

Carbon Capture, Utilisation and Storage (CCUS) Roadmap for Mexico

Ministry of Energy

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MEXICO'S ENERGY PROFILE



- **MEXICO IS A FAST-INDUSTRIALIZING COUNTRY.**
- **MEXICO'S TOTAL ENERGY CONSUMPTION IS DOMINATED BY OIL, NATURAL GAS, AND COAL ACCOUNTING FOR 92% OF TOTAL ENERGY USAGE.**
- **MEXICO RANKS 13TH ON THE WORLD BANK'S ESTIMATE OF TOTAL GHG EMISSIONS.**
- **THE MAIN SOURCES OF MEXICO'S GHG EMISSIONS COME FROM FOSSIL FUEL-BASED ENERGY PRODUCTION AND CONSUMPTION, AND TRANSPORTATION.**



**RENEWABLE ENERGY AND FINANCING FOR
ENERGY TRANSITION LAW**

GENERAL CLIMATE CHANGE LAW

**SPECIAL PROGRAM ON CLIMATE CHANGE
2009-12**

TO PRODUCE 35% OF TOTAL ELECTRICITY GENERATION FROM CLEAN ENERGY SOURCES BY 2024

TO REDUCE BY 30% AND 50% GREENHOUSE GAS (GHG) EMISSIONS BY 2020 AND 2050, RESPECTIVELY, BASED ON LEVELS FROM THE YEAR 2000.

NATIONAL CARBON STORAGE ATLAS



- **IN 2011, A BASIN ASSESSMENT FOR STORING CO₂ IN SALINE AQUIFERS WAS UNDERTAKEN. IT WAS ESTIMATED THAT MEXICO HAS A THEORETICAL CAPACITY TO STORE 100 GIGA TONS OF CO₂.**
- **WORK IS PROGRESSING TO CONTINUE THIS ASSESSMENT AT A REGIONAL AND LOCAL LEVEL TO ESTIMATE THE EFFECTIVE STORAGE CAPACITY.**

Objectives

- **To coordinate the efforts among industry, universities and research institutions in the areas of the capture, transportation, utilisation and storage of CO₂**
- **To develop an Official Roadmap for CCUS from incubation to commercial scale deployment**
- **To develop the budget required to carry out each of the Roadmap steps**
- **To provide a strong framework with economical and regulatory incentives to promote the implementation of CCUS technology**
- **To develop a framework for emissions trading and carbon market in Mexico**



**MEXICO
CCUS
TECHNOLOGICAL
ROADMAP
(2014-2024)**

INCUBATION

PUBLIC POLICY

PLANNING

PILOT PROJECTS:

- PEMEX EOR pilot project
- CFE CO₂ capture pilot project

DEMONSTRATION PROJECTS

COMMERCIAL SCALE DEPLOYMENT

Incubation Stage

- **Technology Deployment Framework Agreement (SENER, SEMARNAT, PEMEX and CFE)**
- **Carbon Markets Analysis**
- **Partnerships with International Science and Tech Institutions on CCUS**
- **Agreements with Financial National and International Organisations to Deploy the Technology**
- **Regulatory Framework Analysis**

Public Policy

- **Capacity Building**
- **Regulatory Framework**
- **Public Engagement**
- **Permanent monitoring binding**
- **Entailment with stakeholders**
- **Encouragement for private participation**
- **National plan for CO₂ transport**
- **Policy on CCS Ready Facilities**
- **National and international incentive mechanisms for the development and accomplishment of CCUS programs**
- **International financial mechanisms and carbon markets**
- **National Innovation Centre for CCUS**

Planning

- **Implementation plan for integrated Power Plants with CCS systems**
- **Assessment of storage capacity in deep saline aquifers**
- **Analysis of Potencial Hidrocarbon Fields for Storage purposes**
- **Selection and prioritization of HC Fields**
- **EOR-CO₂ strategy**
- **Plan of EOR-CO₂**
- **CO₂ emission – consumption strategy**

Pilot Projects



- Site Selection
- Lab Analysis
- Pilot Testing Design
- Execution
- Follow up



- Site Selection
- Capture Technology Selection
- Prefeasibility studies
- Bidding process
- Construction
- Operation
- Closure and decommissioning

CAPACITY BUILDING

PEMEX ENHANCED OIL RECOVERY PILOT PROJECT

PEMEX
Ammonia Plant
Cosoleacaque



PEMEX
Oil Field
"Cinco Presidentes"

Demonstration Project



- **Site selection for injection**
- Feasibility studies and design
- Bidding process
- **Environmental studies and authorizations**
- Public Engagement
- Construction
- Base line studies and monitoring
- **Operation , injection and monitoring**

Commercial Scale

- **Integrated CCS systems**
 - **Selection of optimal sources for CO₂ capture**
 - **Scaling-up plan for construction and operation of CCS and CC+EOR systems**
 - **Complementary studies**
- **Other activities**
 - **Carbon pipe network feasibility**
 - **Carbon pipe network construction**
 - **Monitoring, reporting, and verification of CO₂ stored**

Key remarks

- **CCS will play an important role for the transition to a low-carbon economy**
- **To develop and strengthen research and technology capabilities for CCUS in Mexico, and to promote international collaboration with leading research institutions**
- **To develop a suitable policy and financial framework for CCUS implementation**
- **To cooperate and to get support from international organizations for CCUS knowledge sharing, capacity building funding, and public engagement**

Thank you