

Overview on the Chile's Electricity Market, and Nuclear Power

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CONTENT

- **Introduction**
- National Electricity Market
- Final Comments

CCHEN's infrastructure

CEN LA REINA



Research Reactor, RECH-1, 5 Mw
Experimental radiators, ^{60}Co and ^{137}Cs

Laboratories:

RI & RP Production

Cyclotron

Neutron Activation Analysis

Environmental Radiation Surveillance

Radio-medicine

Radioactive Tracers

Agriculture

Dosimetry

Plasma Physics

Bank of Sterile tissues

CCHEN's infrastructure (contin...)

CEN LO AGUIRRE



Research Reactor, RECH-2, 15Mw

MTR Fuel Fabrication Plant

Multipurpose γ -Irradiation Facility 250 kCi

L&IL Waste Management Plant

Laboratories:

FRX Chemical Analysis

Geology and Mining

Government Organization for Energy Matters

President of the Republic

**Ministry of Mining
and Energy / NRA**

**Ministry of
Economy**

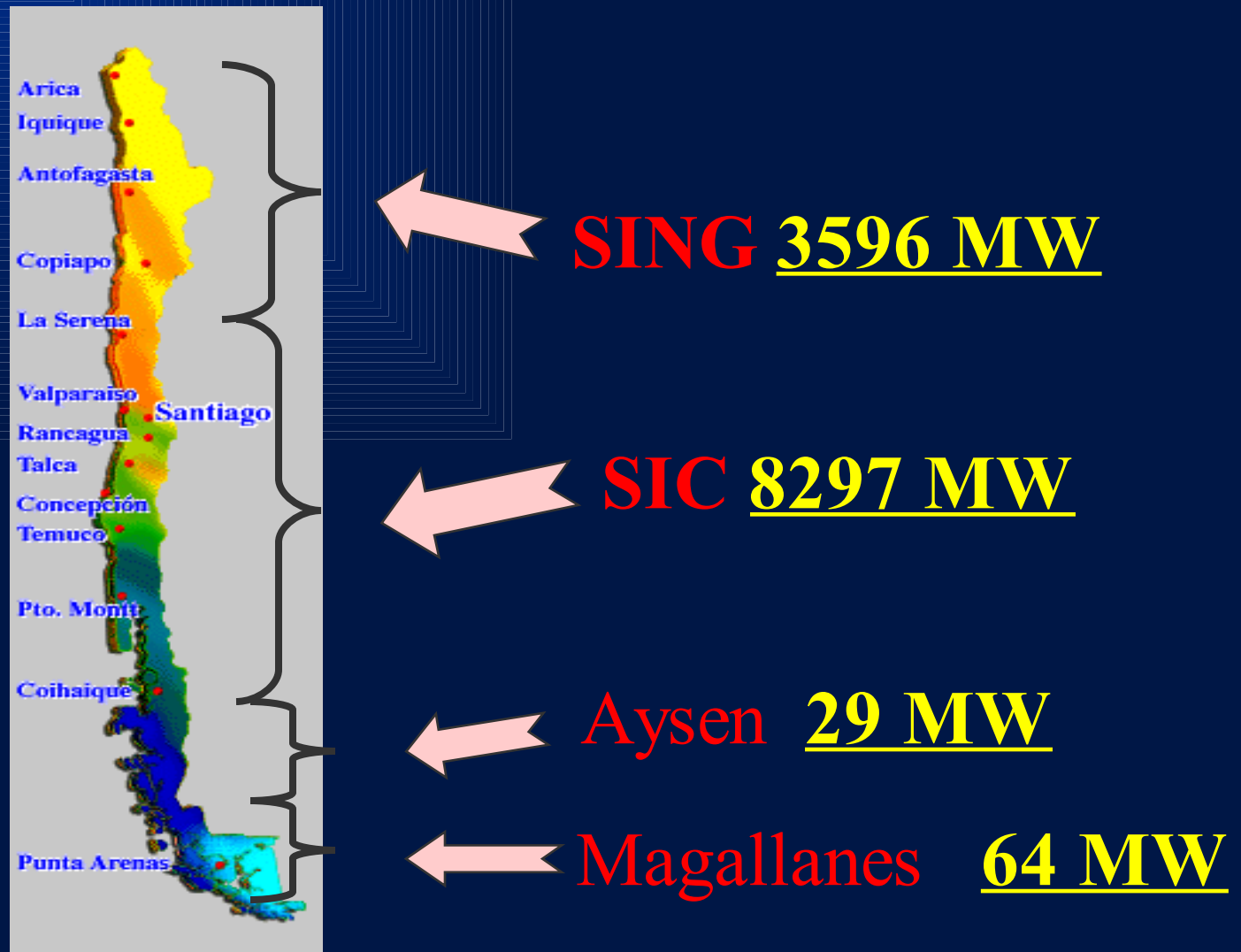
**Nuclear Energy
Commission
CCHEN**

**National Energy
Commission
CNE**

**National
Environmental
Commission
CONAMA**

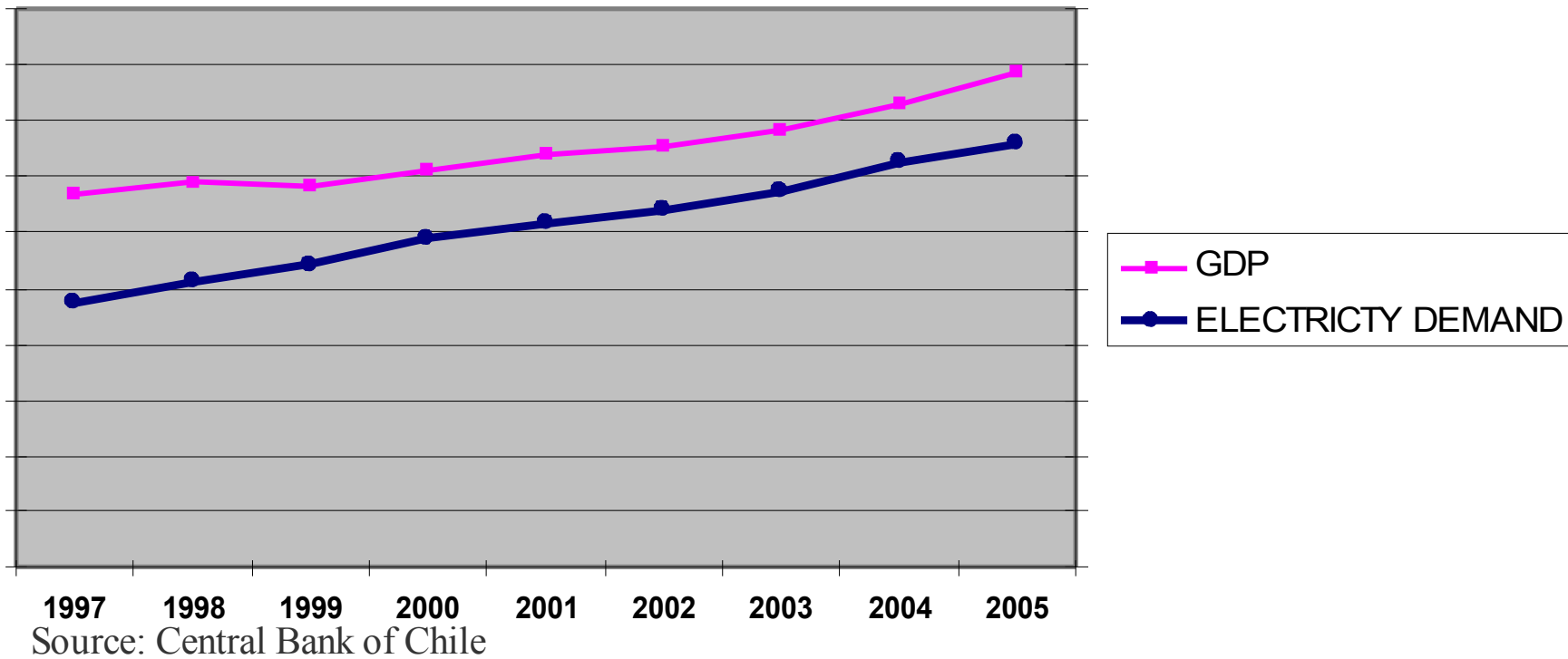
**Super-Int. of
Electricity
and Fuel
SEC**

ELECTRIC NETWORK



GDP AND ELECTRICITY CONSUMPTION in CHILE

GDP & ELECTRICITY DEMAND



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Legal Framework for Electricity System

- ❖ DFL 1/1982 1st Market Regulation; creates Load Economic Dispatch Centre (CDEC)
- ❖ DS 6/1985 Regulates for Energy Dispatch Coordination
- ❖ Law 18922/1990 Traffic tariff
- ❖ DS 327/1998 Regulates for Electrical Services
- ❖ Law 19613/99 Responsibilities for Generators: incentives and penalties
- ❖ Law 19940/2004 Regulates Energy transport System, modifies traffic tariff
- ❖ Law 20108/2005 Modifies electricity “node price”

Electricity Market

- ❖ Chile is an energy importer: NG, oil, coal;
- ❖ Private sector: in Generation, Transport and Distribution of electricity
- ❖ State regulates energy price to foster private investment, and to oversee fair and reasonable pricing for consumers
- ❖ State's Subsidiary role

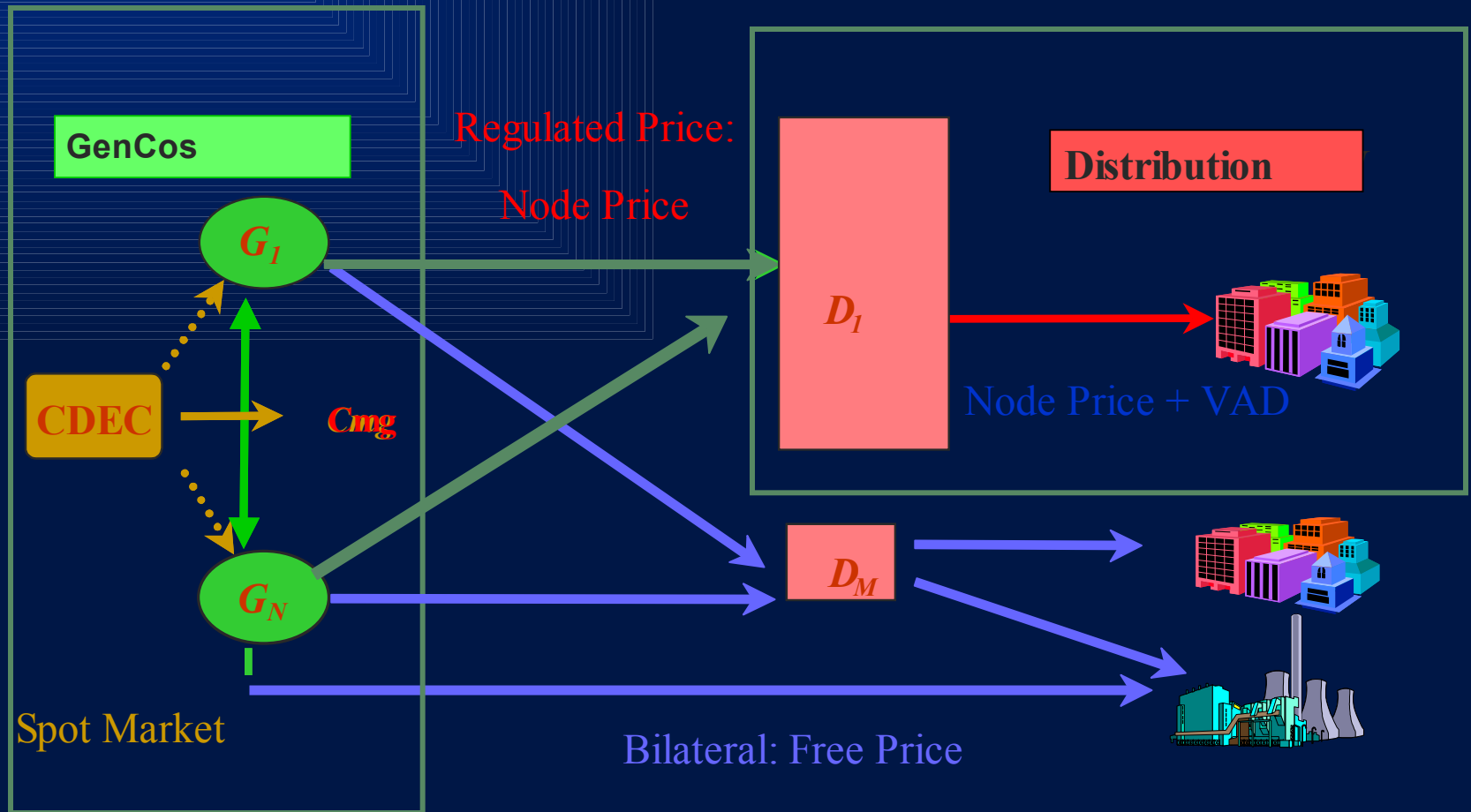
Electricity Market

- ❧ Pillars: Diversification, and Security on supply supply, and Environment respect
- ❧ Permanent demand growing:
 - increasing prices
 - volatility in availability: NG, hidro
 - volatility in price: coal, oil
- ❧ Reserves in hydro power: new 2400MW
- ❧ Needs on diversification

Electricity Market

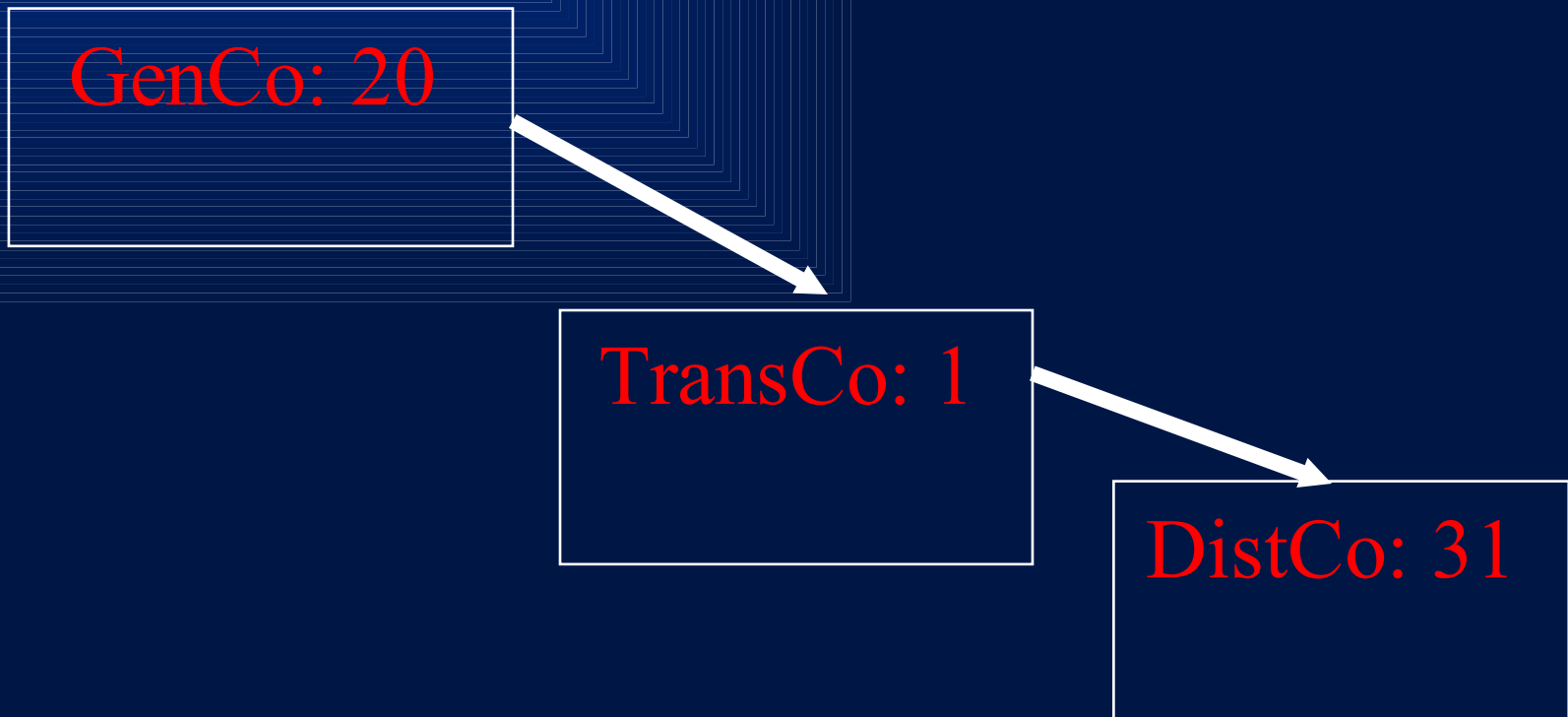
- ❧ Transparency in Regulatory regime
- ❧ Energy prices must reflect actual economics costs for any option of energy supply

Electricity Market



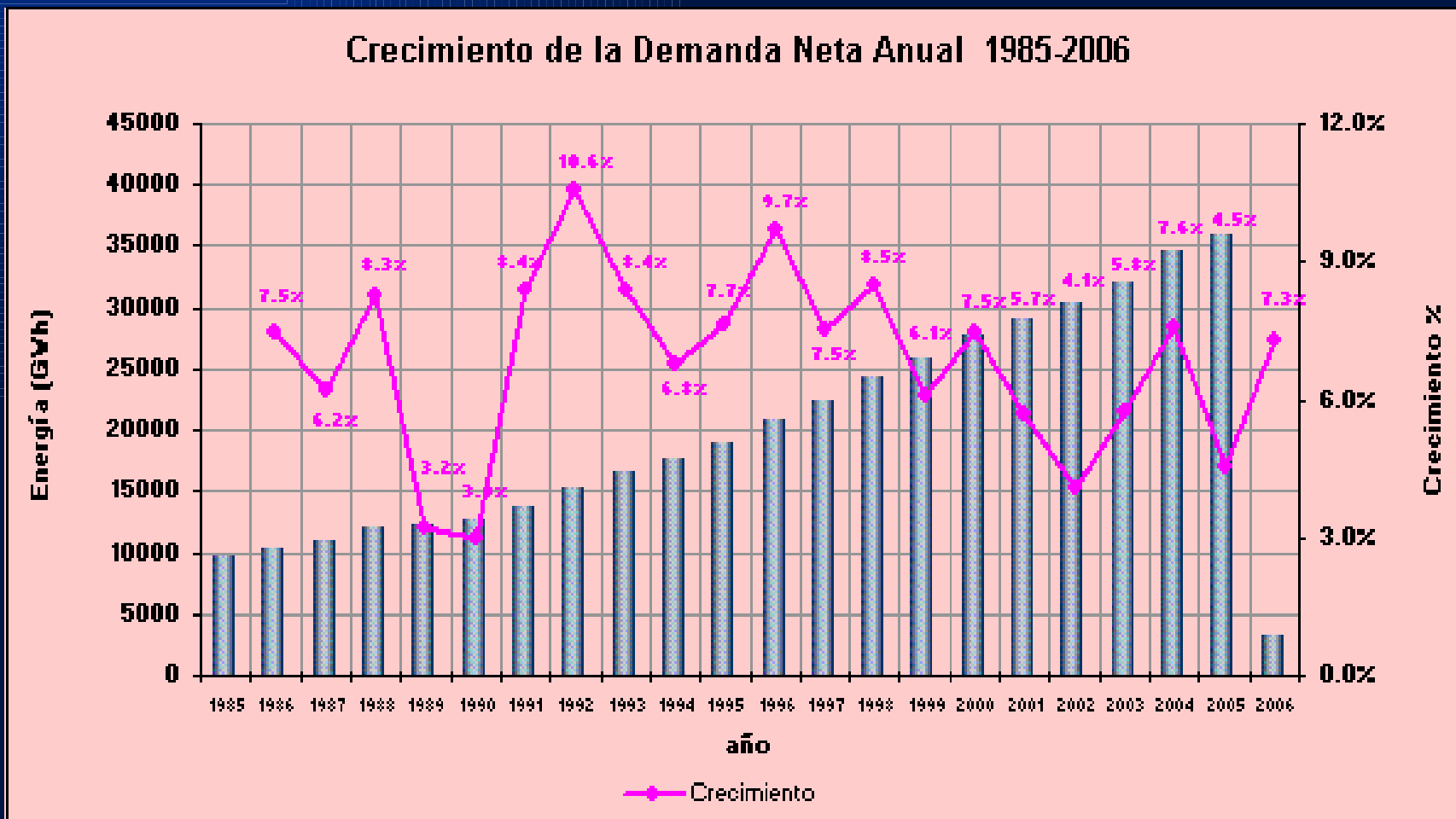
Source: Alexander Galetovic

SIC Market Participation



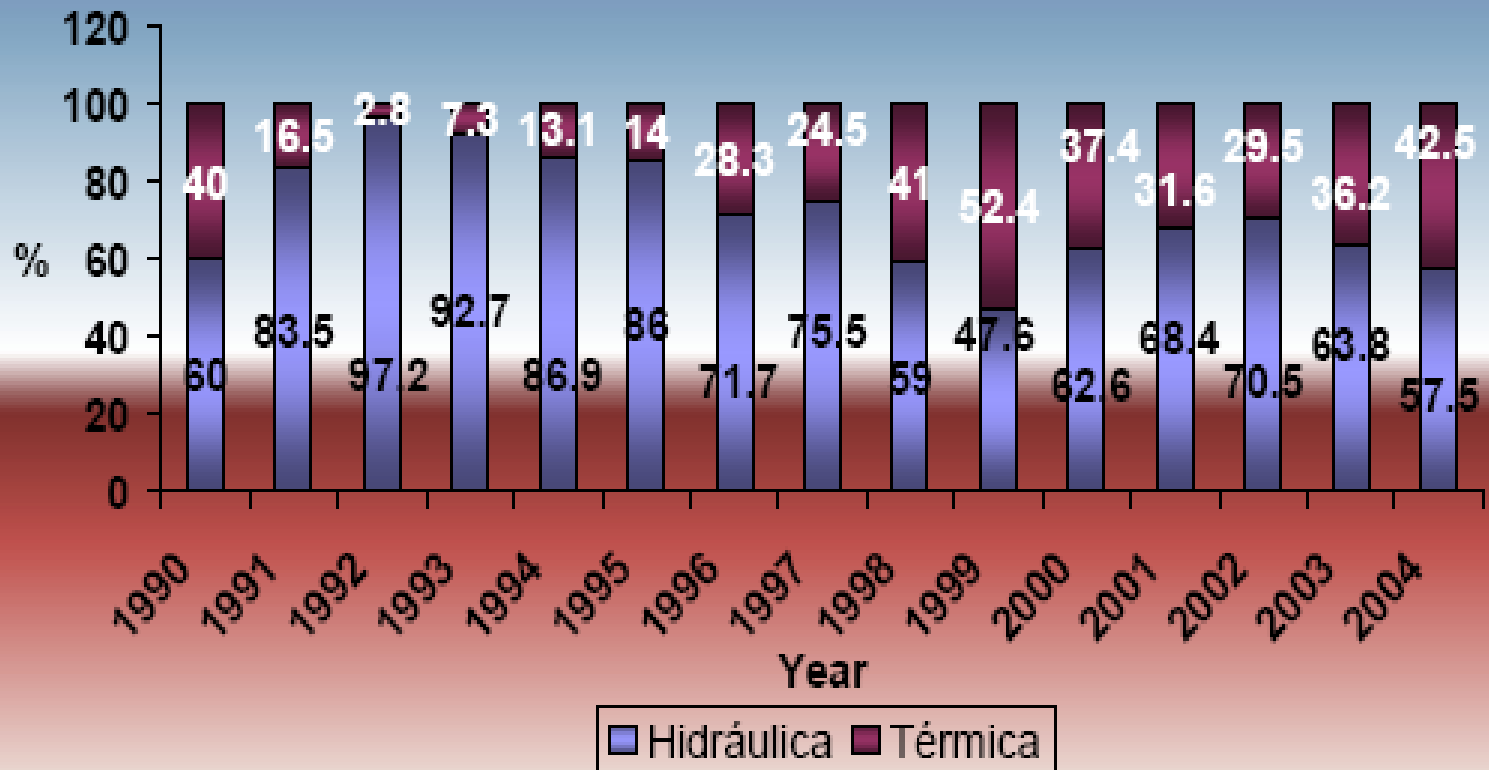
Source: CNE

SIC- Electricity Demand Growth



SIC- Technologies

Participación Historica

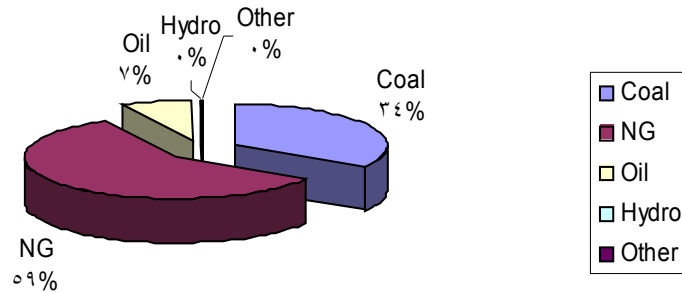


Source: CNE

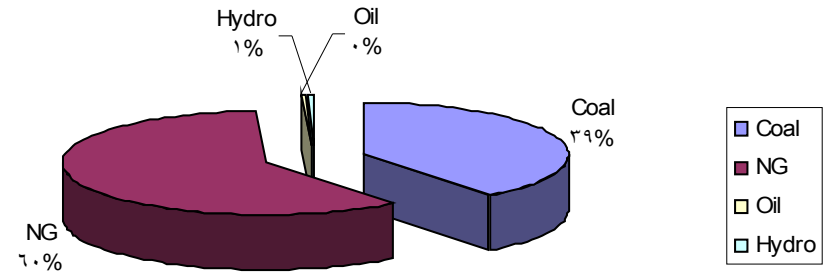
PRESENT TECHNOLOGIES MIX

SING INSTALLED POWER

3090,8MW

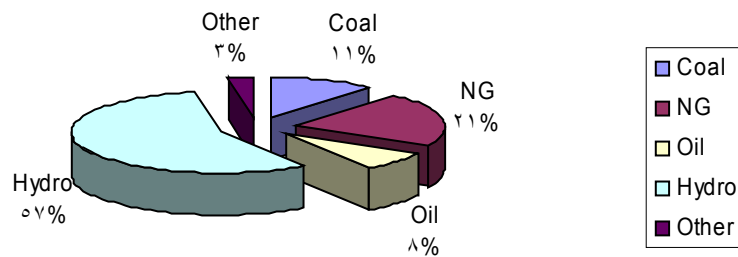


SING GENERATION

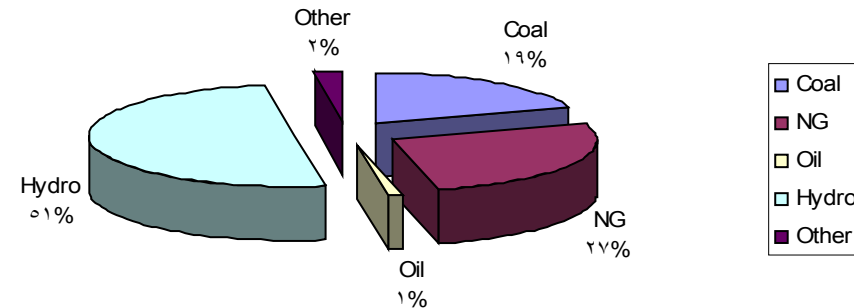


SIC INSTALLED POWER

8297MW



SIC GENERATION



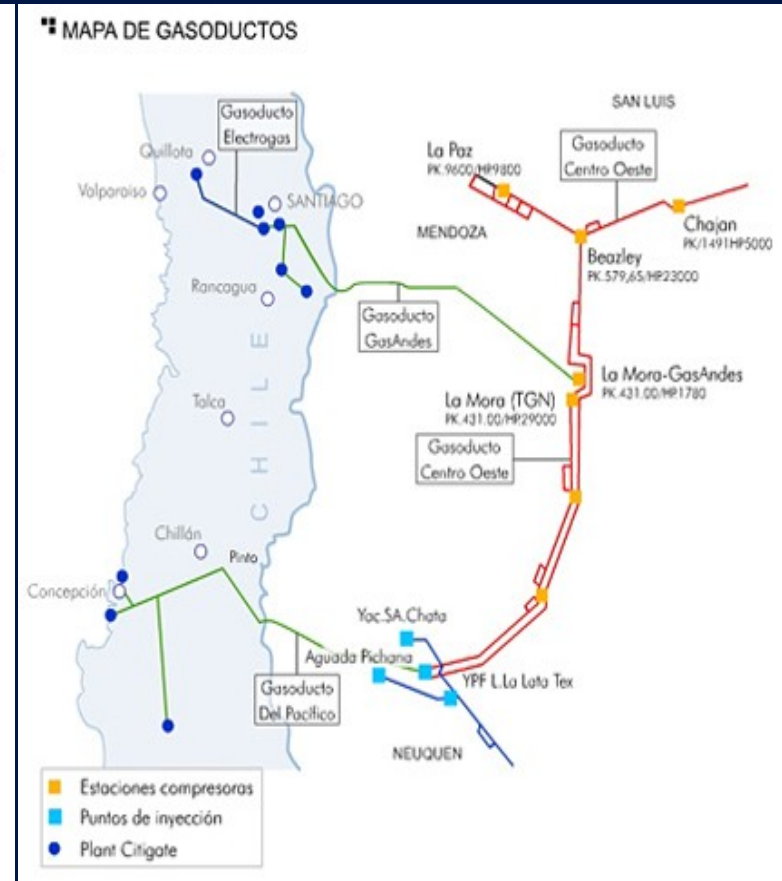
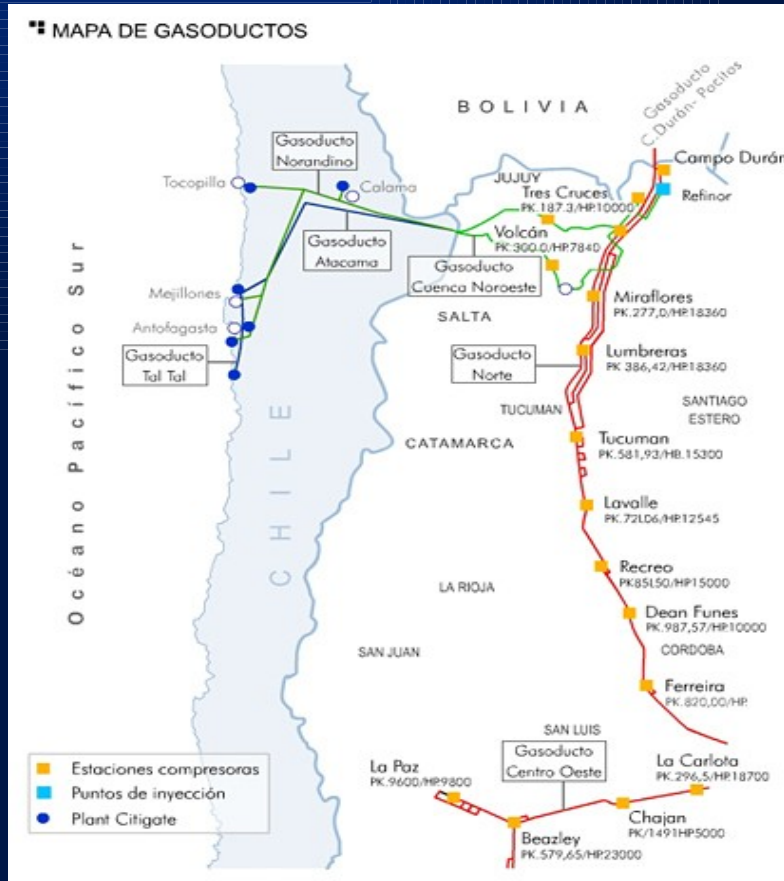
Source: CNE

NATURAL GAS PIPELINES

Consumption = 37 Mm³/d

Private Investment 1997-2001:

MUS\$4000

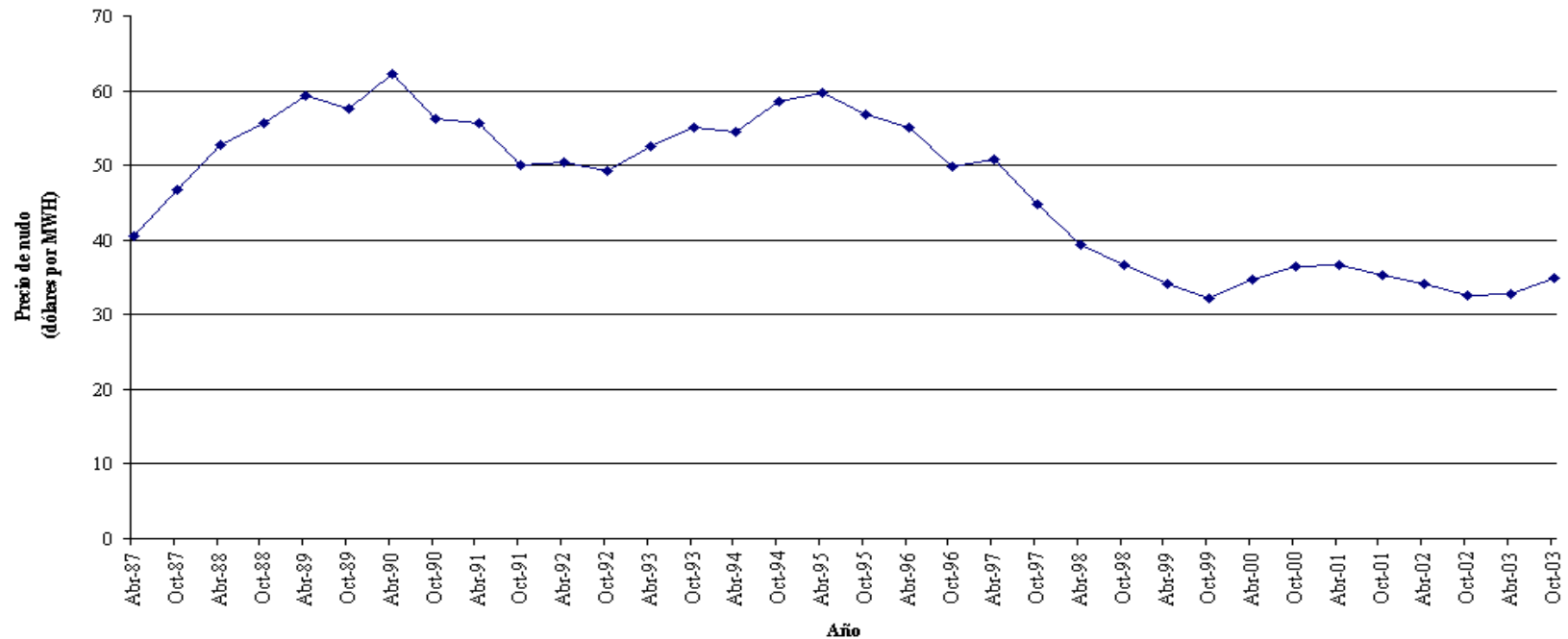


Source: CNE



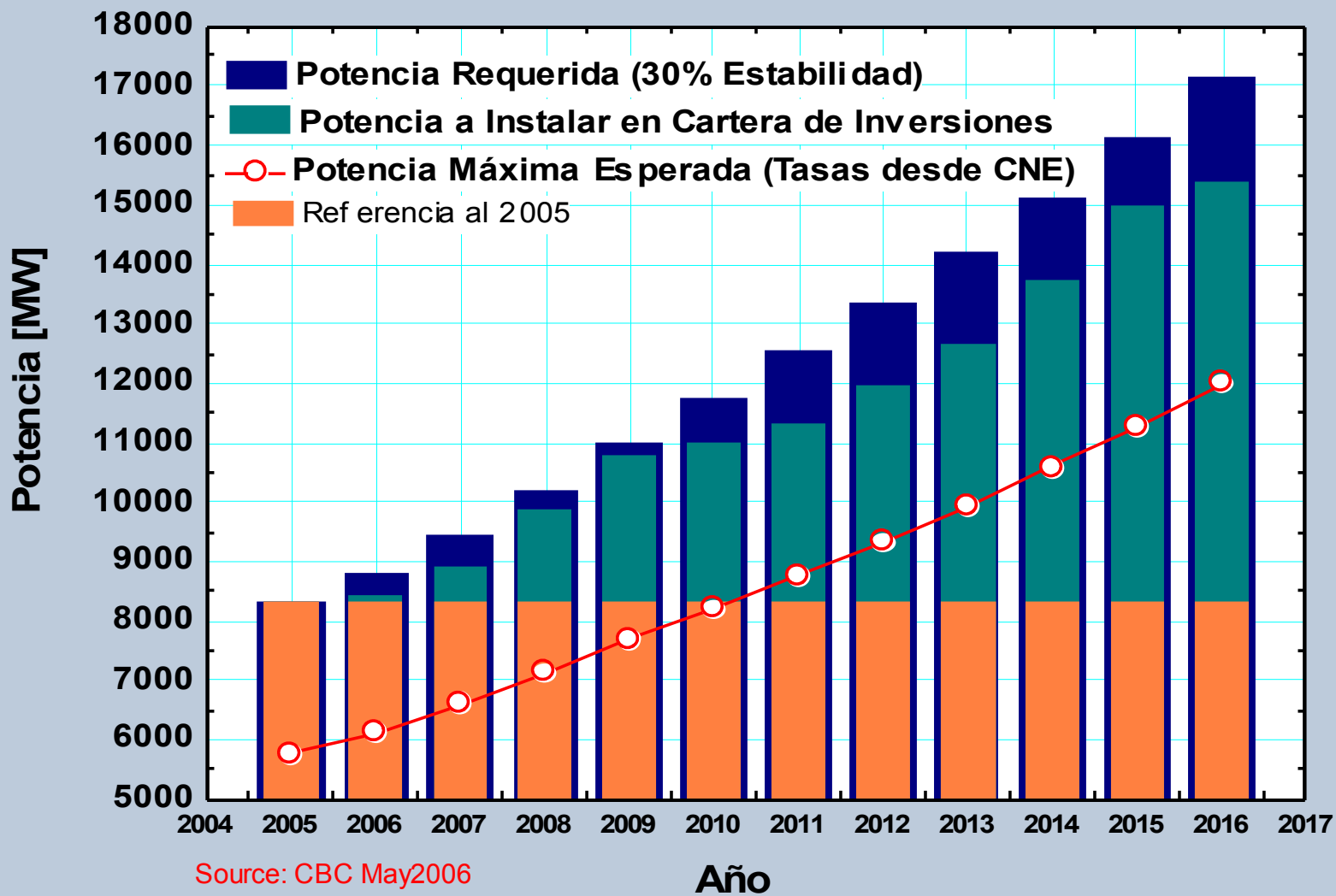
ELECTRICITY “Node Price” EVOLUTION 1987-2003

Gráfico 1
Precio de nudo monómico, 1987-2003
(en dólares por MWh)



Source: A. Galetovic

Projected Scenario



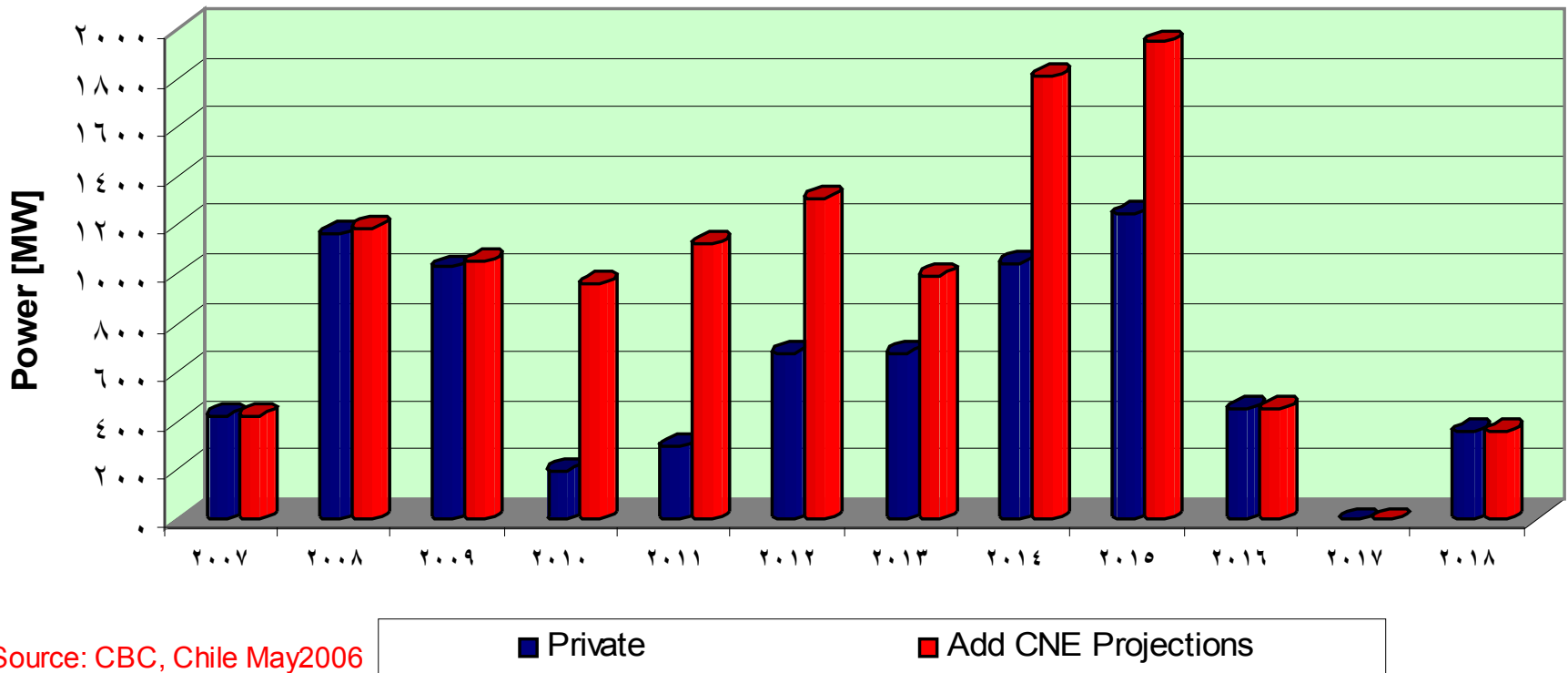
Source: CBC May2006

CNE April 2006

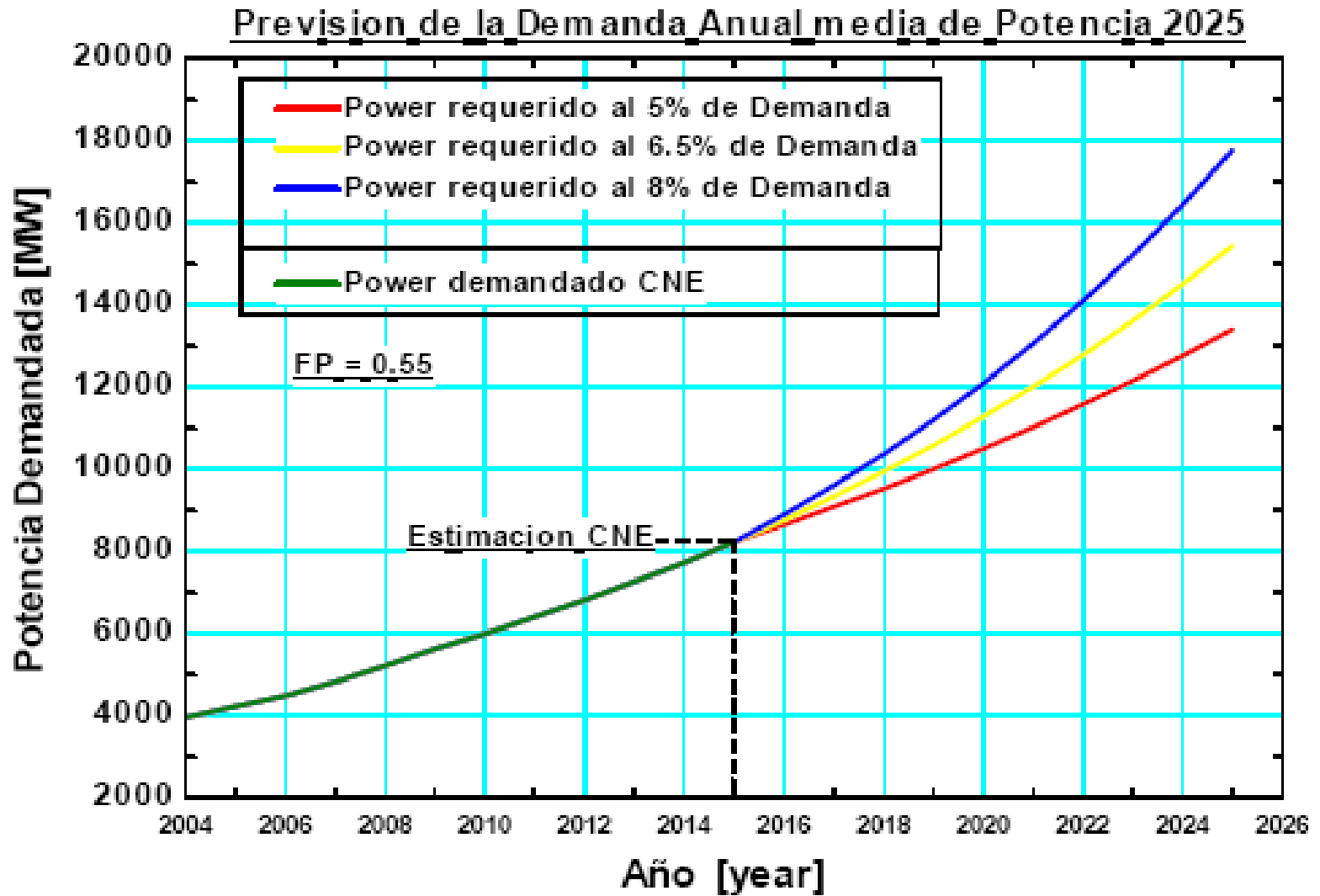
Symposium LAS/ANS Buenos Aires, J

Planned Investment in Generation 2006-18

Incremental Power



Demand Projection (theoretics)



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Short & Long Term Projections

SING

→ 2008: CC Diesel / GT
2009-2015: Coal / Renewal Energies
2015 → : Nuclear / Interconnection

SIC

→ 2008: CC Diesel / GT
2009-2011: C / RE
2011 → : Hydro / Nuclear / Interconnection

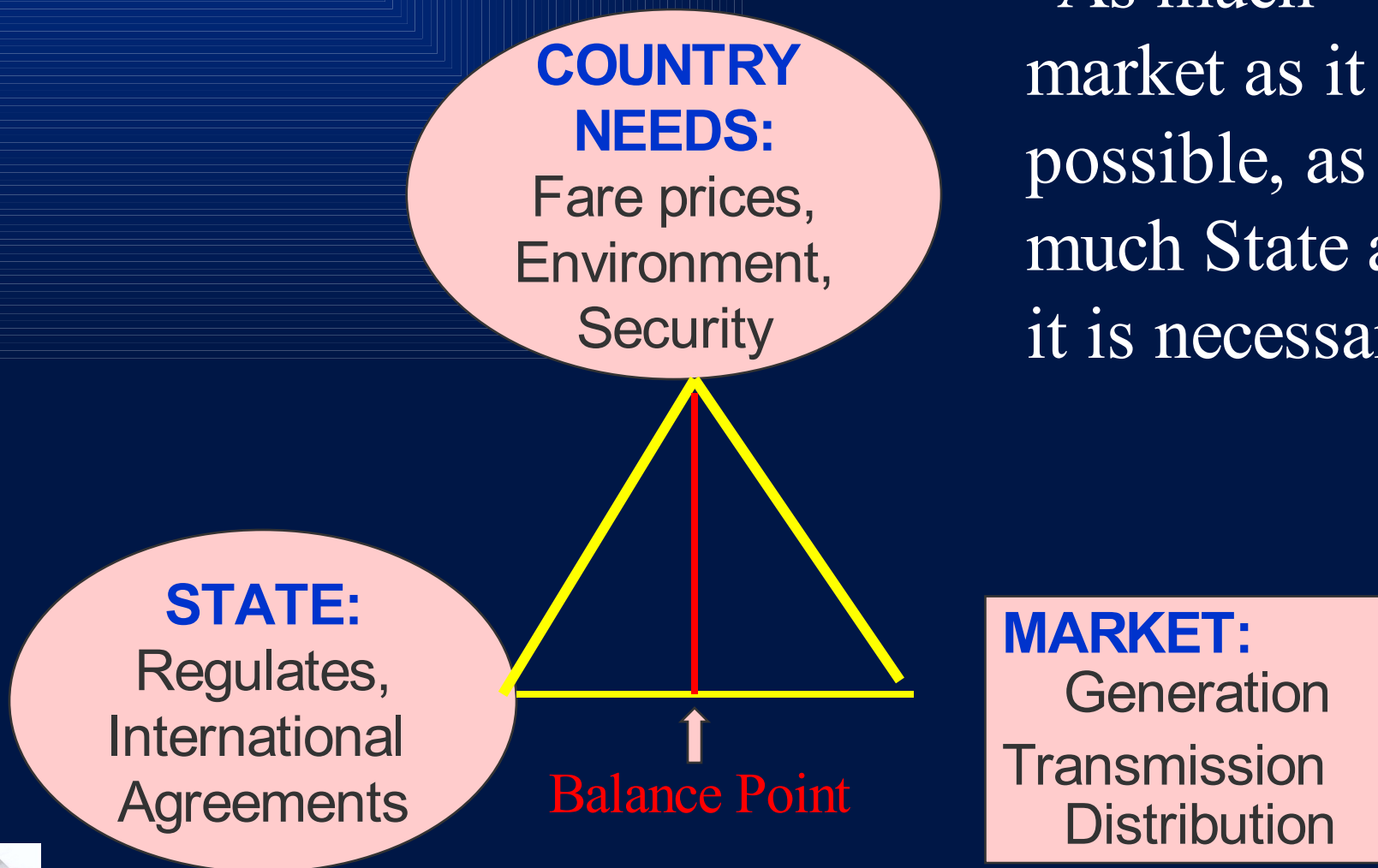
Main Requirements for Energy Options

- ❖ Competitiveness in a restructured market
- ❖ Public involvement and Environmental commitment
- ❖ Diversification in fuels and technologies

❖ **¿Nuclear? No, by now, but:**

- ✓ **Adequate Regulatory framework**
- ✓ **Be cost effective**
- ✓ **Spent fuel and HL waste management & disposal**

For Facing N-P Option



“As much market as it is possible, as much State as it is necessary”

Challenges for the LA&C Region

- ❖ NG as a sustainable option?
- ❖ Can nuclear power be developed incorporating Regional approaches?
- ❖ How electricity interconnection can be expanded?
- ❖ Can be MERCOSUR a bearing framework for energy approaches?
- ❖ **HOW?**
 - POLITICAL: BUILD CONFIDENCE
 - NG : PIPELINE NETWORK , LNG TRANSPORT + R-G PLANTS
 - ELECTRICITY INTERCONNECTION
 - LEVELIZED REGULATIONS: ENVIRONMENT, NUCLEAR SAFETY AND SECURITY

That's all.

THANKS FOR YOUR ATTENTION