

# Smart Grid

November 2011



**Nueva Infraestructura**



**Transparencia y  
Rendición de Cuentas**



**Energía Limpia**



**Modernización Zona Centro**



**Atención a Clientes**



- Single operator of electricity service in Mexico.
- Created and owned by the Mexican government
- Vertically integrated
- 34.9 million customers
- 97.6% coverage (100+ million people)
- 187 generating plants
- 52,905 MW of installed capacity
- 22.68% of installed capacity from Independent Power Producers
- 775,000 km of transmission and distribution lines nation-wide
- Substation transformation capacity of 161,000 MVA
- 60,000 MVA capacity on distribution substations
- 93,000 active personnel



Secretaría de Energía (SENER) is responsible for the development and implementation of energy policy in Mexico.

## Ministry of Energy



## Comissions



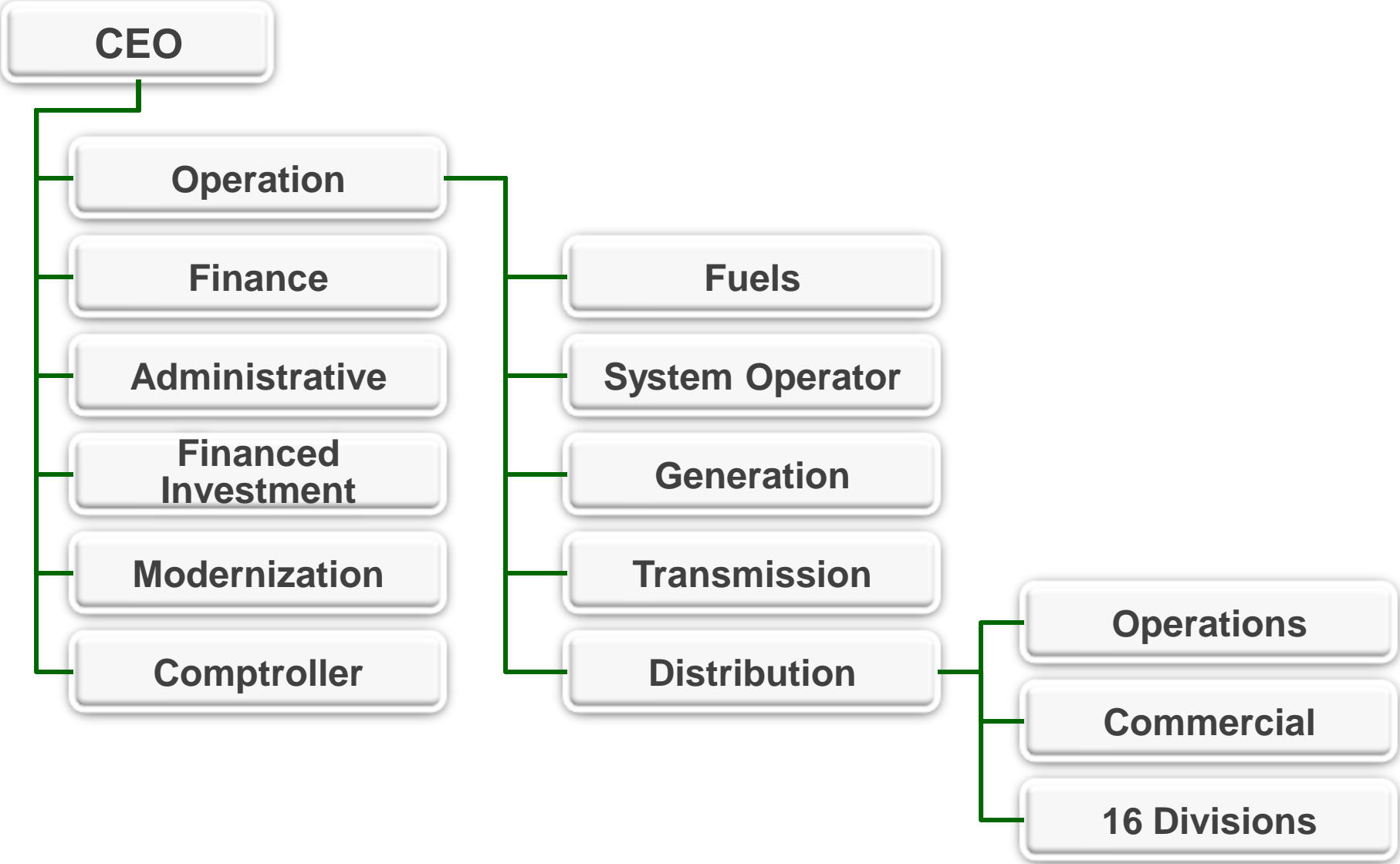
Comisión Nacional de Seguridad Nuclear y Salvaguardias.



Government Owned Companies



Public Research Institutes





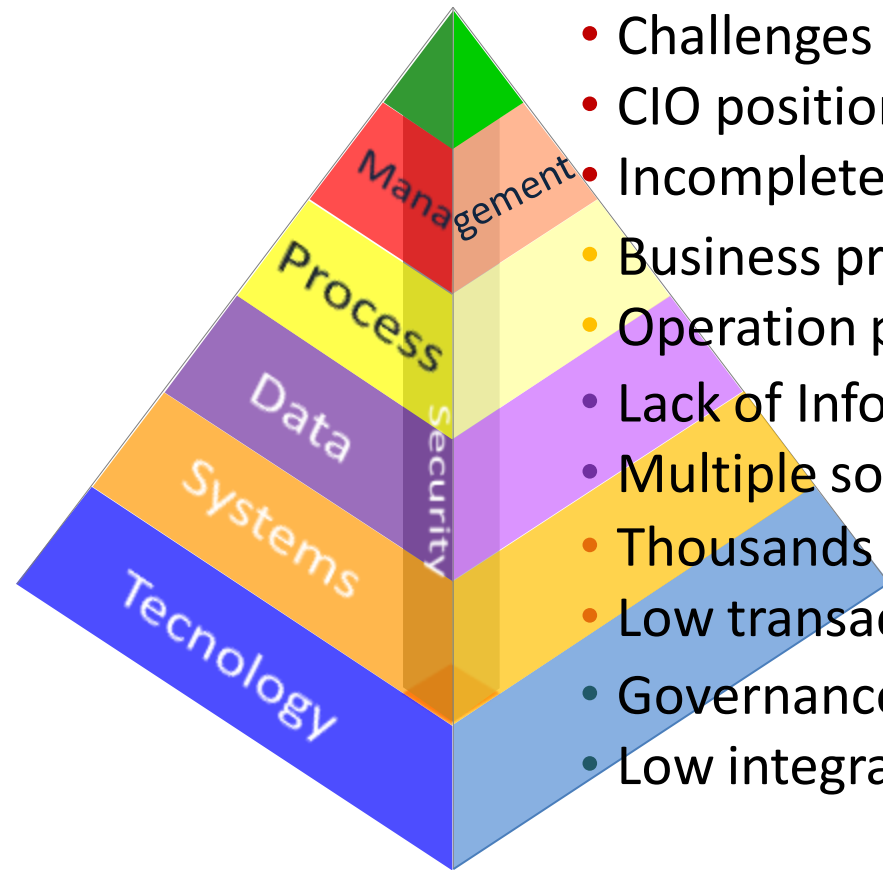
Each with approximately 2 million customers





- Areas invest on scattered projects
- Pilots are not aligned to strategic objectives
- Limited business and service perspective
- Weak definition leads to inefficient project management
- Lack of indicators and metrics for evaluation
- Missing follow-up for benefits and actual ROI
- Poor communication of results and conclusions
- No structures for replicating success or standardization





- Challenges in definition of Enterprise Architecture
- CIO position has not been instated
- Incomplete Business Intelligence structure
- Business processes not integrated across organization
- Operation processes not business-oriented
- Lack of Information Architecture
- Multiple sources and low quality of information
- Thousands of non-integrated legacy systems
- Low transactionality, heavy data-transformation
- Governance model and structure not completed
- Low integration of non-standardized infrastructure



- Result of U.S. – Mexico bilateral cooperation agreement



- Smart Grid Maturity Model Navigation Process



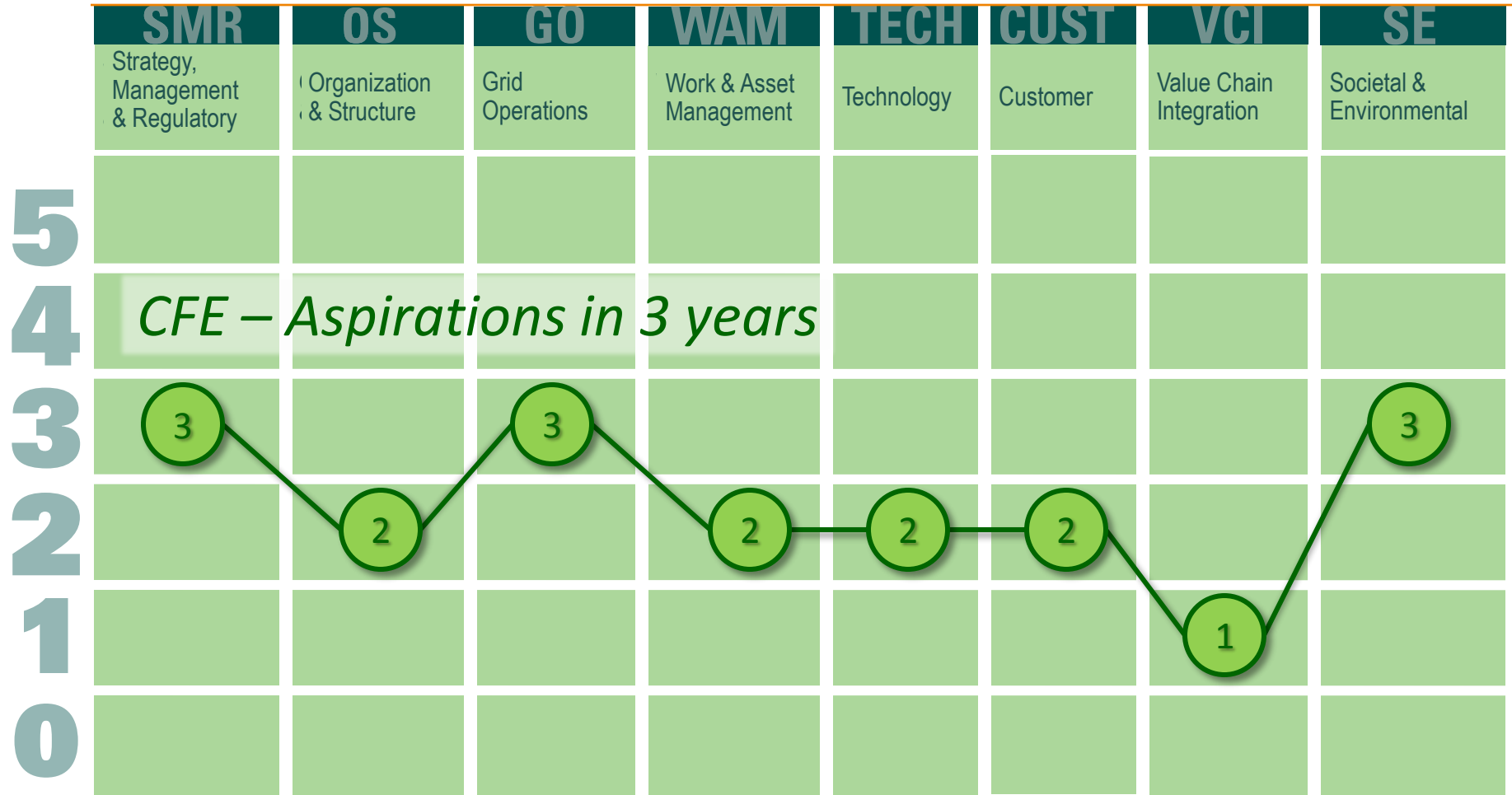
**Software Engineering Institute** | Carnegie Mellon

- Evaluation of Distribution (Corporate + 3 Divisions) at the time CFE was just in the beginning phase of its Smart Grid journey.
- With regards to individual characteristics of maturity, Mexico was predominantly “in with the majority”.





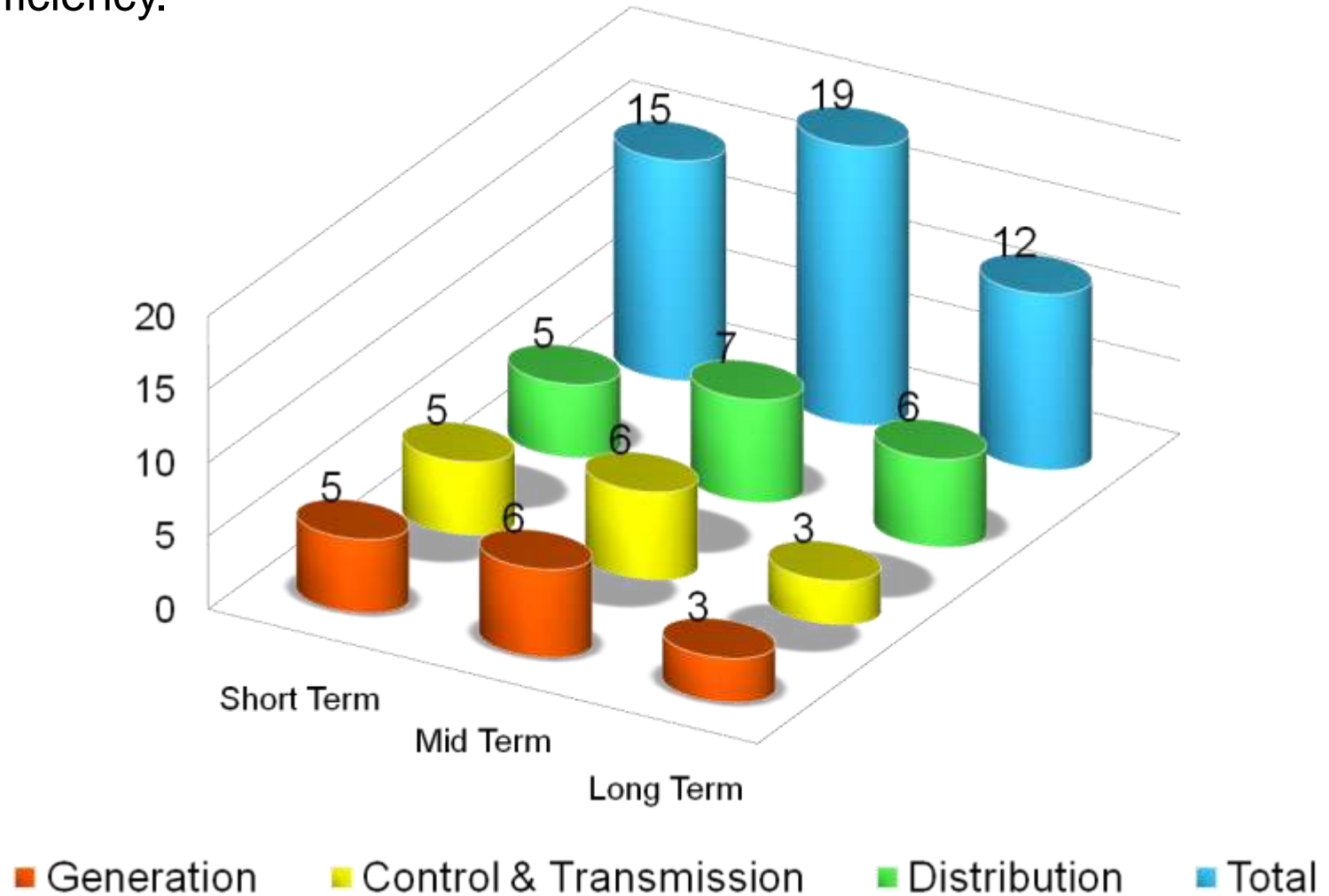
## Findings and Aspirations Workshop



July 2010



Smart Grid vision was drafted by identifying initiatives that would impact cost efficiency.

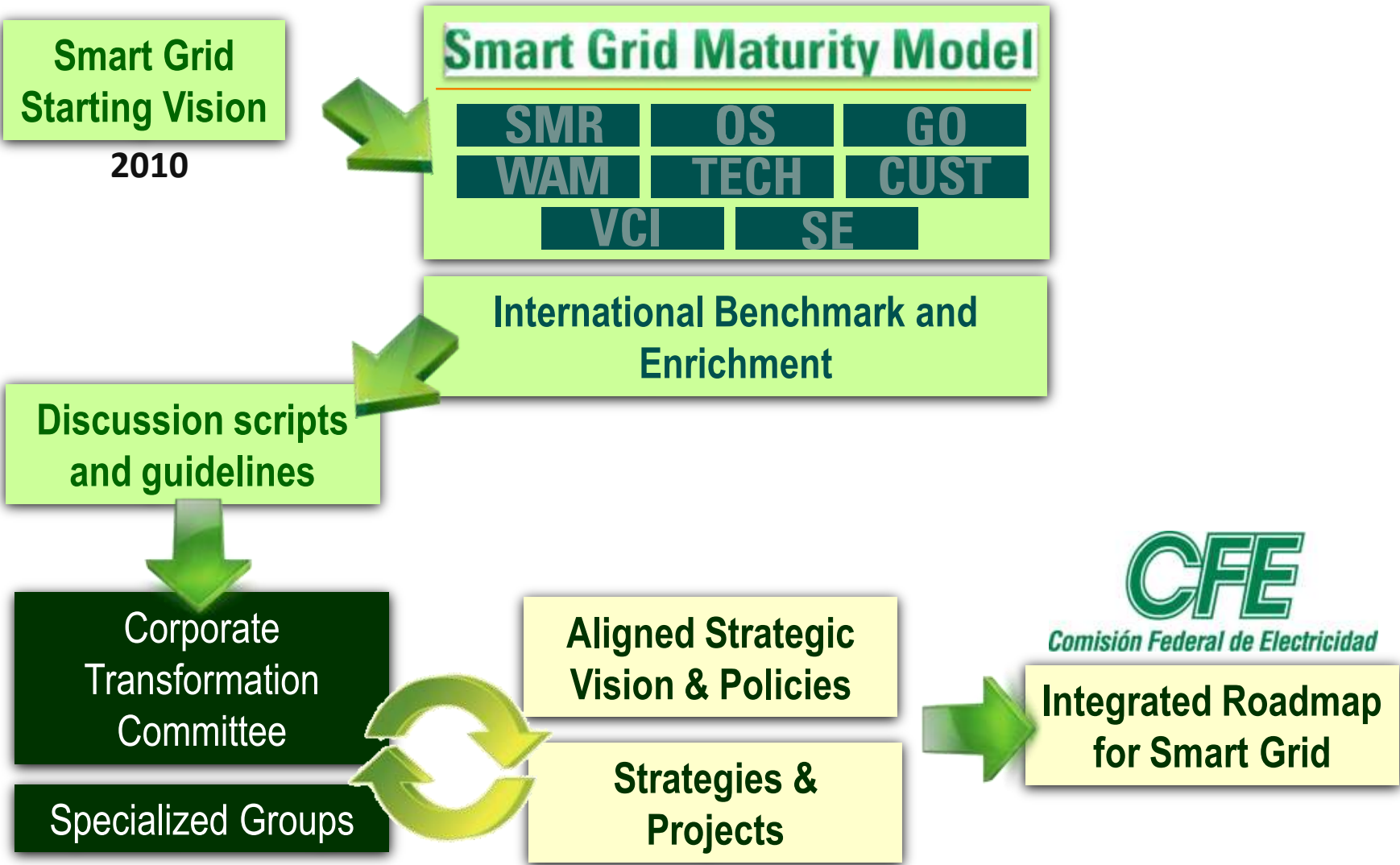




Smart Grid vision, policies and strategies within CFE must align to strategic lines of action defined by CEO.



- Smart Grid vision must be **Customer Centric**.
- Efforts to include **Clean Energy** will be aligned and increased.
- Major investment is being performed on automation and modernizing infrastructure in the **Central Zone** (Mexico City and surrounding area)



*Comisión Federal de Electricidad*

**Integrated Roadmap for Smart Grid**



1.- Identify options for technologies, solutions, structures and systems for short, medium and long term projects



2.- Perform cost-benefit analysis for selected alternatives.



3.- Verify scalability, interoperability, adaptation, convergence and alignment of defined route-maps.



4.- Consolidate all projects into a single, integrated global timeline for Smart Grid deployment within CFE.



Thank you

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