



MEXICO TOWARD LCS

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Workshop
Low Carbon Society
(LCS) Scenario
Development



MEXICO (some figures)

Mexico is the largest Latin American economy. 103 million inhabitants at 2005.

The 8th economy within the OECD countries (but the second lowest in per capita)

World Bank's: 10th world economy (but the 80th in per-capita in the world, >\$6000/pc) .

Mexico is the 7th country in commercial exchange within the World Trade Organization (2005, WTO)

Services constitute 68% of the economy, industry 28% and the primary sector 4%.



MEXICO EMISSION INVENTORIES

According to the 1996 inventory, CO₂ emissions added to 514.0 Tg (74% of the total for all GHGs).

Place in the world: 14th in total emissions and 17th in CO₂ per capita (3,460 kg/capita 1996).

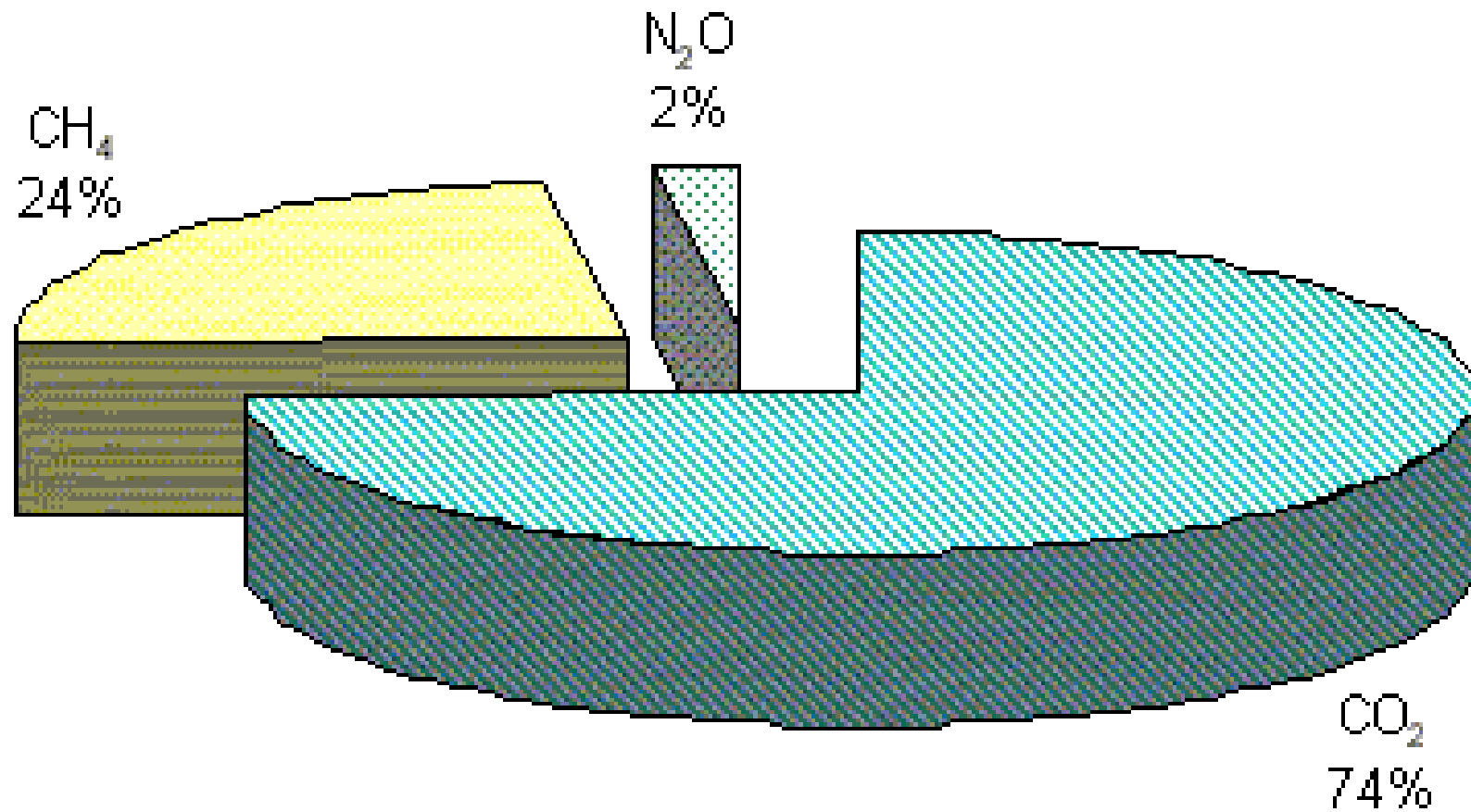
1988 Emission Inventory partial aspects:

Energy related: 350.4 Tg (fix, area sources and transport).

Combustion: 245.8 Tg (fix and area sources only).

2002 Inventory (preliminary): Combustion: 350Tg

Percentage emissions CO2 equivalent





LCS in Mexico (1)

No present specific policy has been established to explicitly lower the carbon content of the economy

But correlated measures have been taken to save energy and mitigate carbon emissions

Policies to:

- **Lower energy intensity of economy**
- **Substitute of fuel oil to gas for combustion**
- **Energy saving (Strong campaign at Government, industry, transport, households)**
- **Incentives for the use of renewable energy**
- **Progressive energy price adjustments**



LCS in Mexico (2)

Correlated measures

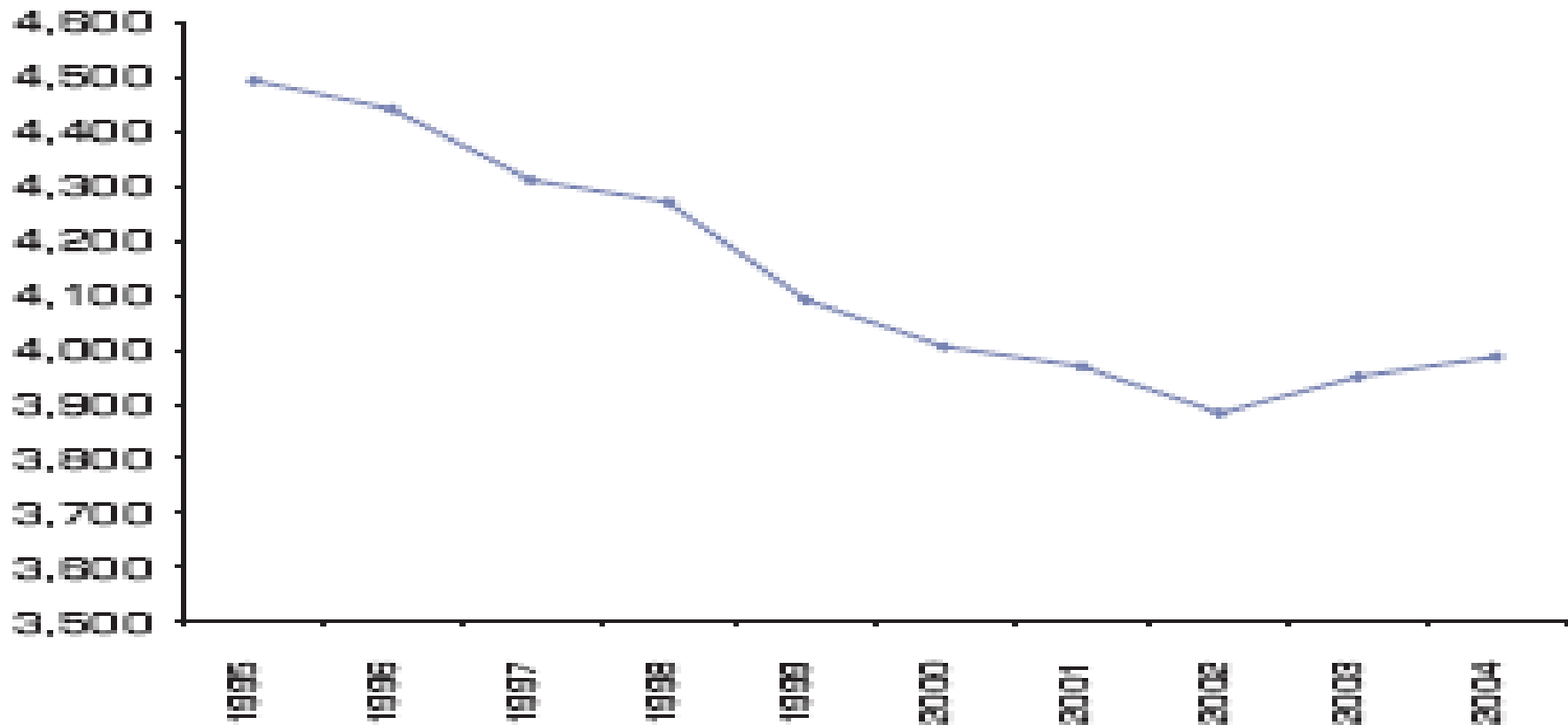
Policies to:

- Lessen loses of energy in transformation at refineries and gas plants
- Lessen losses at transmission and distribution of electric energy
- Reduction of energy waste (30% last year, in flaring, transport, distribution and stocking)
- Industrial use of alternate fuels, including use of waste.
- Larger International Cooperation in Climate Change (Bilateral MoUs, CDM, UNFCCC, IPCC)

ENERGY SECTOR

The energy intensity has drop at an average rate of 1.3% since 1995.

Ki/produced \$peso





ENERGY SECTOR SCENARIOS, MEXICO

THE MINISTRY OF ENERGY PRODUCES A TEN YEARS SCENARIO BASED ON THE PLANNING OF THE NATIONAL ENERGY ENTREPRISES (PEMEX AND CFE) THE LAST AVAILABLE IS TO 2014 (www.energia.gob.mx)

SEVERAL SCENARIOS ARE AVAILABLE FOR THE YEARS 2020-2030 FOR THE COUNTRY (between them):

Energy Ministry, Renewable energy, 2030

INE- SEMARNAT, 2030

Energy Research Center, UNAM, Electric Sector, 2030.

SENER-IEAA-UNAM, 2025

International Energy Outlook, DoE-USA, 2025

World Energy Outlook, 2030

Asia Pacific Energy Research Center, 2020



ENERGY SECTOR SCENARIOS, MEXICO

**OTHER MODELS USED BY THE
MINISTRY OF ENERGY**

STAIR-MEEEM

LEAP

BRUS II-M

DECADES

ENPEP

MOEEMA



ELECTRICITY GENERATION

Gasification policy, Fuel oil substitution, avoided emissions:
4.5 Tg CO₂ from 1991 to 2000

At 2010 projected abatement: 641 Gg per year due to
gasification.

	2003	2013
Thermal	40.0%	18.7%
Combined cycle	27.0%	45.1%
Hydro	10.1%	7.2%
Coal	8.2%	5.6%
Dual	6.8%	6.0%
Nuclear	5.2%	2.9%
Geo+wind	2.7%	3.7%
Total	203,555 GWh	346,387 GWh

Table 6. Source: Sener, "Prospectiva del sector eléctrico 2004-2013. Gráfica 21"



ENERGY SECTOR

Mexican Law on Renewable Energy for Dec 2013

Geothermal:	3,185 GWh/y with 428 MWe (85%)
Wind energy:	3,000 GWh/y with 980 MWe (35%)
Biomass:	3,000 GWh/y with 430 MWe (80%)
Minihydro:	3,000 GWh/y with 980 MWe (35%)
Solar energy:	562 GWh/y with 320 MWe (20%)

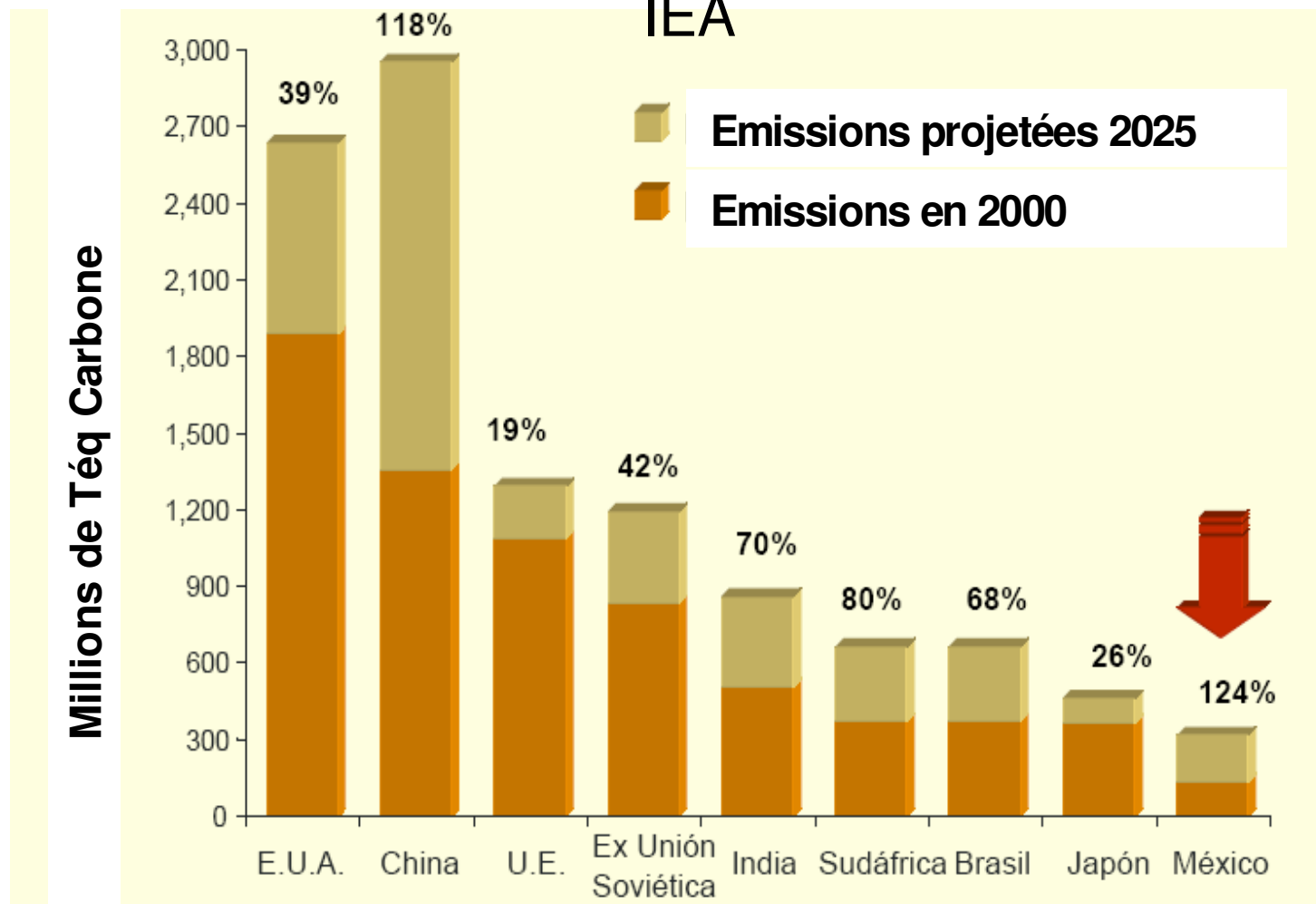


ENERGY SECTOR

Example: International Energy Outlook

IEO 2025 MEXICO	Low	Med.	High
Average annual growth PIB (%)	3.3	3.9	4.3
PIB 10¹² US\$ (1997)	1.006	1.153	1.267
Average annual growth Primary Energy demand (%)	2.2	2.8	3.2
Primary Energy consumption (Ej)	10.76	12.24	13.40
Oil consumption 10⁶ b/d (assumes total production of 4.7 x 10⁶ b/d)	3.0	3.5	3.9
Hydrocarbons dependency (%)	58.09	59.64	60.67

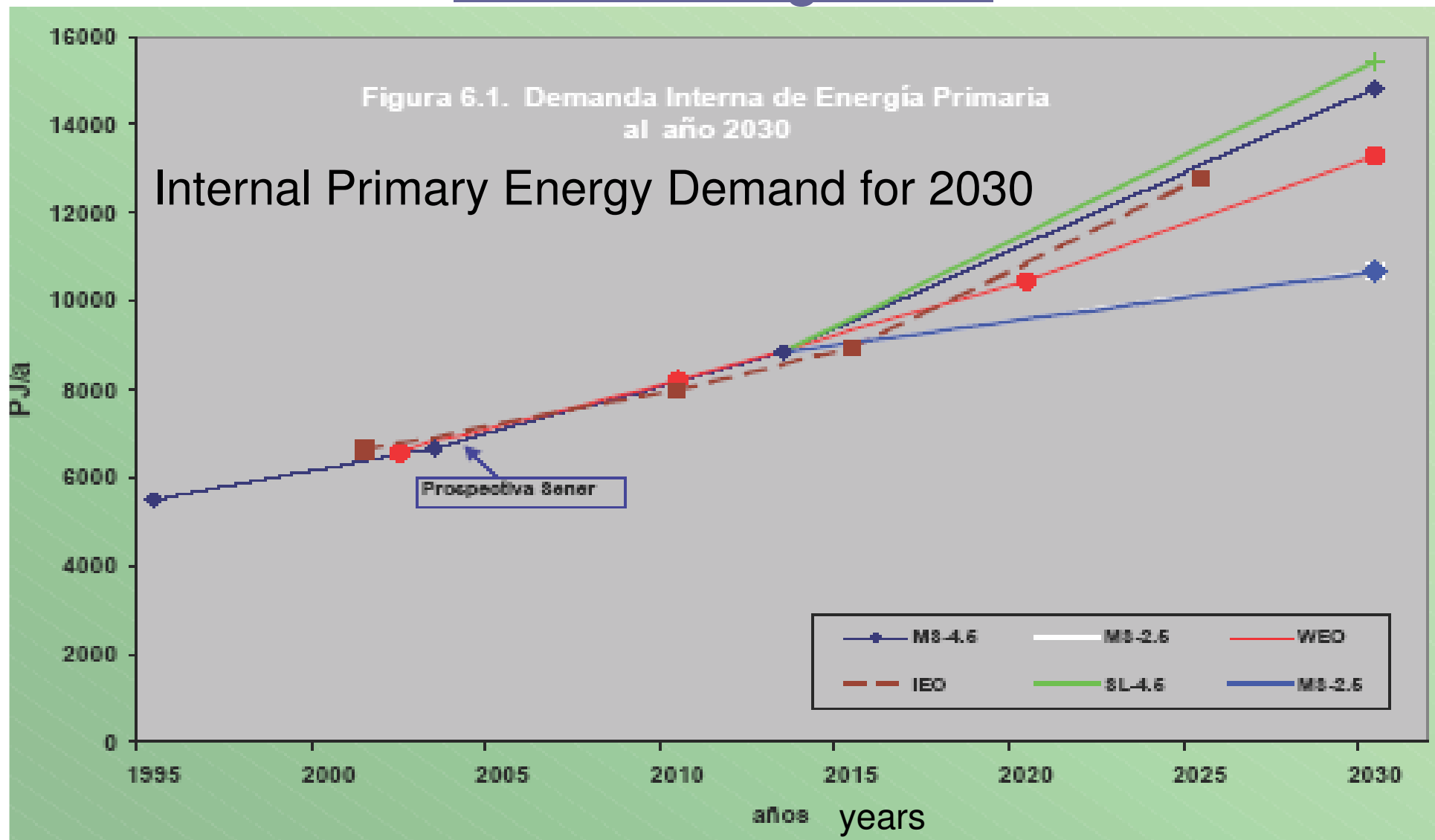
Example: Mexico Projected emissions to 2025



Source : bases AIE (CO₂ de combustibles fossiles) et POLES (autres gaz). Projections n'incluant pas les changements d'usage des sols.

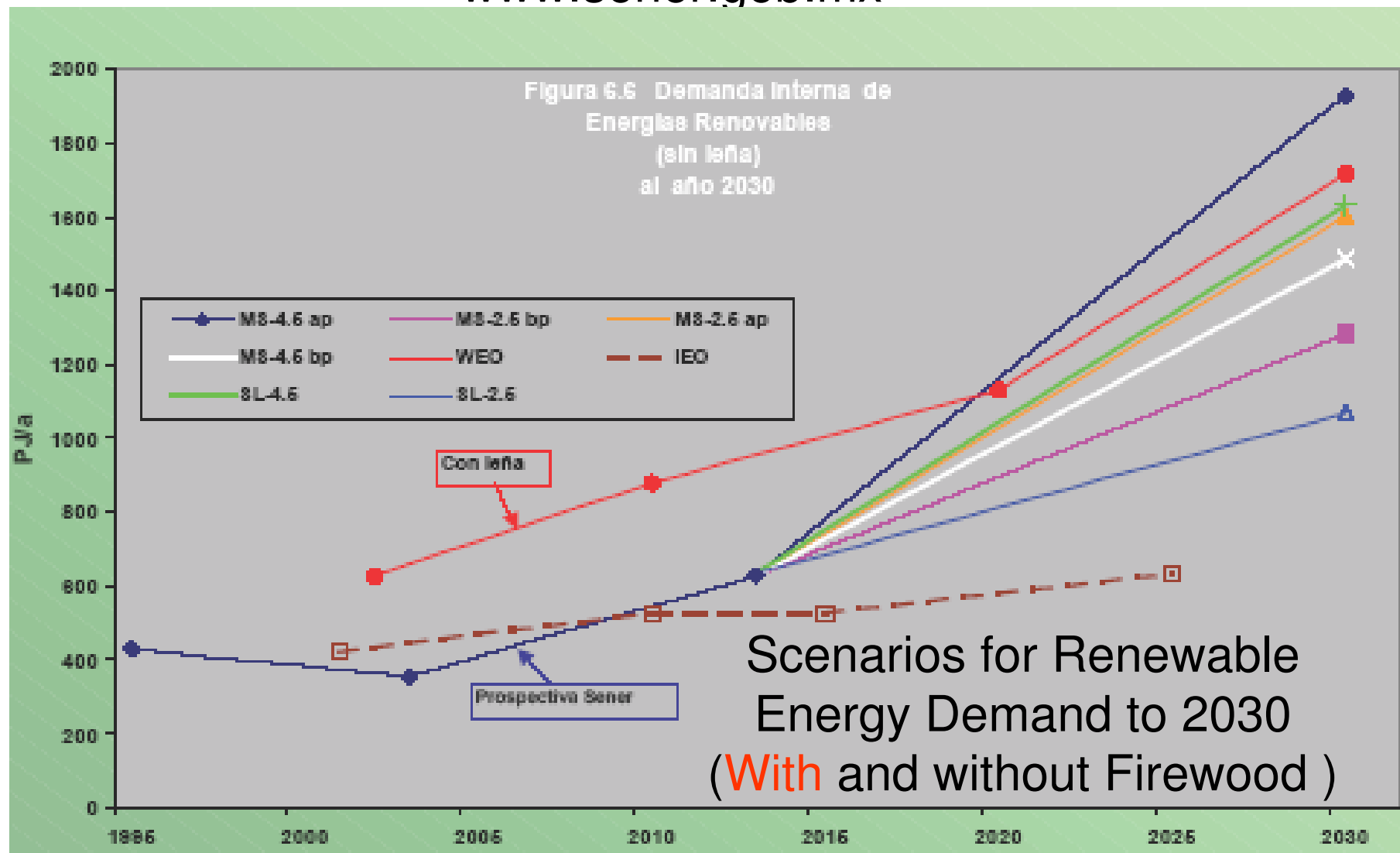
ENERGY SECTOR Scenarios for 2030

www.sener.gob.mx



ENERGY SECTOR Scenarios for 2030

www.sener.gob.mx





ENERGY SECTOR

To the year 2050 only one scenario is been developed

The WEC methodology is been use to favor a Less Government Engagement trajectory and More Integration Cooperation, in comparison with other Policy Scenarios