	Termination
01/COG/94 10/03/94	Energía de Nuevo León	Document 300.-117/94 Secretaría de Energía, Minas e Industria Paraestatal (SEMIP)	007/96	144/97	232/98
02/AUT/94 03/05/94	Departamento del Distrito Federal (DDF). San Bartolito	Document 400.-220/94 SEMIP	125/96	080/97	
03/AUT/94 03/05/94	DDF. El Borracho	Document 400.-221/94 SEMIP	126/96	080/97	
04/AUT/94 03/05/94	DDF. Las Palmas	Document 400.-222/94 SEMIP	127/96	080/97	
05/AUT/94 06/05/94	Minera Hecla	Document 400.-223/94 SEMIP		092/97	
06/COG/94 06/09/94	Fábrica La Estrella	Document 400.-331/94 SEMIP	167/97	129/97	
07/COG/94 20/07/94	Productora de Papel	Document 400.-290/94 SEMIP	111/97 190/99	057/97	127/99
08/COG/94 20/07/94	Fersinsa Gist-Brocades	Document 400.-291/94 SEMIP		128/97	
09/AUT/94 06/09/94	Pemex Exploración y Producción (PEP). Complejo Abkatun-Delta	Document 400.-239/94 SEMIP		145/97 142/2000	

Permit Number and Date	Permittee	Issuing	Modifications	Inspections	Termination
10/COG/94 06/09/94	Proteínas Industriales de la Laguna	Document 400.-330/94 SEMIP		146/97	116/98
11/COG/94 15/09/94	Producto Ecológicos	Document 400.-346/94 SEMIP			
12/COG/94 05/10/94	Almidones Mexicanos	Document 400.-359/94 SEMIP		099/97	198/97
13/COG/94 07/11/94	Suministro Energético Industrial	Document 400.-393/94 SEMIP			052/97
14/COG/94 15/11/94	Industrias Monfel	Document 400.-399/94 SEMIP		131/97	
15/COG/94 15/11/94	Cartones Ponderosa	Document 400.-400/94 SEMIP	109/98	130/97	
16/AUT/94 21/11/94	Sociedad de Consumo Energético de Sonora, El Mezquite	Document 400.-408/94 SEMIP		220/98	159/2000
17/AUT/94 21/11/94	Sociedad de Consumo Energético de Sonora, La Dura	Document 400.-409/94 SEMIP		221/98	160/2000
18/AUT/94 21/11/94	Sociedad de Consumo Energético de Sonora, Soyopa	Document 400.-410/94 SEMIP		222/98	161/2000
19/AUT/94 21/11/94	Sociedad de Consumo Energético de Sonora, Faustino	Document 400.-411/94 SEMIP		223/98	162/2000
20/AUT/95 01/03/95	Papelera Veracruzana	Document 101.95/0295 Secretaría de Energía (SE)	082/96 070/97	186/99	
21/COG/95 01/03/95	Tazcomex	Document 101.95/0296 SE		174/97	052/99
22/COG/95 01/03/95	Albright & Wilson Troy de México	Document 101.95/0297 SE	004/96	101/97	
23/COG/95 01/03/95	Pritsa Power	Document 101.95/0297 SE	087/96	175/97	
24/COG/95 27/03/95	Corrugados La Estrella	Document 101.95/0298 SE	001/99	176/97	
25/COG/95 27/03/95	Aceitera La Junta	Document 101.95/0300 SE		102/97	
26/COG/95 28/03/95	Compañía Eléctrica de Cozumel	Document 101.95/0301 SE	090/96 028/97		
27/AUT/95 28/03/95	Agrogen	Document 101.95/0303 SE		132/97	
28/AUT/95 19/04/95	Minera Manhattan	Document 101.95/0364 SE	009/96	147/97	

Permit Number and Date	Permittee	Issuing	Modifications	Inspections	Termination
29/PP/95 10/05/95	Eleoeléctrica del Iztmo	Document 101.95/0363 SE		032/98	252/98
30/COG/95 16/08/95	Arancia	Document 201.- 005550 SE			092/96
E/031/IMP/96 04/03/96	Bose	002/96		091/97	
E/032/COG/96 04/03/96	General Tire de México	013/96		194/97	207/98
E/033/AUT/96 26/04/96	Carboeléctrica Sabinas	028/96	249/98		
E/034/AUT/96 26/04/96	Electricidad del Sureste	029/96	036/97		
E/035/AUT/96 24/05/96	Termoeléctrica del Golfo	042/96	050/99 115/98 162/97		
E/036/COG/96 24/05/96	Enertek	043/96	100/99 041/98 010/98 066/96	115/97	
E/037/AUT/96 24/05/96	Pegi	044/96	040/98 051/97	059/97	
E/038/AUT/96 31/05/96	PEP. Complejo Abkatun	046/96		148/97	
E/039/AUT/96 31/05/96	PEP. Plataforma Cayo Arcas	047/96	110/98	133/97	
E/040/AUT/96 31/05/96	PEP. Complejo KU-A	048/96	052/2000 111/98	149/97	
E/041/AUT/96 31/05/96	PEP. Complejo KU-H	049/96	053/2000 189/99 112/98	150/97	
E/042/AUT/96 31/05/96	PEP. Complejo NOHOCH-A	050/96	113/98	113/97	
E/043/AUT/96 31/05/96	PEP. Complejo POL-A	051/96	162/99	151/97	
E/044/AUT/96 31/05/96	PEP. Complejo Marino de Rebombero	052/96	102/98	134/97	
E/045/AUT/96 21/06/96	Compañía Minera El Baztán	054/96		152/97	
E/046/COG/96 21/06/96	Energía Bidarena	055/96	093/99 104/98		
E/047/AUT/96 10/07/96	G.E. Plastics	063/96	231/98	116/97	
E/048/COG/96 02/08/96	Celulosa y Corrugados de Sonora	078/96	204/98 065/97	190/97	
E/049/AUT/96 04/09/96	Arancia Corn Products	097/96	152/99 236/98	135/97	

Permit Number and Date	Permittee	Issuing	Modifications	Inspections	Termination
E/050/COG/96 04/10/96	Beri Cali Sur	103/96			
E/051/AUT/96 25/10/96	Cozumel 2000	107/96	212/99 137/98		
E/052/AUT/96 25/10/96	Cogeneración Mexicana	108/96	036/98 161/97		
E/053/AUT/96 03/12/96	Residuos Industriales Multiquim	134/96	202/97	058/97	
E/054/AUT/96 13/12/96	PEP. Ek-Balam	140/96	188/99 200/97	112/97	
E/055/AUT/96 13/12/96	Terminal de Productos Especializados	141/96	203/97	114/97	
E/056/AUT/97 24/01/97	Servicios de Agua y Drenaje de Monterrey	003/97		060/97	
E/057/PIE/97 19/02/97	AES Mérida III	011/97			
E/058/AUT/97 18/07/97	Energía y Agua Pura de Cozumel	084/97	165/99 158/98		
E/059/AUT/97 15/08/97	Servicios de Agua y Drenaje de Monterrey	096/97		153/97	
E/060/IMP/97 15/08/97	Minera Múzquiz	097/97			
E/061/COG/97 03/09/97	Advanced Cogen	110/97			
E/062/AUT/97 24/10/97	Petroquímica Cosoleacaque	173/97	183/99	049/2000	
E/063/AUT/97 02/12/97	Petroquímica Escolín	195/97	123/2000		
E/064/AUT/97 15/12/97	PGPB. Complejo Procesador de Gas Reynosa	216/97			
E/065/AUT/97 15/12/97	PGPB. Complejo Procesador de Gas Nuevo Pemex	217/97		066/2000	
E/066/AUT/97 15/12/97	PGPB. Complejo Procesador de Gas La Venta	218/97		098/2000	
E/067/AUT/97 15/12/97	PGPB. Complejo Procesador de Gas Poza Rica	219/97	112/2000		
E/068/AUT/97 15/12/97	PGPB. Complejo Procesador de Gas Ciudad Pemex	220/97		067/2000	
E/069/AUT/97 15/12/97	Pemex Petroquímica (PP). Complejo Petroquímico Independencia	221/97	063/99	225/99	
E/070/AUT/98 14/01/98	Fuerza Eólica del Istmo	001/98	232/99		
E/071/AUT/98 14/01/98	Baja California 2000	002/98	233/99		
E/072/AUT/98 23/01/98	Pemex-Refinación (PR). Refinería Miguel Hidalgo	008/98	281/98	137/99	

Permit Number and Date	Permittee	Issuing	Modifications	Inspections	Termination
E/073/COG/98 23/01/98	PGPB. Complejo Procesador de Gas Cactus	009/98			
E/074/COG/98 13/02/98	Petroquímica Morelos	033/98		050/2000	
E/075/COG/98 13/02/98	Petroquímica Cangrejera	034/98		099/2000	
E/076/COG/98 13/02/98	Petroquímica Pajaritos	035/98		051/2000	
E/077/AUT/98 11/03/98	Agroindustrias del Balsas	056/98			
E/078/AUT/98 11/03/98	Ingenio Plan de San Luis	057/98		101/99	
E/079/AUT/98 20/03/98	PR. Refinería Ing. Antonio M. Amor	067/98		138/99	
E/080/AUT/98 20/03/98	PGPB. Centro Procesador de Gas Area Coatzacoalcos	068/98		100/2000	
E/081/AUT/98 27/03/98	Ingenio Presidente Benito Juárez	072/98			
E/082/AUT/98 27/03/98	PR. Refinería Gral. Lázaro Cárdenas	073/98		101/2000	
E/083/AUT/98 17/04/98	PR. Refinería Ing. Héctor R. Lara Sosa	076/98		134/2000	
E/084/AUT/98 17/04/98	Mexicana de Cobre	077/98			
E/085/AUT/98 24/04/98	Compañía Industrial Azucarera San Pedro	084/98		092/2000	
E/086/AUT/98 24/04/98	Ingenio Emiliano Zapata	085/98		226/99	
E/087/AUT/98 22/05/98	Ingenio San Miguelito	095/98		175/99	
E/088/AUT/98 22/05/98	Impulsora de la Cuenca del Papaloapan	096/98			
E/089/AUT/98 22/05/98	Minera Bismark	097/98	104/2000	139/99	
E/090/AUT/98 22/05/98	Ingenio San Francisco el Naranjal	098/98		093/2000	
E/091/AUT/98 22/05/98	Ingenio Lázaro Cárdenas	099/98			
E/092/AUT/98 22/05/98	Azsuremex	100/98			
E/093/AUT/98 12/06/98	PR. Refinería Francisco I. Madero	107/98			
E/094/AUT/98 12/06/98	Altos Hornos de México	108/98		135/2000	
E/095/AUT/98 26/06/98	Ingenio de Puga	135/98		119/2000	
E/096/COG/98 26/06/98	BASF Mexicana	136/98	048/2000		

Permit Number and Date	Permittee	Issuing	Modifications	Inspections	Termination
E/097/AUT/98 15/07/98	PR. Refinería Ing. Antonio Dovalí Jaime	148/98			
E/098/AUT/98 15/07/98	Ingenio José María Martínez	149/98		120/2000	
E/099/AUT/98 15/07/98	Ingenio San Francisco Ameca	150/98		121/2000	
E/100/AUT/98 22/07/98	Bimbo del Noroeste	154/98		224/98	
E/101/IMP/98 22/07/98	Seihwa de México	155/98	248/98	210/99	
E/102/IMP/98 22/07/98	Paulson Mexicana	156/98	024/99 251/98	208/99	
E/103/AUT/98 12/08/98	PEP. Complejo Marino de Producción Akal-C	166/98		227/99	
E/104/AUT/98 12/08/98	PEP. Complejo Marino de Producción Akal-J	167/98		228/99	
E/105/AUT/98 12/08/98	PEP. Complejo Marino de Producción Akal-N	168/98		229/99	
E/106/AUT/98 12/08/98	PEP. Complejo Marino de Producción Abkatun-A	169/98			
E/107/AUT/98 20/08/98	PEP. Centro de Proceso y Transporte de Gas Atasta	178/98			
E/108/AUT/98 11/09/98	Ingenio El Molino	199/98		122/2000	
E/109/AUT/98 18/09/98	PEP. Planta Eléctrica Cárdenas	200/98		068/2000	
E/110/AUT/98 18/09/98	PEP. Terminal Marítima Dos Bocas	201/98			
E/111/AUT/98 18/09/98	Química del Rey	202/98		136/2000	
E/112/IMP/98 18/09/98	Hyo Seung de México	203/98	125/99 250/98	209/99	
E/113/COG/98 09/10/98	Papelera Industrial Potosina	229/98		102/99	
E/114/AUT/98 16/10/98	Cervecería Cuauhtémoc Moctezuma	234/98		174/99	
E/115/AUT/98 16/10/98	Minas SANLUIS	235/98			
E/116/AUT/98 26/10/98	Ingenio Tamazula	237/98			
E/117/AUT/98 26/10/98	Prozucar	238/98	116/99		
E/118/AUT/98 26/10/98	Osca de México	239/98	076/2000		
E/119/AUT/98 03/11/98	Ingenio Alianza Popular	244/98		103/99	
E/120/AUT/98 03/11/98	PEP. Plataforma Marina de Producción Zaap-C	245/98	231/99		129/2000

Permit Number and Date	Permittee	Issuing	Modifications	Inspections	Termination
E/121/AUT/98 11/11/98	Generadora Eléctrica San Rafael	254/98	126/99 023/99		
E/122/AUT/98 13/11/98	Cementos Apasco	255/98		137/2000	
E/123/AUT/98 23/11/98	Industrias Centauro	262/98			
E/124/PIE/98 23/11/98	Fuerza y Energía de Hermosillo	263/98			
E/125/AUT/98 03/12/98	Ingenio Eldorado	271/98			
E/126/AUT/98 10/12/98	Energía de Quintana Roo	279/98	166/99		
E/127/AUT/98 10/12/98	Comisión México-Americana para la Erradicación del Gusano Barrenador	280/98			
E/128/PIE/98 16/12/98	Central Río Bravo	288/98	111/2000		
E/129/AUT/98 16/12/98	Ingenio Tres Valles	289/98		094/2000	
E/130/AUT/99 15/01/99	Mexicana de Hidroelectricidad Mexhidro	003/99	105/2000		
E/131/COG/99 15/01/99	Energía Industrial Río Colorado	007/99			
E/132/IMP/99 08/02/99	Mecox Resources	021/99		211/99	
E/133/PIE/99 18/03/99	Central Saltillo	045/99			
E/134/AUT/99 09/04/99	Minera La Encantada	054/99	230/99		
E/135/PIE/99 02/06/99	Energía Azteca VIII	082/99			
E/136/AUT/99 02/06/99	Ingenio El Higo	083/99			
E/137/AUT/99 02/06/99	Compañía Industrial Veracruzana	084/99		054/2000	
E/138/AUT/99 09/06/99	Industrial Aceitera	092/99			
E/139/PIE/99 25/06/99	Electricidad Águila de Tuxpan	107/99			
E/140/AUT/99 12/07/99	Hylsa	115/99		138/2000	
E/141/AUT/99 20/07/99	Ispat Mexicana	124/99			
E/142/AUT/99 09/08/99	Ingenio Adolfo López Mateos	134/99		095/2000	
E/143/COG/99 09/08/99	Grupo Celanese. Complejo Zacapú	135/99	128/2000		

Permit Number and Date	Permittee	Issuing	Modifications	Inspections	Termination
E/144/COG/99 09/08/99	Grupo Celanese. Complejo Ocotlán	136/99			
E/145/AUT/99 27/08/99	Ingenio de Huixtla	153/99			
E/146/AUT/99 27/08/99	Electricidad del Itsmo	154/99			
E/147/AUT/99 27/08/99	Hidroelectricidad del Pacífico	155/99			
E/148/AUT/99 03/09/99	Compañía de Nitrógeno de Cantarell	156/99			
E/149/AUT/99 03/09/99	Termoeléctrica Peñoles	157/99	077/2000		
E/150/AUT/99 10/09/99	Hidroeléctricas Viritas	161/99		055/2000	
E/151/COG/99 27/09/99	Energía Eléctrica de Quintana Roo	182/99	103/2000		
E/152/PIE/99 08/10/99	Iberdrola Energía Monterrey	187/99			
E/153/AUT/99 22/10/99	Proveedora Nacional de Electricidad	201/99			
E/154/COG/99 05/11/99	Celulosa de Fibras Mexicanas	214/99		117/2000	
E/155/AUT/99 05/11/99	Proveedora de Electricidad de Occidente	215/99			
E/156/AUT/99 14/12/99	Micase	252/99		118/2000	
E/157/COG/2000 07/01/00	Grupo Primex	006/2000			
E/158/AUT/2000 25/01/00	Compañía Azucarera La Fe	018/2000			
E/159/AUT/2000 25/01/00	Compañía Minera Autlán. Unidad Molango	019/2000		176/99	
E/160/AUT/2000 11/02/00	Compañía de Servicios de Compresión de Campeche	030/2000			
E/161/AUT/2000 17/02/00	Ingenio Melchor Ocampo	034/2000			
E/162/AUT/2000 17/02/00	Compañía Minera Basis	035/2000			
E/163/EXP/2000 31/03/00	Energía de Mexicali	058/2000			
E/164/PIE/2000 06/04/00	Transalta Campeche	060/2000			
E/165/PIE/2000 28/04/00	Electricidad Águila de Altamira	075/2000			
E/166/AUT/2000 03/05/00	Compañía Azucarera de los Mochis	081/2000			
E/167/COG/2000 02/06/00	Enron Energía Industrial de México	102/2000			

Permit Number and Date	Permittee	Issuing	Modifications	Inspections	Termination
E/168/AUT/2000 19/06/00	Electricidad de Veracruz	106/2000			
E/169/AUT/2000 19/06/00	Electricidad de Veracruz II	107/2000			
E/170/AUT/2000 19/06/00	Vitro Flotado	110/2000			
E/171/PIE/2000 14/07/00	Fuerza y Energía de Naco- Nogales	140/2000			
E/172/AUT/2000 21/07/00	Hylsa	145/2000			
E/173/COG/2000 21/07/2000	Internacional de Papel del Golfo	146/2000			
E/174/PIE/2000 07/08/2000	Energía Azteca X	150/2000			
E/175/COG/2000 14/08/2000	Agroenergía	164/2000			

AUT: Self-supply
 COG: Cogeneration
 PIE: IPP
 EXP: Export
 IMP: Import

LPG

Permittee	Activity	Date	Issuing
PGPB. Terminal Méndez	Transportation	14/04/97	035/97
Compañía de Gas de Tijuana	Distribution	05/06/97	050/97
PGPB. Jaltipán-Salina Cruz	Transportation	09/09/97	124/97
PGPB. Tuzandépetl	Transportation	26/06/98	139/98
Penn Octane de México	Transportation	26/06/98	140/98
Invalle	Transportation	05/03/99	034/99

Annex 2 Features of Natural Gas Permits

Technical features (length, capacity and volume), as well as financial commitments (investment, average tariff, customer coverage) of natural gas transportation and distribution permittees' systems.

OPEN ACCESS TRANSPORTATION

Permit Number and Date	Permittee	Leading Shareholder(s)/ Country of Origin	Route	Length (km)	Maximum Capacity (Mcmd/MMcfd)	Average Tariff (USD/Gcal) P ₀	Investment (Million USD)
G/003/TRA/96 14/10/96	Midcon de México	KN Energy (US)	Cd. Mier-Monterrey	154.8	7,600/268.4	0.66	45.0
G/016/TRA/97 04/07/97	Gasoductos de Chihuahua	El Paso Natural Gas (US)-PGPB (Mexico)	San Agustín Valdivia-Samalayuca*	38.0	6,200/219.0	0.22	18.2
G/017/TRA/97 31/07/97	Igasamex Bajío	Integrated Gas Services de México (Mexico)	Huimilpan-San José Iturbide	2.5	360/12.7	0.93	0.3
G/020/TRA/97 10/10/97	Energía Mayakan	TransCanada PipeLines (Canada)	Ciudad Pemex-Valladolid*	710.0	8,073/285.1	1.65	276.9
G/028/TRA/98 23/01/98	Tejas Gas de Toluca	Tejas Gas International (US)	Palmillas-Toluca	123.0	2,720/96.1	1.07	31.0
G/036/TRA/98 19/06/98	FINSA Energéticos	Grupo KeySpan (US)-FINSA Energéticos (Mexico)	Matamoros	8.0	164/5.8	4.07	0.3
G/038/TRA/98 15/07/98	Compañía Mexicana de Gas	Compañía Mexicana de Gas (Mexico)	Apodaca-Cerralvo	73.0	580/20.5	1.15	11.2
G/039/TRA/98 15/07/98	Transportadora de Gas Zapata	ONEOK International (US)-Williams International Ventures (US)	Puebla-Cuernavaca	147.0	1,300/45.9	2.16	19.6
G/045/TRA/98 07/10/98	TransCanada del Bajío	TransCanada PipeLines (Canada)	Valtierrilla-Aguascalientes	203.0	2,550/90.1	2.88	56.5
G/051/TRA/98 16/12/98	Transportadora de Gas Natural de Baja California	Sempra Energy (US)	San Diego-Rosarito*	36.0	22,923/809.5	0.84	28.2
G/058/TRA/99 18/03/99	Midcoast del Bajío	Midcoast Gas Services (US)-Associated Pipeline Contractors (US)	Valtierrilla-León	100.5	2,610/92.2	2.54	15.9
G/059/TRA/99 18/03/99	Pemex-Gas y Petroquímica Básica	PGPB (Mexico)	Naco-Hermosillo	339.0	3,113/109.9	1.40	22.1
G/061/TRA/99 02/06/99	Pemex-Gas y Petroquímica Básica	PGPB (Mexico)	Sistema Nacional de Gasoductos (SNG)	8,704.0	148,940/5,259.8	0.94	436.5
G/068/TRA/99 02/06/99	TGT de México	Techint (Argentina)	Valtierrilla-Aguascalientes	200.0	3,160/111.6	3.07	53.5
Total				10,838.8	210,293/7,426.6		1,015.2

Mcmd: Thousand cubic meters per day

MMcfd: Million cubic feet per day

* Integrated project (natural gas/electricity)

SELF-USE TRANSPORTATION

Permit Number and Date	Permittee	Location	Sector	Length (km)	Maximum Capacity (Mcmd/MMcfd)	Estimated Investment (Million USD)
G/001/TUP/96 20/09/96	Arancia Corn Products	San Juan del Río, Querétaro	Food and Beverage	4.27	1,000/35.3	1.00
G/004/TUP/96 17/12/96	Gas Industrial de Monterrey (GIMSA)	Garza García, Nuevo León	Multiple Uses	214.00	9,500/335.5	63.47
G/005/TUP/96 17/12/96	Sociedad de Autoabastecimiento de Gas Natural Lajat	Torreón, Coahuila	Textile	2.05	144/5.1	0.25
G/006/TUP/96 17/12/96	Servicios Industriales y Administrativos del Noreste	Altamira, Tamaulipas*	Electric	5.80	6,315/223.0	3.20
G/007/TUP/97 11/02/97	Pemex Refinación	Tula, Hidalgo	Petroleum	19.90	991/35.0	5.93
G/008/TUP/97 11/02/97	Fibras Nacionales de Acrílico	Altamira, Tamaulipas	Chemical	1.60	680/24.0	0.48
G/010/TUP/97 14/03/97	KMG de México	Matamoros, Tamaulipas	Lumber	0.85	7/0.2	0.25
G/012/TUP/97 08/05/97	Minera Nyco	Hermosillo, Sonora	Mining	62.80	783/27.7	18.71
G/024/TUP/97 17/12/97	Compañía de Autoabastecedores de Gas Natural del Norte	Gómez Palacio, Durango	Multiple Uses	40.90	249/8.8	1.50
G/025/TUP/97 17/12/97	Camiones y Motores Internacional de México	Escobedo, Nuevo León	Automotive	2.00	84/3.0	0.38
G/026/TUP/97 19/12/97	Plásticos y Alambres	García, Nuevo León	Multiple Uses	3.12	85/3.0	0.12
G/030/TUP/98 24/02/98	Manufacturas Denimex	San Juan del Río, Querétaro	Textile	2.30	150/5.3	0.31
G/031/TUP/98 20/03/98	Mexicana de Cobre	Nacozari de García, Sonora	Mining-metallurgy	102.00	2,209/78.0	25.00
G/034/TUP/98 12/06/98	Comisión Federal de Electricidad	El Sauz, Querétaro*	Electric	1.10	1,150/40.6	0.13
G/035/TUP/98 12/06/98	Comisión Federal de Electricidad	Hermosillo, Sonora*	Electric	0.11	1,380/48.7	0.06
G/037/TUP/98 26/06/98	Comisión Federal de Electricidad	Río Bravo, Tamaulipas*	Electric	3.80	1,440/50.9	0.52
G/040/TUP/98 22/07/98	Comisión Federal de Electricidad	Pesquería, Nuevo León*	Electric	6.35	3,910/140.2	1.00
G/043/TUP/98 04/09/98	Motorcoils de México	San Luis Potosí, San Luis Potosí	Railway	0.40	31/1.1	NA

Permit Number and Date	Permittee	Location	Sector	Length (km)	Maximum Capacity (Mcmd/MMcfd)	Estimated Investment (Million USD)
G/046/TUP/98 03/11/98	Compañía de Nitrógeno de Cantarell	Ciudad del Carmen, Campeche*	Petrochemical	15.00	2,810/99.2	5.00
G/047/TUP/98 03/12/98	Bimbo del Golfo	Veracruz, Veracruz	Food and Beverage	0.07	23/0.8	0.08
G/048/TUP/98 03/12/98	Bimbo de Puebla	Puebla, Puebla	Food and Beverage	1.83	13/0.5	0.16
G/049/TUP/98 03/12/98	Consumidora Gaspig	Querétaro, Querétaro	Multiple Uses	13.30	736/26.0	0.90
G/053/TUP/99 15/01/99	Transportadora Industrial de Gas	San Luis Río Colorado, Sonora*	Electric	2.70	2,000/70.6	0.60
G/055/TUP/99 29/01/99	Gas Regio del Bajío	Cortázar, Guanajuato	Food and Beverage	3.90	474/16.7	0.60
G/056/TUP/99 08/02/99	Comisión Federal de Electricidad	Chihuahua, Chihuahua*	Electric	0.10	2430/85.8	0.67
G/057/TUP/99 18/03/99	Agroindustrias Deandar de Delicias	Delicias, Chihuahua	Agro-industrial	0.81	13/0.5	0.03
G/060/TUP/99 14/05/99	Cordogas	Córdoba, Veracruz	Multiple Uses	13.10	368/13.0	0.90
G/062/TUP/99 02/06/99	Smurfit Cartón y Papel de México	San José Iturbide, Guanajuato	Paper	1.00	77/2.7	0.30
G/064/TUP/99 12/07/99	Vetrotex América	Tetla, Tlaxcala	Chemical	0.95	150/5.3	0.16
G/066/TUP/99 16/08/99	Autoabastecedora de Gas Natural de Tepeji del Río	Tepeji del Río, Hidalgo	Multiple Uses	3.60	148/5.2	0.10
G/067/TUP/99 16/08/99	Manufacturas Kaltex	San Juan del Río, Querétaro	Textile	3.27	101/3.6	0.06
G/069/TUP/99 15/09/99	Autoabastecedora de Gas Natural de Hidalgo	Tepeji del Río, Hidalgo	Multiple Uses	1.73	110/3.9	0.28
G/070/TUP/99 27/09/99	Siderúrgica del Golfo	Matamoros, Tamaulipas	Iron and Steel	1.07	95/3.4	0.17
G/071/TUP/99 08/10/99	Soceni	Huejotzingo, Puebla	Textile	8.50	102/3.6	0.65
G/072/TUP/99 15/10/99	Texmegas	San Martín Texmelucan, Puebla	Multiple Uses	1.90	34/1.2	0.38
G/073/TUP/99 22/10/99	Cartonajes Estrella	Tizayuca, Hidalgo	Paper	0.93	744/26.3	0.20

Permit Number and Date	Permittee	Location	Sector	Length (km)	Maximum Capacity (Mcmd/MMcfd)	Estimated Investment (Million USD)
G/074/TUP/99 05/11/99	Celulosa de Fibras Mexicanas	Apizaco, Tlaxcala	Paper	1.30	154/5.4	0.37
G/075/TUP/99 15/11/99	Schneider Electric México	Acuamánalá, Tlaxcala	Electronics	0.01	8/0.3	0.09
G/076/TUP/99 29/11/99	Sociedad de Autoabastecimiento de Gas Purépecha	Morelia, Michoacán	Agro-industrial	15.00	267/9.4	1.00
G/077/TUP/99 08/12/99	Servicios Industriales Parque Fundidores	Hermosillo, Sonora	Iron and Steel	2.64	970/34.3	1.40
G/078/TUP/99 08/12/99	Fuerza y Energía de Hermosillo	Hermosillo, Sonora*	Electric	27.93	3,500/123.6	8.50
G/079/TUP/00 07/01/00	Central Anáhuac	Matamoros, Tamaulipas*	Electric	21.62	5,580/197.1	5.00
G/080/TUP/00 25/01/00	Compañía de Autoabastecedores de Gas Natural de Durango	Durango, Durango	Multiple Uses	9.14	167/5.9	1.10
G/083/TUP/00 28/02/00	Agro Industrial Madero	Durango, Durango	Agro-industrial	0.05	57/2.0	0.16
G/084/TUP/00 03/03/00	Energía Azteca VIII	San Luis de la Paz, Guanajuato*	Electric	0.02	12,880/454.9	0.06
G/085/TUP/00 06/04/00	Dal-Tile México	Garza García, Nuevo León	Construction	0.06	2,960/104.5	NA
G/086/TUP/00 14/04/00	Tizagas	Tizayuca, Hidalgo	Automotive	10.50	100/3.5	0.08
G/087/TUP/00 03/05/00	Fabricaciones Especializadas	Gómez Palacio, Durango	Metallurgy	0.11	51/1.8	0.13
G/088/TUP/00 14/06/00	Enron Energía Industrial de México	García, Nuevo León*	Electric	0.10	1,740/61.4	0.85
G/090/TUP/00 25/08/00	Kimberly Clark de México	Ramos Arizpe, Coahuila	Paper	1.76	128/4.5	0.75
G/091/TUP/00 25/08/00	Gas Industrial de Tula	Tula, Hidalgo	Multiple Uses	1.93	646/22.8	NA
Total				639.28	69,744/2,465.1	153.04

Mcmd: Thousand cubic meters per day

MMcfd: Million cubic feet per day

NA: Not available

* Integrated project (natural gas/electricity)

DISTRIBUTION

Permit Number and Date	Geographic Zone	Permittee	Leading Shareholder(s)/ Country of Origin	Economic Commitments through the Fifth Year of Operations				
				Coverage (Customers)	Average Throughput (Mcmd/MMcfd)	System Length (km)	Average Tariff (USD/Gcal) P ₀	Investment (Million USD)
G/002/DIS/96 27/09/96	Mexicali	DGN de Mexicali	Sempra Energy (US)	25,346	708/25.0	465	1.12	18.1
G/011/DIS/97 20/03/97	Piedras Negras	Compañía Nacional de Gas	Compañía Nacional de Gas (Mexico)	25,608	198/7.0	336	7.84	0.7
G/013/DIS/97 20/05/97	Chihuahua	DGN de Chihuahua	Sempra Energy (US)	51,453	1,452/51.3	1,168	1.30	46.4
G/014/DIS/97 09/06/97	Hermosillo	Gas Natural del Noroeste	KN Energy (US)	26,250	430/15.2	505	3.59	21.4
G/015/DIS/97 26/06/97	Saltillo	Gas Natural México	Gas Natural SDG (Spain)	40,027	745/26.3	656	3.17	39.0
G/018/DIS/97 03/09/97	Toluca	Gas Natural México	Gas Natural SDG (Spain)	47,279	1,933/68.3	595	0.47	31.6
G/019/DIS/97 19/09/97	Monterrey	Compañía Mexicana de Gas	TXU (US)	50,079	3,257/115.0	921	1.28	11.3
G/021/DIS/97 17/11/97	Nuevo Laredo	Gas Natural México	Gas Natural SDG (Spain)	25,029	183/6.5	366	7.06	11.2
G/022/DIS/97 02/12/97	Ciudad Juárez	Gas Natural de Juárez	Gas Natural de Juárez (Mexico)	129,045	997/35.2	1,828	6.33	12.7
G/027/DIS/97 19/12/97	Río Pánuco	Gas Natural del Río Pánuco	Tractebel (Belgium)	28,338	1,460/51.6	335	0.93	14.1
G/032/DIS/98 27/03/98	Norte de Tamaulipas	Tamauligas	Gaz de France (France)	36,447	633/22.4	861	0.95	23.7
G/033/DIS/98 24/04/98	Monterrey	Gas Natural México	Gas Natural SDG (Spain)	557,052	3,504/123.7	7,239	3.86	184.1
G/041/DIS/98 03/09/98	Distrito Federal	Comercializadora Metrogas	Gas Natural SDG (Spain)	439,253	4,337/153.2	2,619	2.42	109.0
G/042/DIS/98 03/09/98	Valle Cuautitlán- Texcoco	Mexi-Gas	Gaz de France (France)	374,698	7,604/268.5	3517	1.09	199.7
G/050/DIS/98 10/12/98	Querétaro	Distribuidora de Gas de Querétaro	Tractebel (Belgium)	50,001	1,824/64.4	870	0.95	47.2
G/054/DIS/99 15/01/99	El Bajío	Gas Natural México	Gas Natural SDG (Spain)	72,384	689/24.3	788	1.73	27.1
G/063/DIS/99 18/06/99	La Laguna-Durango	DGN de la Laguna-Durango	Sempra Energy (US)	50,084	1,094/38.6	1,030	1.21	35.4
G/065/DIS/99 09/08/99	Cananea	Distribuidora de Gas de Occidente	Grupo Diavaz (Mexico)	6,684	40/1.4	120	8.34	3.0
G/081/DIS/00 02/02/00	Bajío Norte	Gas Natural México	Gas Natural SDG (Spain)	55,715	1,239/43.8	719	1.10	34.6
G/082/DIS/00 28/02/00	Puebla-Tlaxcala	Natgasmex	Gaz de France (France)	68,196	2,635/93.1	919	0.41	34.8

Permit Number and Date	Geographic Zone	Permittee	Leading Shareholder(s)/ Country of Origin	Economic Commitments through the Fifth Year of Operations				
				Coverage (Customers)	Average Throughput (Mcmd/MMcfd)	System Length (km)	Average Tariff (USD/Gcal) P ₀	Investment (Million USD)
G/089/DIS/00 21/07/00	Guadalajara	Distribuidora de Gas Natural de Jalisco	Tractebel (Belgium)	180,558	7,300/257.8	2185	0.25	83.6
Total				2,339,526	42,262/1,492.6	28,042		988.7

Mcmd: Thousand cubic meters per day

MMcfd: Million cubic feet per day

Annex 3 Features of Electricity Permits

Features of permittees' generating stations and import facilities, such as capacity, energy, type of station and primary energy source, as well as estimated investment.

SELF-SUPPLY

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
02/AUT/94 03/05/94	Departamento del Distrito Federal (DDF). San Bartolito	Hydraulic Turbine (Water)	Estado de México	Municipal	2.66	19.81	4.0
03/AUT/94 03/05/94	DDF. El Borracho	Hydraulic Turbine (Water)	Estado de México	Municipal	1.35	10.17	2.0
04/AUT/94 03/05/94	DDF. Las Palmas	Hydraulic Turbine (Water)	Estado de México	Municipal	2.73	19.48	4.1
05/AUT/94 06/05/94	Minera Hecla	Internal Combustion (Fuel Oil #2)	Sonora	Mining	2.80	13.40	2.2
09/AUT/94 06/09/94	Pemex Exploración y Producción (PEP). Complejo Abkatun-Delta	Gas Turbine (Sweet Gas)	Campeche	Petroleum	7.52	7.40	2.3
20/AUT/95 01/03/95	Papelera Veracruzana	Hydraulic Turbine (Water)	Veracruz	Paper	1.26	3.27	1.9
27/AUT/95 28/03/95	Agrogen	Steam Turbine (Process Thermal Energy)	Querétaro	Petrochemical	11.52	2.80	11.5
28/AUT/95 19/04/95	Minera Manhattan	Internal Combustion (Fuel Oil #2)	Chihuahua	Mining	2.73	7.60	2.2
E/33/AUT/96 26/04/96	Carboeléctrica Sabinas	Fluidized Bed (Coal)	Coahuila	Mining	198.00	1,261.00	234.0
E/35/AUT/96 24/05/96	Termoeléctrica del Golfo	Fluidized Bed (Coke)	San Luis Potosí	Construction	250.00	1,750.00	325.0
E/37/AUT/96 24/05/96	Pegi	Gas and Steam Turbines (Natural Gas)	Nuevo León	Multiple Uses	617.30	4,143.00	268.8
E/38/AUT/96 31/05/96	PEP. Complejo Abkatun	Gas Turbine (Sweet Gas)	Campeche	Petroleum	35.50	33.80	10.7
E/39/AUT/96 31/05/96	PEP. Plataforma Cayo Arcas	Internal Combustion (Fuel Oil #2)	Campeche	Petroleum	2.12	2.60	1.3
E/40/AUT/96 31/05/96	PEP. Complejo KU-A	Gas Turbine (Sweet Gas)	Campeche	Petroleum	3.55	4.62	1.0
E/41/AUT/96 31/05/96	PEP. Complejo KU-H	Internal Combustion (Fuel Oil #2)	Campeche	Petroleum	1.70	3.09	1.4
E/42/AUT/96 31/05/96	PEP. Complejo NOHOCH-A	Internal Combustion (Sweet Gas)	Campeche	Petroleum	3.49	9.68	4.2

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/43/AUT/96 31/05/96	PEP. Complejo POL-A	Gas Turbine (Sweet Gas)	Campeche	Petroleum	9.17	17.28	1.9
E/44/AUT/96 31/05/96	PEP. Complejo Marino de Rebombeo	Internal Combustion (Fuel Oil #2)	Campeche	Petroleum	2.11	2.95	1.5
E/45/AUT/96 21/06/96	Compañía Minera El Baztán	Internal Combustion (Fuel Oil #2)	Michoacán	Mining	2.20	4.58	1.8
E/47/AUT/96 10/07/96	G.E. Plastics	Internal Combustion (Fuel Oil #2)	Tamaulipas	Chemical	0.85	1.04	0.7
E/49/AUT/96 04/09/96	Arancia Corn Products	Gas Turbine (Natural Gas)	Querétaro	Food and Beverage	22.70	133.92	6.4
E/51/AUT/96 25/10/96	Cozumel 2000	Wind Power Generator (Wind)	Quintana Roo	Municipal	30.00	75.00	36.0
E/52/AUT/96 25/10/96	Cogeneración Mexicana	Combined Cycle (Natural Gas)	Querétaro	Textile	69.00	504.60	34.5
E/53/AUT/96 03/12/96	Residuos Industriales Multiquim	Internal Combustion (Fuel Oil #2)	Nuevo León	Chemical	0.80	2.33	0.6
E/54/AUT/96 13/12/96	PEP. Ek-Balam	Steam Turbine and Internal Combustion (Sweet Gas)	Campeche	Petroleum	16.74	30.35	16.6
E/55/AUT/96 13/12/96	Terminal de Productos Especializados	Internal Combustion (Fuel Oil #2)	Tamaulipas	Chemical	2.89	1.25	2.3
E/56/AUT/97 24/10/97	Servicios de Agua y Drenaje de Monterrey	Internal Combustion (Biogas)	Nuevo León	Municipal	9.20	40.20	7.4
E/58/AUT/97 18/07/97	Energía y Agua Pura de Cozumel	Internal Combustion (Fuel Oil #6)	Quintana Roo	Tourism	32.14	234.00	25.7
E/59/AUT/97 15/08/97	Servicios de Agua y Drenaje de Monterrey	Internal Combustion (Biogas)	Nuevo León	Municipal	1.60	14.02	1.3
E/62/AUT/97 24/10/97	Petroquímica Cosoleacaque	Gas Turbine (Natural Gas)	Veracruz	Petrochemical	59.20	175.20	17.8
E/63/AUT/97 02/12/97	Petroquímica Escolín	Gas Turbine (Natural Gas)	Veracruz	Petrochemical	48.00	336.00	14.4
E/64/AUT/97 17/12/97	PGPB. Complejo Procesador de Gas Reynosa	Steam Turbine (Natural Gas)	Tamaulipas	Petrochemical	6.00	15.02	6.0
E/65/AUT/97 17/12/97	PGPB. Complejo Procesador de Gas Nuevo Pemex	Steam Turbine (Natural Gas)	Tabasco	Petrochemical	92.00	420.00	78.0
E/66/AUT/97 17/12/97	PGPB. Complejo Procesador de Gas La Venta	Gas Turbine (Natural Gas)	Tabasco	Petrochemical	24.80	152.57	7.4

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/67/AUT/97 17/12/97	PGPB. Complejo Procesador de Gas Poza Rica	Steam Turbine (Natural Gas)	Veracruz	Petrochemical	18.00	70.80	18.0
E/68/AUT/97 17/12/97	PGPB. Complejo Procesador de Gas Ciudad Pemex	Gas and Steam Turbines (Natural Gas)	Tabasco	Petrochemical	64.00	245.00	23.4
E/69/AUT/97 17/12/97	Pemex Petroquímica (PP). Complejo Petroquímico Independencia	Steam Turbine (Natural Gas)	Puebla	Petroleum	60.00	166.00	60.0
E/70/AUT/98 14/01/98	Fuerza Eólica del Istmo	Wind Power Generator (Wind)	Oaxaca	Municipal	30.00	150.00	36.0
E/71/AUT/98 14/01/98	Baja California 2000	Wind Power Generator (Wind)	Baja California	Municipal	60.50	166.00	72.6
E/72/AUT/98 23/01/98	Pemex-Refinación (PR). Refinería Miguel Hidalgo	Steam Turbine (Natural Gas and Fuel Oil #6)	Hidalgo	Petroleum	96.00	606.11	96.0
E/77/AUT/98 11/03/98	Agroindustrias del Balsas	Steam Turbine (Fuel Oil #6)	Michoacán	Chemical	15.00	120.50	15.0
E/78/AUT/98 11/03/98	Ingenio Plan de San Luis	Steam Turbine (Fuel Oil #6 and Waste Pulp)	San Luis Potosí	Sugar	9.00	18.00	9.0
E/79/AUT/98 20/03/98	PR. Refinería Ing. Antonio M. Amor	Steam Turbine (Natural Gas and Fuel Oil #6)	Guanajuato	Petroleum	79.50	470.00	79.5
E/80/AUT/98 20/03/98	PGPB. Centro Procesador de Gas Area Coatzacoalcos	Gas Turbine (Natural Gas)	Veracruz	Petrochemical	76.80	128.00	23.0
E/81/AUT/98 27/03/98	Ingenio Presidente Benito Juárez	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Tabasco	Sugar	9.00	18.90	9.0
E/82/AUT/98 27/03/98	PR. Refinería Gral. Lázaro Cárdenas	Steam Turbine (Natural Gas and Fuel Oil #6)	Veracruz	Petroleum	64.00	411.72	19.2
E/83/AUT/98 17/04/98	PR. Refinería Ing. Héctor R. Lara Sosa	Steam Turbine (Natural Gas and Fuel Oil #6)	Nuevo León	Petroleum	64.00	308.00	64.0
E/84/AUT/98 18/04/98	Mexicana de Cobre	Steam Turbine (Fuel Oil #6)	Sonora	Mining	36.50	287.61	36.5
E/85/AUT/98 24/04/98	Compañía Industrial Azucarera San Pedro	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Veracruz	Sugar	10.00	10.80	10.0
E/86/AUT/98 24/04/98	Ingenio Emiliano Zapata	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Morelos	Sugar	8.60	20.50	8.6
E/87/AUT/98 22/05/98	Ingenio San Miguelito	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Veracruz	Sugar	3.70	5.45	3.7
E/88/AUT/98 22/05/98	Impulsora de la Cuenca del Papaloapan	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Veracruz	Sugar	24.20	38.15	24.2

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/89/AUT/98 22/05/98	Minera Bismark	Internal Combustion (Fuel Oil #2)	Chihuahua	Mining	4.40	0.81	2.6
E/90/AUT/98 22/05/98	Ingenio San Francisco el Naranjal	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Veracruz	Sugar	6.00	8.20	6.0
E/91/AUT/98 22/05/98	Ingenio Lázaro Cárdenas	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Michoacán	Sugar	1.60	1.96	1.6
E/92/AUT/98 22/05/98	Azsuremex	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Tabasco	Sugar	2.50	1.95	2.5
E/93/AUT/98 12/06/98	PR. Refinería Francisco I. Madero	Steam Turbine (Fuel Oil #6)	Tamaulipas	Petroleum	65.00	270.60	65.0
E/94/AUT/98 12/06/98	Altos Hornos de México	Gas and Steam Turbines and Combined Cycle (Natural Gas, Blast Furnace Gas, Coke Gas and Fuel Oil #6)	Coahuila	Iron and Steel	184.30	1,012.00	117.9
E/95/AUT/98 26/06/98	Ingenio de Puga	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Nayarit	Sugar	12.00	22.10	12.0
E/97/AUT/98 15/07/98	PR. Refinería Ing. Antonio Dovalí Jaime	Steam Turbine (Fuel Oil #6 and Natural Gas)	Oaxaca	Petroleum	115.00	609.00	115.0
E/98/AUT/98 15/07/98	Ingenio José María Martínez	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Jalisco	Sugar	12.00	25.56	12.0
E/99/AUT/98 15/07/98	Ingenio San Francisco Ameca	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Jalisco	Sugar	4.50	11.96	4.5
E/100/AUT/98 22/07/98	Bimbo del Noroeste	Internal Combustion (Fuel Oil #2)	Sonora	Food and Beverage	1.67	1.40	1.3
E/103/AUT/98 12/08/98	PEP. Complejo Marino de Producción Akal-C	Internal Combustion (Fuel Oil #2)	Campeche	Petroleum	7.20	12.26	5.8
E/104/AUT/98 12/08/98	PEP. Complejo Marino de Producción Akal-J	Gas Turbine and Internal Combustion (Sweet Gas and Fuel Oil #2)	Campeche	Petroleum	5.10	11.40	6.2
E/105/AUT/98 12/08/98	PEP. Complejo Marino de Producción Akal-N	Gas Turbine (Sweet Gas)	Campeche	Petroleum	3.15	6.13	0.9
E/106/AUT/98 12/08/98	PEP. Complejo Marino de Producción Abkatun-A	Gas Turbine and Internal Combustion (Sweet Gas)	Campeche	Petroleum	18.73	31.76	6.6

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/107/AUT/98 13/08/98	PEP. Centro de Proceso y Transporte de Gas Atasta	Gas Turbine (Natural Gas)	Campeche	Petroleum	8.10	21.35	2.4
E/108/AUT/98 11/09/98	Ingenio El Molino	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Nayarit	Sugar	5.50	8.50	5.5
E/109/AUT/98 18/09/98	PEP. Planta Eléctrica Cárdenas	Gas Turbine (Sweet Gas)	Tabasco	Petroleum	36.80	22.00	11.0
E/110/AUT/98 18/09/98	PEP. Terminal Marítima Dos Bocas	Gas Turbine (Natural Gas and Fuel Oil #2)	Tabasco	Petroleum	99.15	186.80	29.7
E/111/AUT/98 18/09/98	Química del Rey	Gas and Steam Turbines (Natural Gas)	Coahuila	Chemical	16.20	102.00	4.9
E/114/AUT/98 16/10/98	Cervecería Cuauhtémoc Moctezuma	Hydraulic and Steam Turbines (Water and Natural Gas)	Veracruz	Food and Beverage	15.00	45.60	18.0
E/115/AUT/98 16/10/98	Minas SANLUIS	Hydraulic Turbine and Internal Combustion (Water and Fuel Oil #2)	Durango	Mining	4.44	12.91	5.0
E/116/AUT/98 26/10/98	Ingenio Tamazula	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Jalisco	Sugar	10.47	27.14	10.5
E/117/AUT/98 26/10/98	Prozucar	Steam Turbine and Internal Combustion (Fuel Oil #6 and Waste Pulp)	Sinaloa	Sugar	10.50	20.90	10.4
E/118/AUT/98 26/10/98	Osca de México	Internal Combustion (Fuel Oil #2)	Tabasco	Chemical	1.86	16.53	1.5
E/119/AUT/98 03/11/98	Ingenio Alianza Popular	Steam Turbine and Internal Combustion (Fuel Oil #6 and Waste Pulp)	San Luis Potosí	Sugar	6.40	13.20	6.3
E/121/AUT/98 11/11/98	Generadora Eléctrica San Rafael	Hydraulic Turbine (Water)	Nayarit	Municipal	24.00	134.40	12.0
E/122/AUT/98 13/11/98	Cementos Apasco	Wind Power Generator (Wind)	Coahuila	Construction	0.55	1.00	0.7
E/123/AUT/98 23/11/98	Industrias Centauro	Steam Turbine (Fuel Oil #6)	Durango	Paper	10.00	18.80	10.0
E/125/AUT/98 03/12/98	Ingenio Eldorado	Steam Turbine and Internal Combustion (Fuel Oil #6)	Sinaloa	Sugar	5.60	9.90	5.5
E/126/AUT/98 10/12/98	Energía de Quintana Roo	Internal Combustion (Fuel Oil #6)	Quintana Roo	Tourism	42.73	318.15	34.2

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/127/AUT/98 10/12/98	Comisión México-Americana para la Erradicación del Gusano Barrenador	Internal Combustion (Fuel Oil #2)	Chiapas	Agriculture and Livestock	2.20	1.77	1.8
E/129/AUT/98 16/12/98	Ingenio Tres Valles	Steam Turbine (Fuel Oil #6)	Veracruz	Sugar	12.00	30.25	12.0
E/130/AUT/99 15/01/99	Mexicana de Hidroelectricidad Mexhidro	Hydraulic Turbine (Water)	Guerrero	Iron and Steel	30.00	101.30	45.0
E/134/AUT/99 09/04/99	Minera La Encantada	Internal Combustion (Fuel Oil #2)	Coahuila	Mining	10.20	13.04	8.2
E/136/AUT/99 02/06/99	Ingenio El Higo	Steam Turbine (Waste Pulp)	Veracruz	Sugar	12.00	26.00	12.0
E/137/AUT/99 02/06/99	Compañía Industrial Veracruzana	Hydraulic and Steam Turbines (Water and Natural Gas)	Veracruz	Textile	4.00	17.42	5.6
E/138/AUT/99 09/06/99	Industrial Aceitera	Steam Turbine (Natural Gas)	Estado de México	Food and Beverage	10.00	43.80	10.0
E/140/AUT/99 12/07/99	Hylsa	Gas Turbine (Natural Gas)	Nuevo León	Iron and Steel	50.00	28.00	15.0
E/141/AUT/99 20/07/99	Ispat Mexicana	Steam Turbine (Natural Gas)	Michoacán	Iron and Steel	40.00	180.40	40.0
E/142/AUT/99 09/08/99	Ingenio Adolfo López Mateos	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Oaxaca	Sugar	13.50	21.60	13.5
E/145/AUT/99 27/08/99	Ingenio de Huixtla	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Chiapas	Sugar	9.60	12.62	9.5
E/146/AUT/99 27/08/99	Electricidad del Itsmo	Hydraulic Turbine (Water)	Oaxaca	Textile	20.00	99.00	20.0
E/147/AUT/99 27/08/99	Hidroelectricidad del Pacífico	Hydraulic Turbine (Water)	Jalisco	Maquiladora	8.00	37.00	8.0
E/149/AUT/99 03/09/99	Termoeléctrica Peñoles	Fluidized Bed (Petroleum Coke)	San Luis Potosí	Mining	260.00	1,850.00	260.0
E/150/AUT/99 10/09/99	Hidroeléctricas Viritas	Hydraulic Turbine (Water)	Veracruz	Textile	5.73	26.92	5.7
E/153/AUT/99 22/10/99	Proveedora Nacional de Electricidad	Hydraulic Turbine (Water)	Durango	Chemical	20.00	79.00	20.0
E/155/AUT/99 05/11/99	Proveedora de Electricidad de Occidente	Hydraulic Turbine (Water)	Jalisco	Chemical	20.00	101.00	20.0
E/156/AUT/99 14/12/99	Micase	Gas Turbine (Natural Gas)	Estado de México	Food and Beverage	10.69	59.00	3.2
E/158/AUT/2000 25/01/2000	Compañía Azucarera La Fe	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Chiapas	Sugar	9.50	11.40	9.5

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/159/AUT/2000 25/01/2000	Compañía Minera Autlán. Unidad Molango	Internal Combustion (Natural Gas and Fuel Oil #2)	Hidalgo	Mining	11.13	30.00	8.9
E/160/AUT/2000 11/02/2000	Compañía de Servicios de Compresión de Campeche	Gas Turbine and Internal Combustion (Sweet Gas and Fuel Oil #2)	Campeche	Petroleum	7.78	22.63	3.0
E/161/AUT/2000 17/02/2000	Ingenio Melchor Ocampo	Steam Turbine (Waste Pulp)	Jalisco	Sugar	6.00	12.00	6.0
E/162/AUT/2000 17/02/2000	Compañía Minera Basis	Internal Combustion (Fuel Oil #2)	Durango	Mining	7.99	23.93	8.0
E/166/AUT/2000 03/05/2000	Compañía Azucarera de los Mochis	Steam Turbine (Fuel Oil #6 and Waste Pulp)	Sinaloa	Sugar	14.00	22.00	14.0
E/168/AUT/2000 02/06/2000	Electricidad de Veracruz	Combined Cycle (Natural Gas)	Veracruz	Multiple Uses	651.00	5,000.00	325.5
E/169/AUT/2000 02/06/2000	Electricidad de Veracruz II	Combined Cycle (Natural Gas)	Veracruz	Multiple Uses	279.00	1,670.00	139.5
E/170/AUT/2000 19/06/2000	Vitro Flotado	Gas Turbine (Fuel Oil #2)	Nuevo León	Chemical	11.40	10.69	9.1
E/172/AUT/2000 21/07/2000	Hylsa	Steam Turbine (Natural Gas)	Puebla	Iron and Steel	5.60	30.24	5.6
Total					4,584.17	25,240.85	3,310.5

COGENERATION

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
06/COG/94 06/09/94	Fábrica La Estrella	Gas Turbine (Natural Gas)	Coahuila	Textile	8.38	55.50	2.5
07/COG/94 20/07/94	Productora de Papel	Gas and Steam Turbines (Natural Gas)	Nuevo León	Paper	18.46	96.61	9.7
08/COG/94 20/07/94	Fersinsa Gist-Brocades	Gas Turbine (Natural Gas)	Coahuila	Food and Beverage	5.30	42.40	1.6
11/COG/94 15/09/94	Producto Ecológicos	Gas Turbine (Waste Gas)	Veracruz	Chemical	42.40	130.00	12.7
12/COG/94 05/10/94	Almidones Mexicanos	Gas Turbine (Natural Gas)	Jalisco	Food and Beverage	12.00	17.50	3.6
14/COG/94 15/11/94	Industrias Monfel	Gas Turbine (Natural Gas)	San Luis Potosí	Chemical	2.55	19.75	0.8
15/COG/94 15/11/94	Cartones Ponderosa	Gas Turbine (Natural Gas)	Querétaro	Paper	10.50	70.90	9.5
22/COG/95 01/03/95	Albright & Wilson Troy de México	Steam Turbine (Natural Gas)	Veracruz	Petrochemical	6.25	44.00	6.3

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
23/COG/95 01/03/95	Pritsa Power	Gas Turbine (Natural Gas)	Hidalgo	Food and Beverage	30.00	229.70	9.0
24/COG/95 27/03/95	Corrugados La Estrella	Steam Turbine (Natural Gas)	Hidalgo	Paper	35.00	182.00	35.0
25/COG/95 27/03/95	Aceitera La Junta	Gas Turbine (Natural Gas)	Jalisco	Food and Beverage	2.33	17.50	0.7
26/COG/95 28/03/95	Compañía Eléctrica de Cozumel	Internal Combustion (Fuel Oil #6)	Quintana Roo	Tourism	29.50	192.00	23.6
E/36/COG/96 24/05/96	Enertek	Gas Turbine (Natural Gas)	Tamaulipas	Petrochemical	120.00	832.20	36.0
E/46/COG/96 21/06/96	Energía Bidarena	Internal Combustion (Natural Gas)	Estado de México	Paper	3.15	14.91	1.5
E/48/COG/96 02/08/96	Celulosa y Corrugados de Sonora	Steam Turbine (Fuel Oil #6)	Sonora	Paper	4.00	21.25	4.0
E/50/COG/96 27/09/96	Beri Cali Sur	Stoker (Solid Waste)	Baja California Sur	Municipal	5.00	20.50	11.0
E/61/COG/97 03/09/97	Advanced Cogen	Steam Turbine (Fuel Oil #6)	Baja California Sur	Municipal	19.90	164.00	19.9
E/73/COG/98 23/01/98	PGPB. Complejo Procesador de Gas Cactus	Gas Turbine (Natural Gas)	Chiapas	Petrochemical	120.70	315.16	36.2
E/74/COG/98 13/02/98	Petroquímica Morelos	Gas and Steam Turbines (Natural Gas)	Veracruz	Petrochemical	172.00	490.56	152.4
E/75/COG/98 13/02/98	Petroquímica Cangrejera	Gas and Steam Turbines (Natural Gas)	Veracruz	Petrochemical	163.50	762.00	149.7
E/76/COG/98 13/02/98	Petroquímica Pajaritos	Gas Turbine (Natural Gas)	Veracruz	Petrochemical	58.50	202.00	17.6
E/96/COG/98 26/06/98	BASF Mexicana	Gas Turbine (Natural Gas)	Tamaulipas	Chemical	10.60	88.93	3.2
E/113/COG/98 09/10/98	Papelera Industrial Potosina	Gas and Steam Turbines (Natural Gas)	San Luis Potosí	Paper	3.53	20.30	1.4
E/131/COG/99 15/01/99	Energía Industrial Río Colorado	Combined Cycle (Natural Gas)	Sonora	Maquiladora	470.00	3,000.00	225.0
E/143/COG/99 09/08/99	Grupo Celanese. Complejo Zacapú	Steam Turbine (Fuel Oil #6)	Michoacán	Textile	10.00	31.54	10.0
E/144/COG/99 09/08/99	Grupo Celanese. Complejo Ocotlán	Steam Turbine (Fuel Oil #6)	Jalisco	Textile	13.30	56.94	13.3
E/148/COG/99 03/09/99	Compañía de Nitrógeno de Cantarell	Steam Turbine (Natural Gas)	Campeche	Petroleum	306.00	1,971.00	94.8
E/151/COG/99 27/09/99	Energía Eléctrica de Quintana Roo	Combined Cycle (Natural Gas)	Quintana Roo	Tourism	114.50	848.84	45.0

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/154/GOG/99 05/11/99	Celulosa de Fibras Mexicanas	Gas and Steam Turbines (Natural Gas)	Tlaxcala	Paper	6.64	37.27	2.5
E/157/COG/2000 07/01/2000	Grupo Primex	Combined Cycle (Natural Gas)	Tamaulipas	Chemical	16.30	140.83	4.9
E/167/COG/2000 02/06/2000	Enron Energía Industrial de México	Combined Cycle (Natural Gas)	Nuevo León	Multiple Uses	284.02	2,265.00	142.0
E/173/GOG/2000 21/07/2000	Internacional de Papel del Golfo	Gas Turbine (Natural Gas)	Tamaulipas	Paper	3.00	22.78	1.5
E/175/COG/2000 14/08/2000	Agroenergía	Steam Turbine (Industrial Fuel)	Querétaro	Chemical	12.00	63.83	12.0
Total					2,119.31	12,467.70	1,098.8

IPP

Permit Number and Date	Permittee	Type of Station and Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/57/PIE/97 19/02/97	AES Mérida III	Combined Cycle (Natural Gas and Fuel Oil #2)	Yucatán	IPP	531.50	3,400.00	212.6
E/124/PIE/98 23/11/98	Fuerza y Energía de Hermosillo	Combined Cycle (Natural Gas)	Sonora	IPP	252.70	1,800.00	180.0
E/128/PIE/98 16/12/98	Central Río Bravo	Combined Cycle (Natural Gas and Fuel Oil #2)	Tamaulipas	IPP	568.60	3,700.00	360.0
E/133/PIE/99 19/03/99	Central Saltillo	Combined Cycle (Natural Gas and Fuel Oil #2)	Coahuila	IPP	247.50	1,650.00	120.0
E/135/PIE/99 2/06/99	Energía Azteca VIII	Combined Cycle (Natural Gas)	Guanajuato	IPP	545.00	4,081.00	245.0
E/139/PIE/99 25/06/99	Electricidad Águila de Tuxpan	Combined Cycle (Natural Gas and Fuel Oil #2)	Veracruz	IPP	535.56	3,707.45	240.0
E/152/PIE/99 8/10/99	Iberdrola Energía Monterrey	Combined Cycle (Natural Gas)	Nuevo León	IPP	570.00	3,685.00	256.0
E/164/PIE/2000 06/04/2000	Transalta Campeche	Combined Cycle (Natural Gas)	Campeche	IPP	275.00	2,102.97	130.0
E/165/PIE/2000 28/04/2000	Electricidad Águila de Altamira	Combined Cycle (Natural Gas)	Tamaulipas	IPP	565.30	3,631.53	254.0
E/171/PIE/2000 14/07/2000	Fuerza y Energía de Naco-Nogales	Combined Cycle (Natural Gas)	Sonora	IPP	339.30	1,920.00	136.0
E/174/PIE/2000 7/08/2000	Energía Azteca X	Combined Cycle (Natural Gas)	Baja California	IPP	597.25	4,850.00	262.0
Total					5,027.71	34,527.95	2,395.6

EXPORT

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/163/EXP/2000 31/03/2000	Energía de Mexicali	Combined Cycle (Natural Gas)	Baja California	Export	257.60	2,119.12	116.0
Total					257.60	2,119.12	116.0

IMPORT

Permit Number and Date	Permittee	Type of Station/ Primary Energy Source	Location	Sector	Capacity (MW)	Energy (GWh/year)	Estimated Investment (Million USD)
E/31/IMP/96 04/03/96	Bose	Import	Sonora	Maquiladora	4.00	18.40	1.0
E/60/IMP/97 15/08/97	Minera Múzquiz	Import	Coahuila	Mining	0.75	6.57	0.3
E/101/IMP/98 22/07/98	Seihwa de México	Import	Sonora	Maquiladora	0.85	4.75	0.3
E/102/IMP/98 22/07/98	Paulson Mexicana	Import	Sonora	Maquiladora	1.50	8.00	0.4
E/112/IMP/98 18/09/98	Hyo Seung de México	Import	Sonora	Maquiladora	1.50	8.00	0.4
E/132/IMP/99 08/02/99	Mecox Resources	Import	Sonora	Maquiladora	1.60	11.70	0.4
Total					10.20	57.42	2.6

Annex 4 Features of LPG Permits

Characteristics of provisional LPG permittees' systems, such as length, average throughput and capacity. These permittees were in operation at the time that the *Reglamento de Gas Licuado de Petróleo* (LPG Regulation) came into effect in 1999.

TRANSPORTATION AND DISTRIBUTION

Permittee	Activity	Location	Length (km)	Average throughput (MMcmd/MMcfd)	Capacity (MMcmd/MMcfd)	Investment (Million USD)
PGPB. Terminal Méndez	Transportation	U.S./Mexico Border-Ciudad Juárez, Chihuahua	34.69	3.8/134.2	3.8/134.2	4.75
Compañía de Gas de Tijuana	Distribution	Tijuana, Baja California	230	26.0/918.2	129.4/4,569.7	NA
PGPB. Jaltipán-Salina Cruz	Transportation	Jaltipán, Veracruz-Salina Cruz, Oaxaca	232.9	4.7/166.0	4.7/166.0	NA
PGPB. Tuzandépetl	Transportation	Tuzandépetl-Pajaritos, Veracruz	28.8	2.4/84.8	2.9/102.4	NA
Penn Octane de México	Transportation	Sabino, Río Bravo Norte-Matamoros, Tamaulipas	9.7	3.5/123.6	3.5/123.6	NA
Invalle	Transportation	Tepeji del Río de Ocampo, Hidalgo	0.61	6.4/226.0	6.4/226.0	NA
Total			536.7	46.8/1,652.8	150.7/5,321.9	4.75

MMcmd: Million cubic meters per day

MMcfd: Million cubic feet per day

NA: Not available