

# ***CCS/CCUS Regulatory Framework for Mexico***

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Expert Workshop on Increasing Knowledge and Awareness of Carbon Capture, Utilization and Storage (CCUS) – Capacity Building in Mexico

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# Why implement CCUS regulatory frameworks?

- Encourage safe, effective, and responsible operations and site closure
- Protect human health, environment and sub-surface resources (e.g. water)
- Verify safe and effective CO<sub>2</sub> storage
- Encourage investment
- Support accounting and verification for credits / offsets
- Promote public confidence

# CCUS legal and regulatory developments and trends



## Permitting Issues Related to Carbon Capture and Storage for Coal-Based Power Plant Projects in Developing APEC Economies

APEC Energy Working Group

September 2012



## CARBON CAPTURE AND STORAGE

*Legal and Regulatory Review*

Edition 2



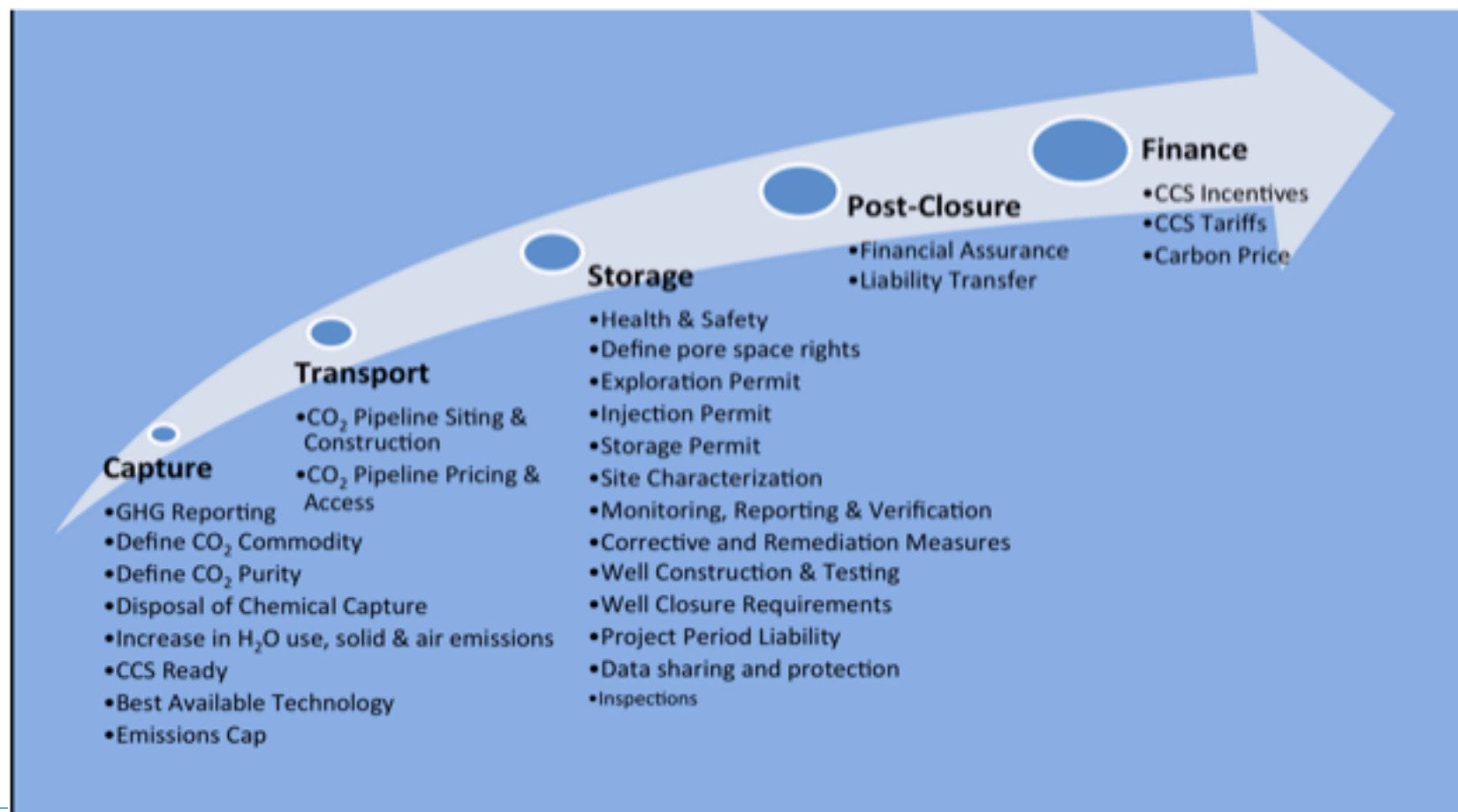
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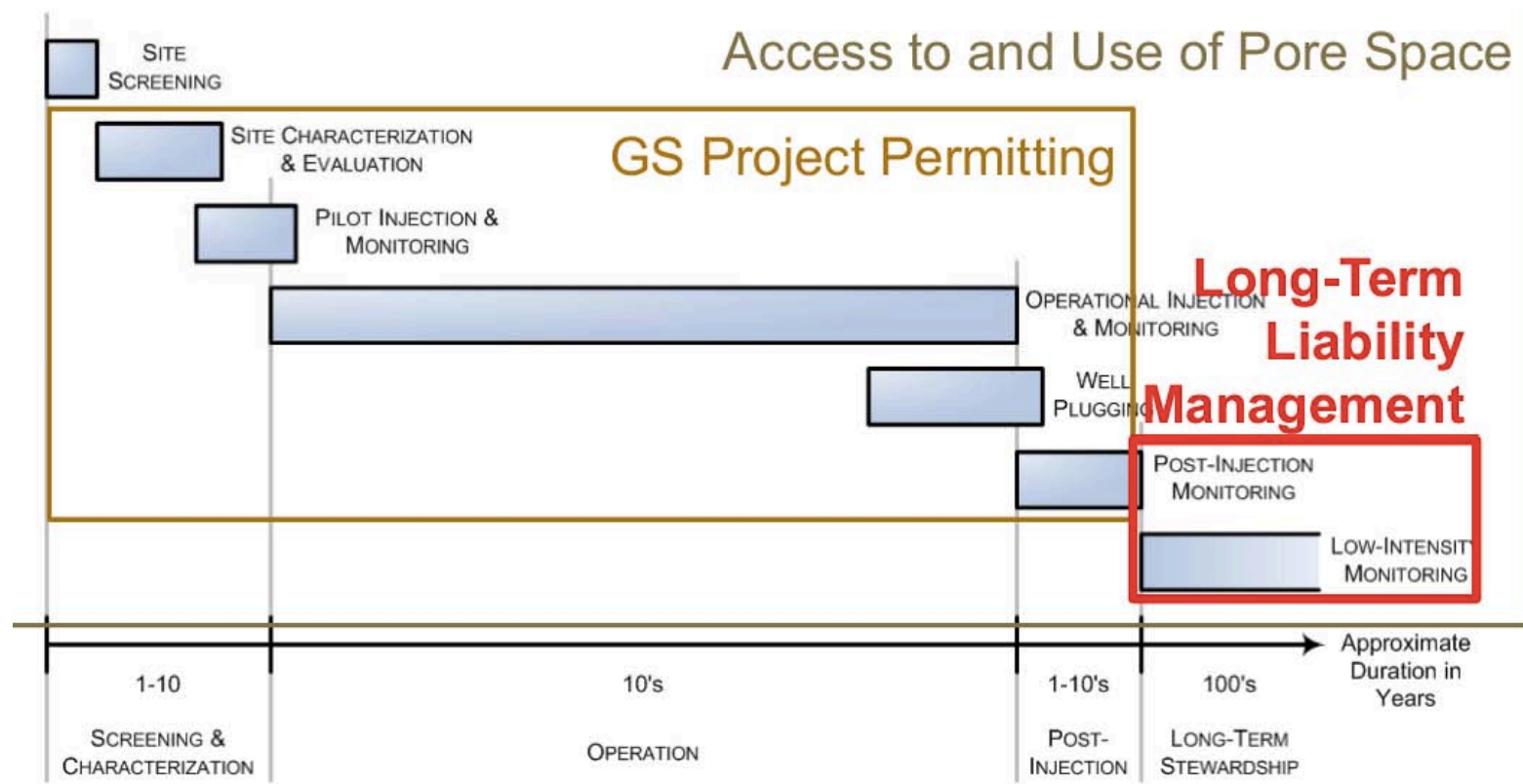
# CCUS legal and regulatory developments and trends

- Most jurisdictions do not have comprehensive, integrated frameworks
- Regulations often compliment: CO<sub>2</sub> emissions (air), CO<sub>2</sub> injection (water)
- Many jurisdictions are working on regulations in-depth but the “devil is in the details”
- How current regulations match with “best practices” and lessons learned from demonstration projects?
- Regulation alone cannot drive CCUS deployment so what other policies are needed? (e.g. tax credits, etc.)

# Key concepts - regulatory issues cut across the CCUS chain and throughout project timeline



# Key regulatory storage issues by project phases



CCS Reg - <http://www.ccsreg.org>

## Example - requirements for CO<sub>2</sub> injection well permit

- Injection Area of Review (AOR) determined by annual modeling
- Periodic AOR updates based on monitoring and modeling results
- Extensive deep, shallow and surface CO<sub>2</sub> monitoring
- Monthly reporting of injection pressures, annular pressures and injection stream composition
- Injection stream monitoring
- Periodically updated Corrective Action Plan
- Open-ended permit duration (based on USDW non-endangerment demonstration)
- Pressurized annulus throughout injection
- Emergency and remedial response plan
- Post-injection site care plan

US EPA



# Mexico Regulatory Assessment

*Permitting Issues Related to Carbon Capture and Storage for Coal-Based Power Plant Projects in Developing APEC Economies*  
*APEC EWG 04/2010 Prepared by C Hart, P Tomski, K Coddington*  
*(September 2012)*

## MEXICO REGULATORY ASSESSMENT

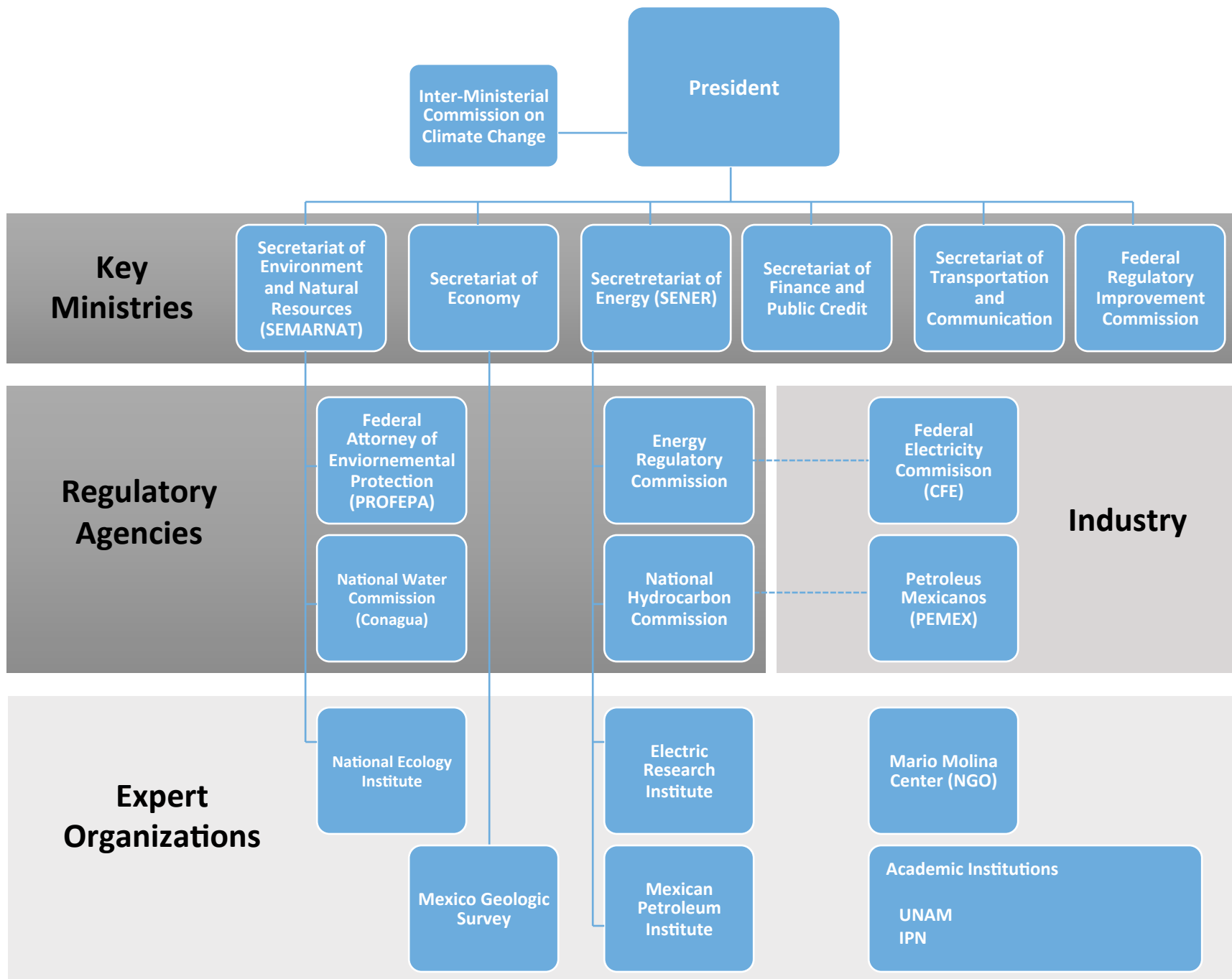
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# Steps in the Mexican regulatory assessment process

- Identify Stakeholders
  - Government (energy, environment, climate change)
  - Industry (oil and gas, power generation)
  - Academic and planning organizations
- Collect and review laws, regulations and standards
- Conduct Stakeholder interviews
- Conduct analysis
- Secure Stakeholder review

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# Sources of law and guidance in Mexico

- Constitution of Mexico, Article 27 and regulations
- Organic Law for Federal Public Administration
- Federal Civil Code
- General Law of Ecological Equilibrium and Environmental Protection (LGEEPA)
- Regulations on National Water Law
- General Law for Prevention and Integral Waste Management
- Federal Law of Administrative Responsibilities of Public Servants
- Ley Federal de Responsabilidades Administrativas de los Servidores Publicos
- NOM-027-SESH-2010, Administracion de la integredad de ductos de recoleccion y tranporte de hidrocarburos

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# Nine key issues and Mexico's current framework

	<b>Mexico</b>	<b>China</b>	<b>Indonesia</b>	<b>Malaysia</b>
<b>Classification of CO<sub>2</sub></b>	Not classified. General Law of Ecological Equilibrium and Environmental Protection (LGEEPA) defines "waste" broadly that could potentially apply to CO <sub>2</sub> .	Not specified. Environmental laws contain definitions that could be used to classify CO <sub>2</sub> as pollutant or waste.	Not classified. Environmental Law contains definitions of "hazardous and toxic waste" that could categorize CO <sub>2</sub> as waste	Not classified. Environmental Quality Act contains definitions for "pollution" and "pollutants" that could potentially apply to CO <sub>2</sub> .
<b>Jurisdiction over Pipelines and Reservoirs</b>	Secretariat of Energy (SENER), Secretariat of Environment and Natural Resources (SEMARNAT)	State Council, National Development and Reform Commission, Ministry of Environmental Protection, Ministry of Land Resources	State Oil Company, with oversight from Ministry of Environment and DG Migas.	State, delegated to Petronas.
<b>Pore Space Ownership</b>	State	State	State	Federal government, delegated to Petronas for oil-bearing reservoirs. Individual states generally have authority over onshore surface.
<b>Regulatory regime related to storage and transportation</b>	General Law for Prevention and Integral Waste Management provides for injection of substances in underground geologic formations. If applied to CO <sub>2</sub> , transport, storage or reuse would require license from SEMARNAT and use of best practices and technology.	Law on the Protection of the Oil and Natural Gas Pipelines could be adapted for CO <sub>2</sub> or serve as a model.	Oil and gas and environmental laws	Petronas Production Management Unit and Ministry of Natural Resources and Environment (MNRE)'s Department of Environment would likely have jurisdiction.
<b>Long-term Management &amp; Liabilities</b>	Civil Code, LGEEPA and other environmental laws provide for general civil liability for causing damage to the environment.	Civil Law and environmental laws require compensation and remediation for damage to land.	Various polluter pays statutes	Civil law and environmental laws impose liability for damage and require remediation.

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## Key issues, cont.

<b>Financial Assurance for Long-term Stewardship</b>	If CO <sub>2</sub> were treated as a “pollutant” under General Law for Prevention and Integral Waste Management, storage operators required to provide guarantees and remain liable for the site a minimum of 20 years after site closure for dangerous substances.	Law on the Prevention and Control of Atmospheric Pollution provides a system of collecting fees for discharge of pollutants, which could serve as possible model.	Oil and gas regulation and production sharing contracts require operators to reserve funds for decommissioning. Environmental law requires guarantee funds to protect the environment.	National Environment Fund could serve as model for liability fund. Fund defrays costs of monitoring and remediation, partly funded by fees collected from industry.
<b>Third Party Access Rights to Pipelines</b>	PEMEX owns, operates and regulates all oil and gas pipelines. SEMARNAT and the Ministry of Transportation and Communications regulate pipelines that transport dangerous and toxic substances.	Not specified.	Production sharing contracts contain provisions. DG Migas resolves disputes.	Petronas Carigali owns all upstream oil and gas pipelines.
<b>Regulatory Compliance &amp; Enforcement Scheme</b>	SEMARNAT and SENER. For oil and gas operations, PEMEX would have operational and certain regulatory responsibility.	Mineral Resources Law and various environmental protection laws	Ministry of Energy and Mineral Resources’ DG Migas and Ministry of Environment	Petronas is responsible for planning, investment and regulation of all upstream oil and gas activities. MNRE’s Department of Environment regulate environmental compliance.
<b>Public Participation</b>	LGEEPA provide certain rights to the public to participate in the EIA review process. The Federal Transparency Law requires federal agencies to provide public access to information.	Law of the People’s Republic of China on the Environmental Impact Assessment calls for public participation in “appropriate ways.” It requires projects that could have an adverse environmental impact to seek the opinion of the public.	Environmental Impact Assessment, pro-community provisions in production sharing contracts, customary law	MNRE issues guidelines for conducting EIAs. While not strictly requiring public hearings, guidelines describe the purpose of scoping the Environmental Impact Assessment to include understanding public opinion.

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# Mexico's CCS / CCUS regulatory readiness

Scale	Action
<b>Small-scale test injection Pilot Projects</b>	Regulate under existing oil and gas or environmental protection laws
<b>Fully integrated small research-scale demonstration projects</b>	Adjustments to existing environmental and petroleum regulations
<b>First Commercial Project</b>  <b>(1 million tons/year or more)</b>	Develop dedicated CCS regulations

- Next steps for Mexico's CCUS regulatory framework development supported by the World Bank CCS Trust Fund (starting February 2015)



# Thank You! Questions?

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