

Smart Grid implementation

The Mexican view

Mexican Smart Grid implementation

Pilot Project 2006-2010

- Know the current status.
- Consider the available capacity.
- Establish the strategies and plans.

The Model

SMR: Strategy, Management and Regulatory.

OS: Organization and Structure

GO: Grid Operations.

WAM: Work and Asset Management.

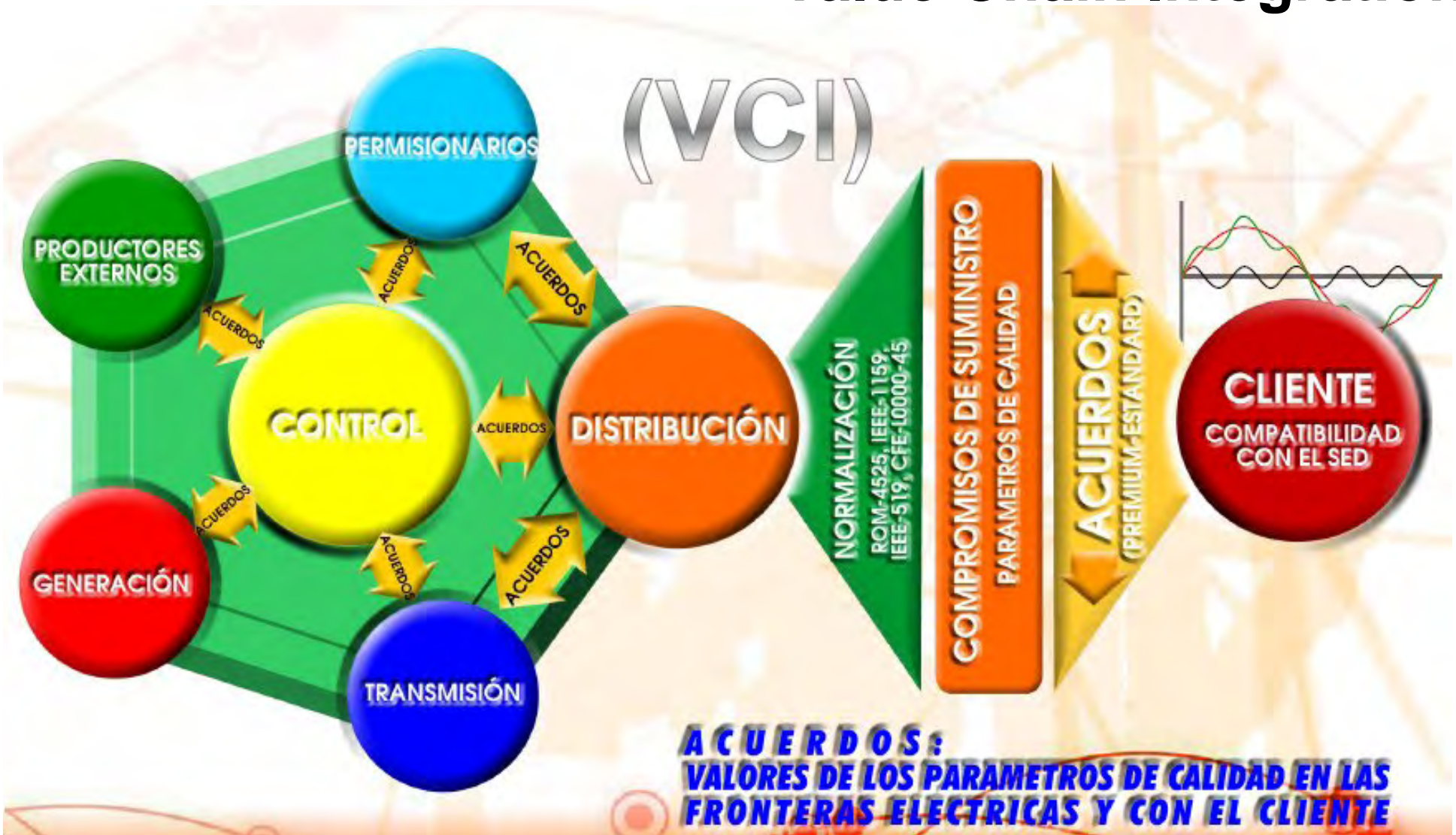
TECH: Technology.

CUST: Customer.

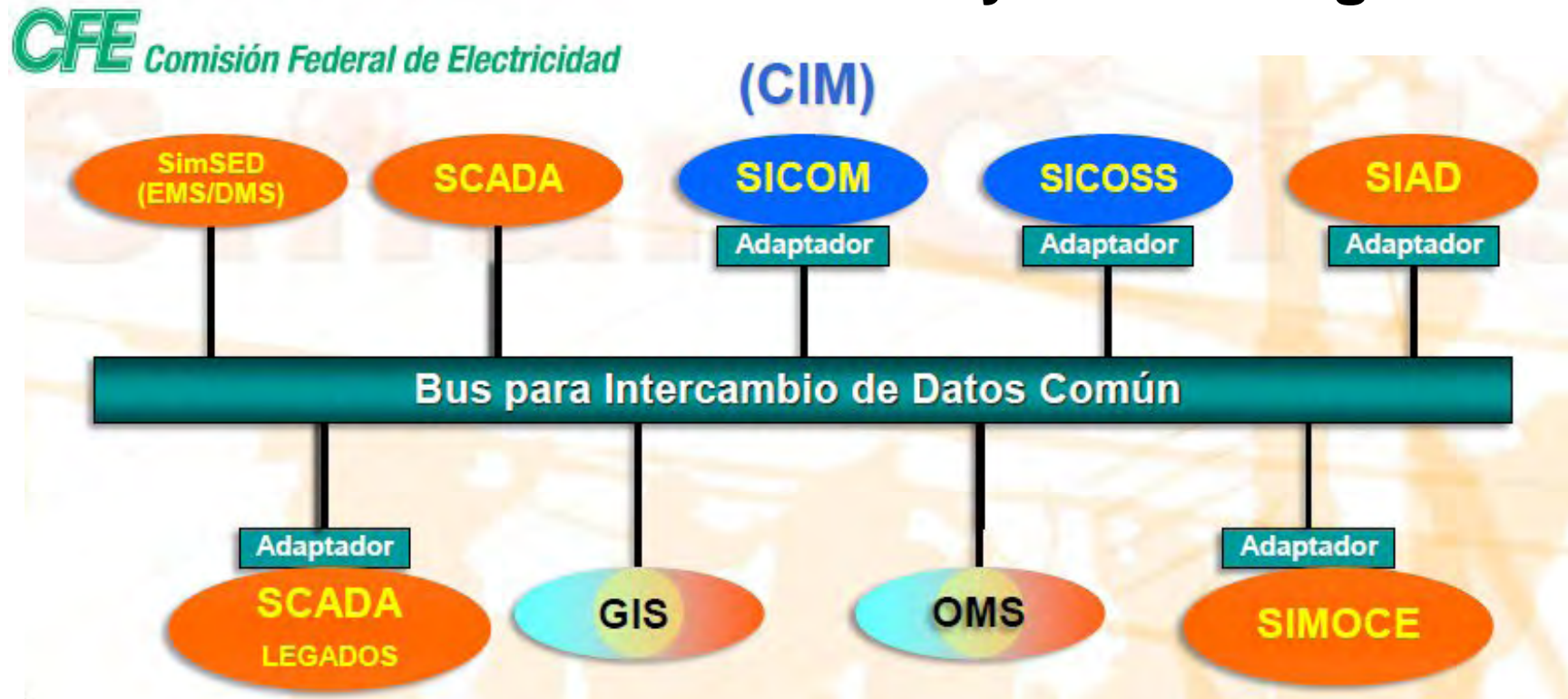
VCI: Value Chain Integration.

SE: Society and Environmental.

Value Chain Integration



Systems integration



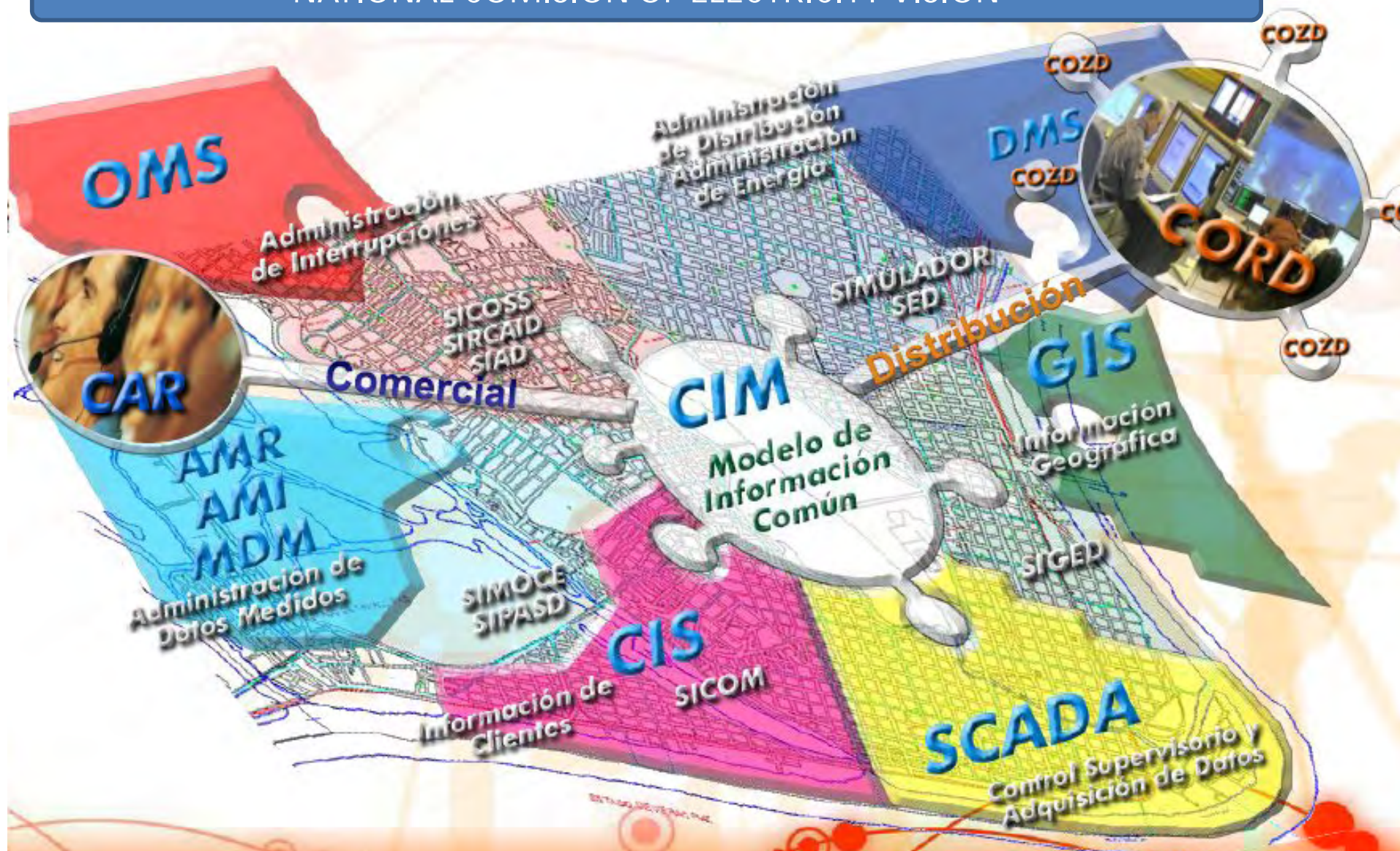
IEC 61970: Common Information Model (**CIM**) for EMS electrical systems (transmission and Generation).

IEC 61968: Common Information (**CIM**) Model for DMS electrical systems (distribution)



Smart Grid

NATIONAL COMISION OF ELECTRICITY VISION



Pilot Project 2006-2010



#GridWeek

- Management of electricity demand.
- Reliability assessment.
- Energy balance (loses).
- Circuit's reconfiguration.
- Assets management.
- Disturbances and contingencies analysis.
- Fault determinations and protection coordination.
- Equipment and meters switching.
- Smart meter.
- Power factor management.
- Reactive power control.
- Better service for customers.
- Connection of renewable energy.

Challenges to complete the Smart Grid

- Renovate the infrastructure.
- Include renewable energy.
- Reduce cost of energy.



Programs and policies

Mexican Plan for Development 2007-2012

Sustainability

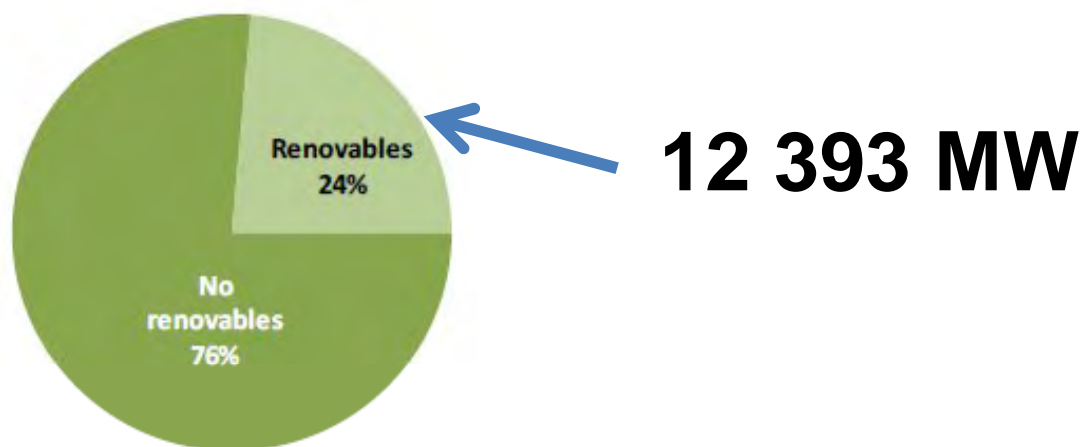
Challenge: Include the environment as one of the elements for the competitiveness and economical and social development.

- Federal law for the use of the renewable energies end financial schemes (2008).
- Federal law for energy sustainability (2008).
- National strategy for energy transition and energy sustainability (2009).
- Special program for climate change (2009).
- National program for housing – Green houses (2008-2012).



Renewable Energies and Energy Efficiency

Power capacity



Increase the use of renewable energies.

Reduce fossil fuel as primary source of energy (**88.4 %**).

More than **USD \$ 1.6 Billions = 50** programs and projects.

National strategy for energy transition and energy sustainability

Mexico: reduce 50 % of CO₂ emissions 2000 - 2050.

The use of Wind for Electricity Generation.

Reducciones en 2012: 50.7 MtCO₂e

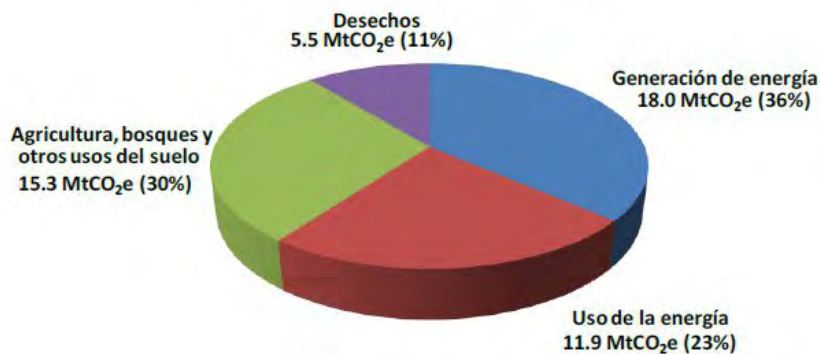
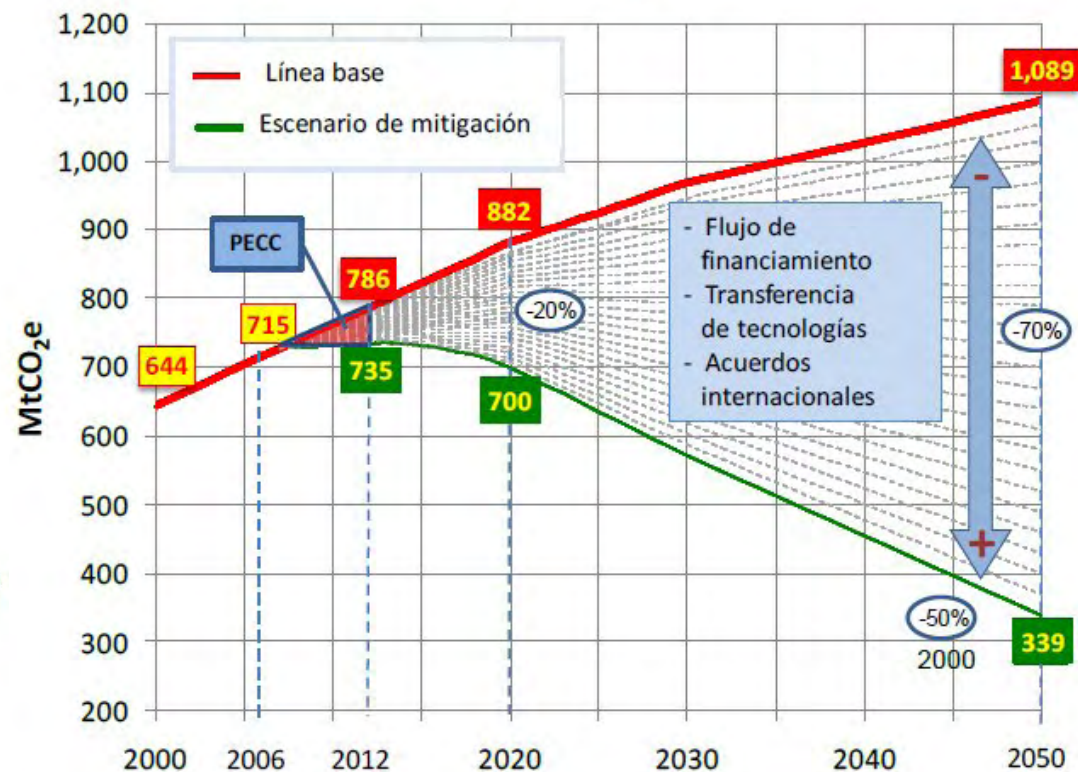


Figura 1.2 Trayectorias centrales de México de las emisiones tendenciales 2000–2050 y de las reducciones requeridas en el escenario de mitigación



Electricity and transportation: key targets to reduce emissions in México

Figura 1.3 Trayectorias tendenciales de emisiones por sector clave

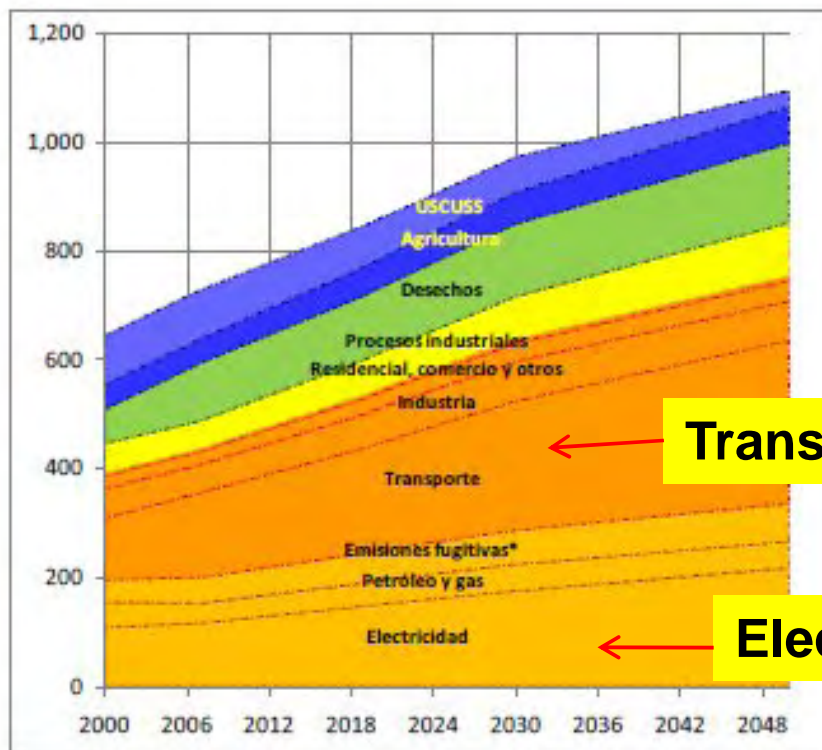
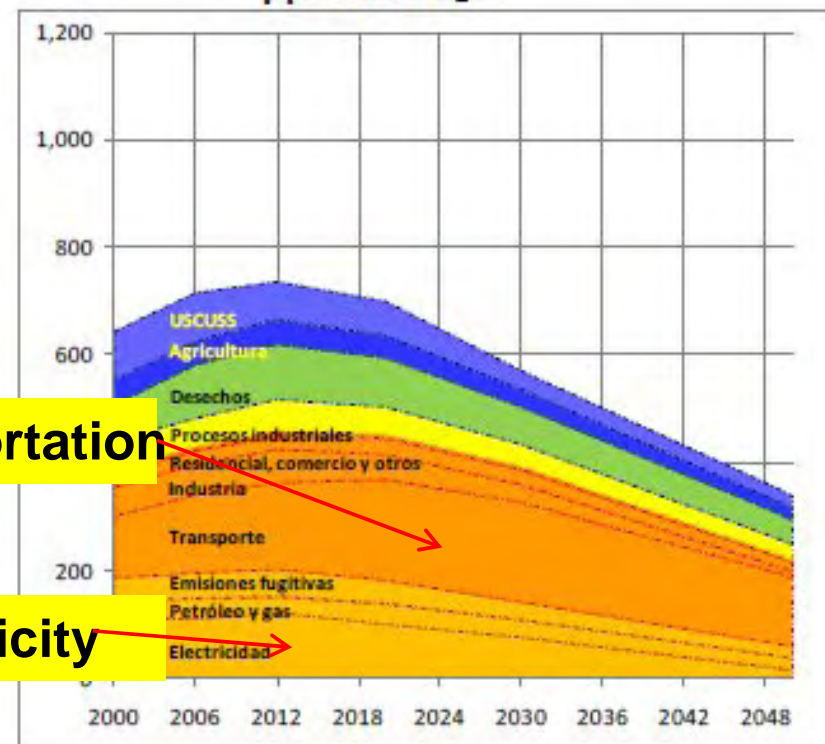


Figura 1.4 Trayectorias sectoriales de reducción hacia 2050 para contribuir a la meta global de 450 ppm de CO₂e



Transportation

Electricity



What should be done?

Smart Grid: the key to renovate the whole energy industry.

- Saving energy.
- Increase efficiency
- Intelligent use of energy.

There is no a unique solution:

Smart metering and Smart Grid are essential for renewable energy.

The role of standards

Enable multiple players to work together to develop larger markets in order to accelerate adoption of technology.

The bases for individual innovation (common platform).

The key for system approach.

We have to use standards already in place, as far as possible, and to develop the ones that we need.

- The use of electricity in an smart way.
- The increasing use of new technologies.
- Less use of our planet.
- Less carbon foot print.

We can develop a lot of synergies .



Preparing the planet for tomorrow

