

The Political Economy of Energy Reform in Mexico

Instituto de Economía
&
Stanford University

Armando Jimenez San Vicente, Ph D.
5-6 April, Rio de Janeiro, 2004

Copies of the study available at:
[Http://pesd.stanford.edu](http://pesd.stanford.edu)

Index

1. Evolving History of the Mexican Power Sector.
2. Industry Structure and Fundamentals
3. Industry Achievements
4. Challenges
5. Conclusions

The Evolution of the Electricity Sector in Mexico

Strong correlation between the evolution of the electric sector and the political system.

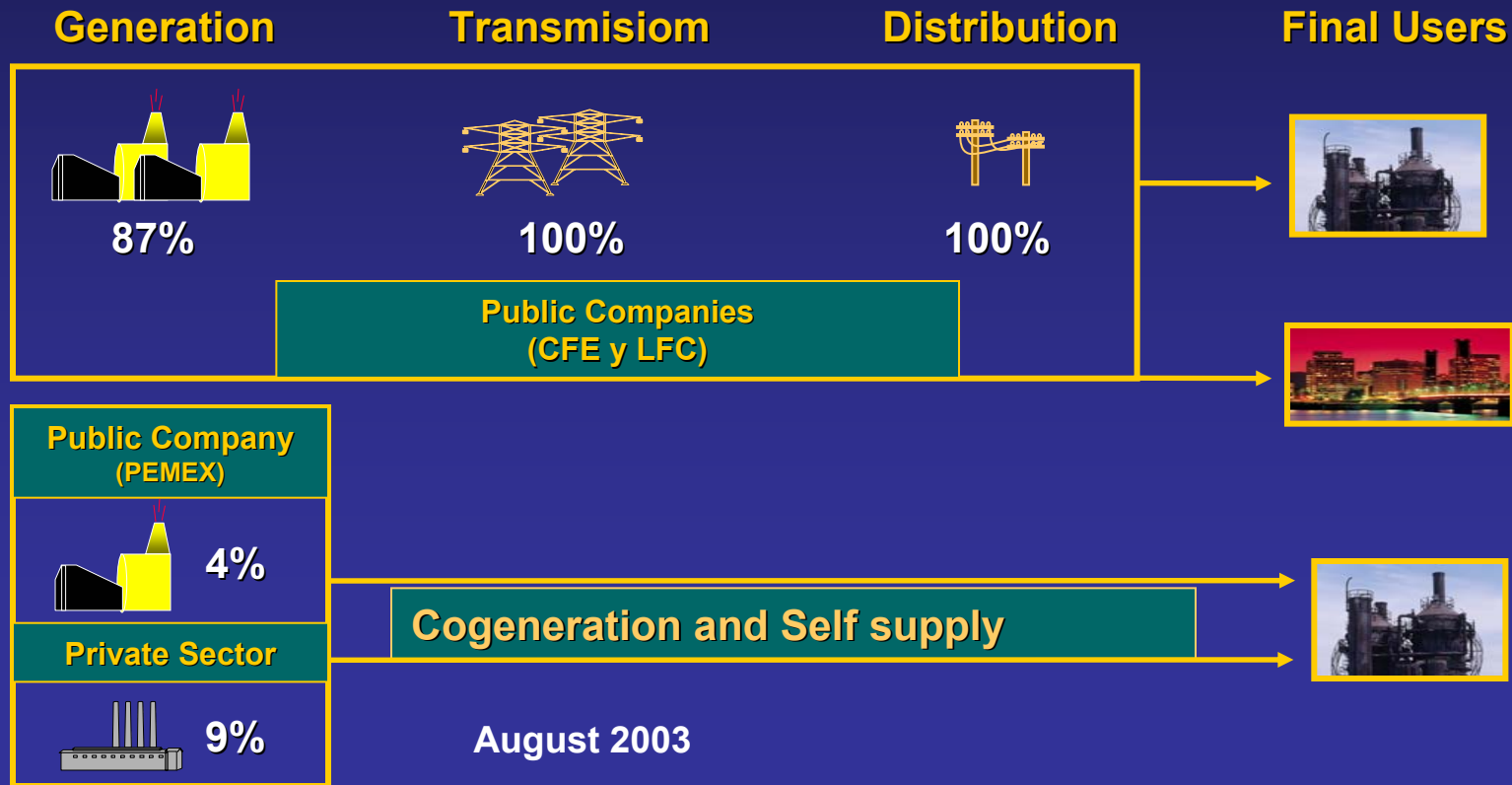
- ❑ Early history of private participation in profitable markets.
- ❑ 1960 /1970 Import Substitution/Back to State control.
- ❑ World wave of energy reforms and Mexico's structural reorganization (1980's to 1990's)
- ❑ An evolving agenda towards a market structure currently stalemated due to political gridlock.

Industry Structure and Fundamentals

1. The Mexican Electric System works as a **vertically integrated state owned monopoly**.
2. Two state owned power utilities **CFE and LFC** (entangled between social and company goals).
3. **Constitutional constraints** that limit private investment are closely related to the country's nationalistic ideology.
4. In the 1990's market bases were developed in the legal system to **allow private participation (IPPs)**.
5. New **market institutions** are developing (Energy Regulatory Commission)
6. **Urge to restructure** public companies to make them financially healthy and more efficient .

Structure of the Power Sector

- ❑ The Mexican power sector is a vertically integrated state owned monopoly.
- ❑ Private investment is limited to **cogeneration and self supply**.



Permits Granted for Generation by CRE

- From January 1994 to February 2003, the Regulatory Commission granted 240 permits, 216 are in operation with a total capacity of 19,942.2 MW.

Modalidad	Número de Permisos	Capacidad (MW)	Energía (GWh/año)	Inversión (Millones de dólares)
Autoabastecimiento	151	6,311.5	36,346.9	4,581.9
Cogeneración	35	2,177.9	12,977.9	1,224.3
Producción Independiente	17	9,277.1	63,363.8	5,102.4
Exportación	6	2,186.4	15,181.4	1,387.5
Importación	7	41.4	60.7	12.2
Total	216	19,994.3	128,330.7	12,308.3

Achievements

1. Around **95% of the population** is serviced by the two utility companies.
2. Social compromise to **guarantee reliable power supply** at affordable tariffs to low income users.
3. A **diversified fuel mix** for generation despite been one of the largest world oil producing countries.
4. A **reasonably reliable** service for industry and citizens when compared to other public services.
5. **No crisis in generation** in the past that pressure for reform.

Electricity Coverage

- ❑ Power electricity coverage in Mexico is one of the highest for developing countries, comprising around 95% of the Mexican families.
- ❑ Those outside the network are located in remote locations.
- ❑ Due to the country's irregular geography not all the States enjoy the same supply standards. Usually the poorest are the worst serviced.












Power Generation according to Fuel Source (2003)*

- Despite the fact that Mexico is **one of the largest oil producing countries** its fuel basket for power generation is quite diversified. In the future most of the infrastructure for power generation will be developed with natural gas .



➤ Fuel Source:

	Wind	2 MW
	Internal combustion	144MW
	Geothermal (2 %)	853 MW
	Nuclear (3.3 %)	1,365 MW
	Dual (5.1 %)	2,100 MW
	Coal (6.3 %)	2,600 MW
	Combined cycle (17.8%)	11,964 MW
	Hydroelectric (23.3 %)	9,608 MW
	Steam (41.7%)	14,283 MW
Total		42,919 MW

Fuente: Secretaría de Energía
* Datos hasta agosto de 2003

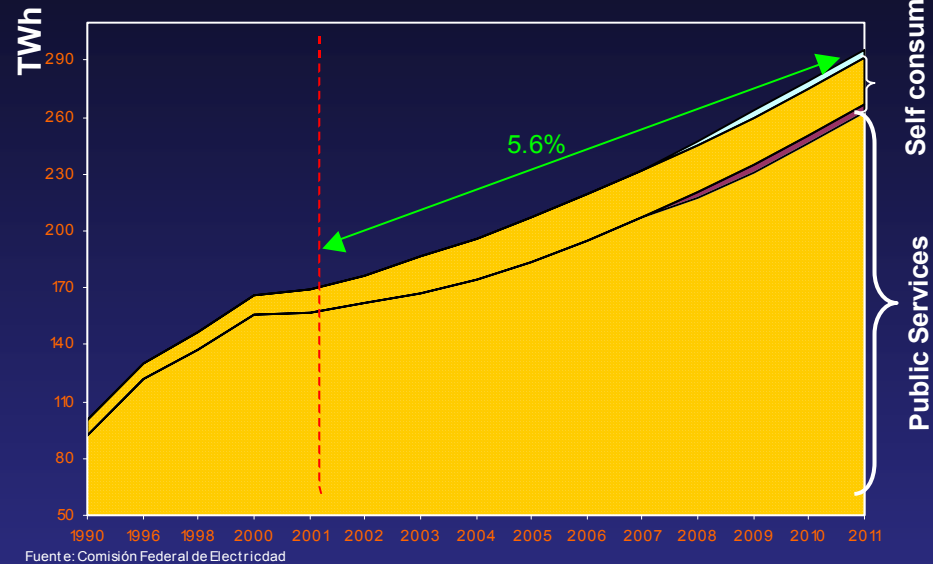
Challenges

1. **High growth rates** in power demand forecasted for the next ten years.
2. **Government unable** to make the required investments.
3. **Financial gridlock** with heavily indebted public utility companies and large and inefficient subsidies in electric tariffs
4. The new economy requires **highly reliable** and affordable power sector to maintain competitiveness.

Evolution of Forecasted Power Demand 2002-2011

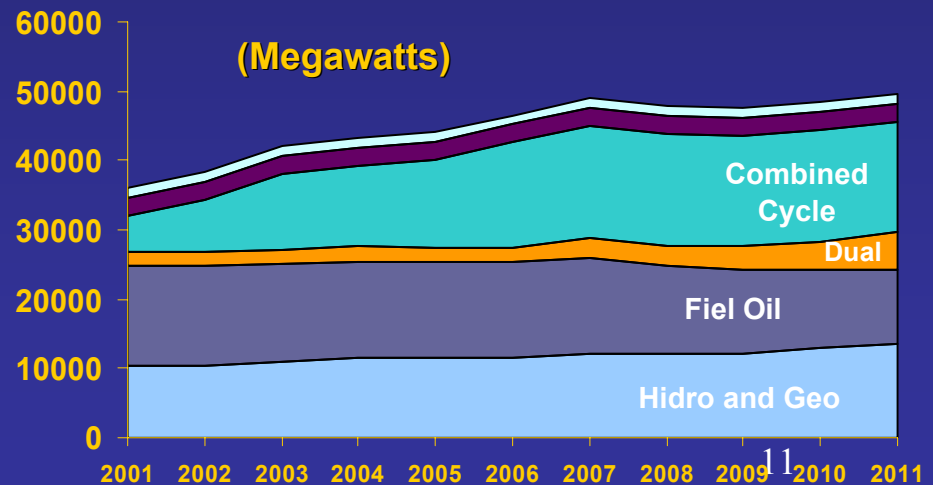
Demand

- The annual growth rate of 5.6% will be triggered by the industrial and residential sectors.



Supply

- In the next 10 years more that 29,000 MW will be added to to current capacity. Most of the power generation capacity will come form combine cycle plants.

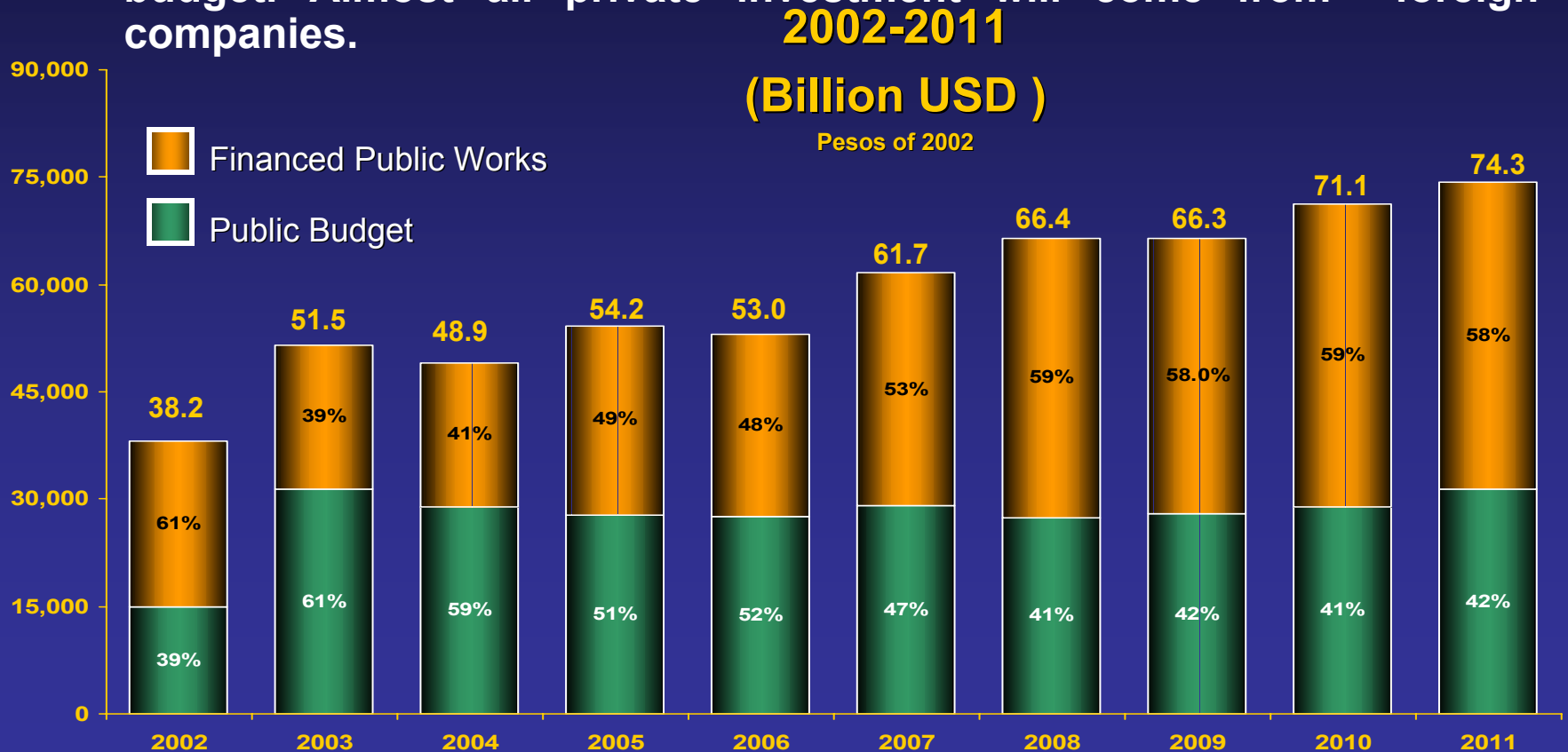


Challenges

1. **High growth rates** in power demand forecasted for the next ten years.
2. **Government unable** to make the required investments.
3. **Financial gridlock** with heavily indebted public utility companies and large and inefficient subsidies in electric tariffs
4. The new economy requires **highly reliable** and affordable power sector to maintain competitiveness.

Investment Requirements for the next Ten Years

- Around USD \$ 56 billion will be required in the next 10 years to develop infrastructure.
- Less than have of the required investment will come from the public budget. Almost all private investment will come from foreign companies.

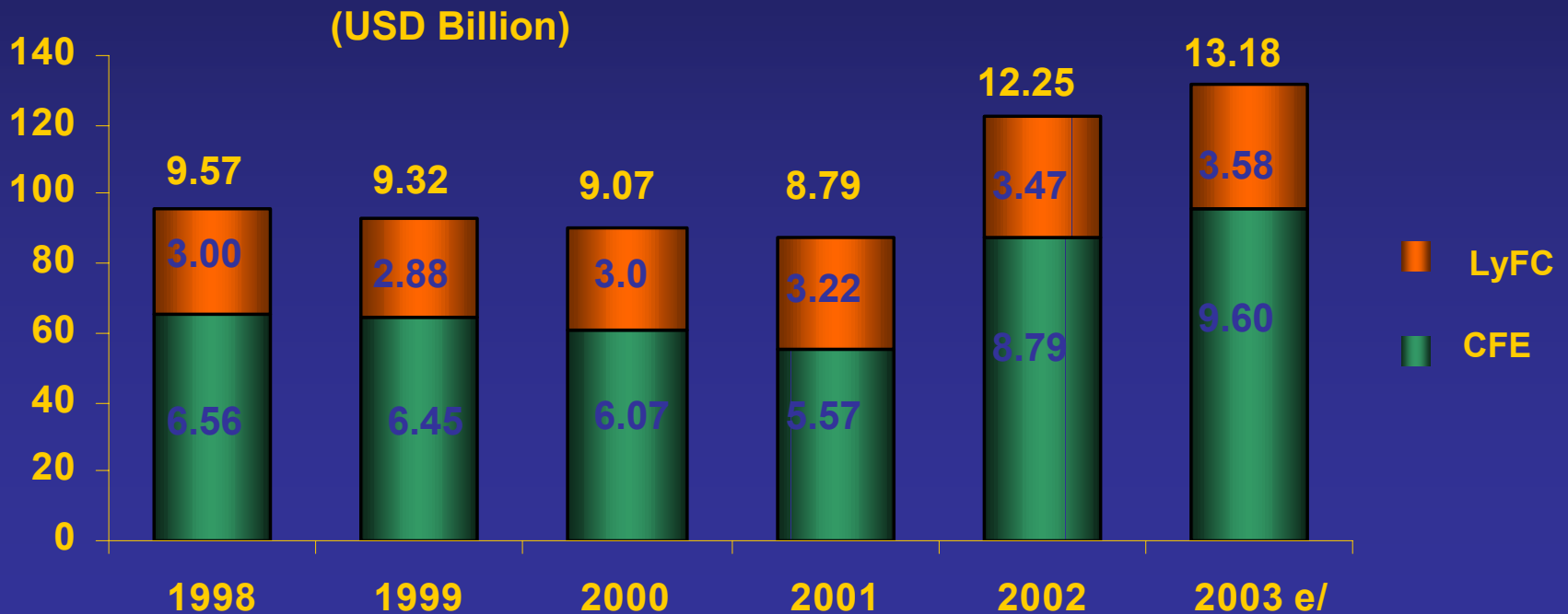


Challenges

1. **High growth rates** in power demand forecasted for the next ten years.
2. **Government unable** to make the required investments.
3. **Financial gridlock** with heavily indebted public utility companies and large and inefficient subsidies in electric tariffs
4. The new economy requires **highly reliable** and affordable power sector to maintain competitiveness.

CFE y LyFC Debt Profile

- ❑ Total debt for 2003 amounted to **USD \$ 13 billion dollars** * (PIDIREGAS and labor obligations are not included).
- ❑ Just in this administration the debt of CFE y LyFC has increased in **50%**.
- ❑ The current financial mechanism (PIDIREGAS) will last only for another five years, other mechanisms have been explored like PPPs.



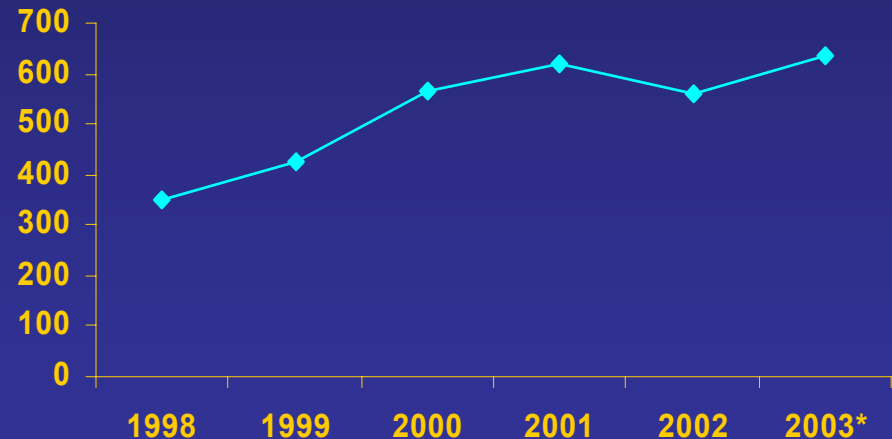
Debt and Subsidies

- ❑ CFE debt is affected mainly by labor pensions, in 2002 it represented 58% of the company's total debt.
- ❑ In the last five years the burden on public finances of electric tariffs subsidies has double, amounting more than USD \$ 5 billion per year.

Ratio Debt/Income * (%)



Subsidies CFE y LyFC
(thousand million pesos)



Challenges

1. **High growth rates** in power demand forecasted for the next ten years.
2. **Government unable** to make the required investments.
3. **Financial gridlock** with heavily indebted public utility companies and large and inefficient subsidies in electric tariffs
4. The new economy requires **highly reliable** and affordable power sector to maintain competitiveness.

Conclusions

- **Reform efforts stalled** due to lack of government capability to build consensus for structural reforms.
- No power reform seems possible from here to the next presidential elections.
- **Urgency to reform:** Most likely the financial crisis of the power sector will blow up to the next administration.
- **No other financial mechanisms** (PPPs) seem feasible to finance the large requirements to develop infrastructure.
- Too much competition for investment around the world.
- **Risk of devolving** the achievements in building a market structure.