

An Integrated Solution to tackle Challenges in Oil and Gas Production Regulation in Mexico

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What's Next?

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Schlumberger

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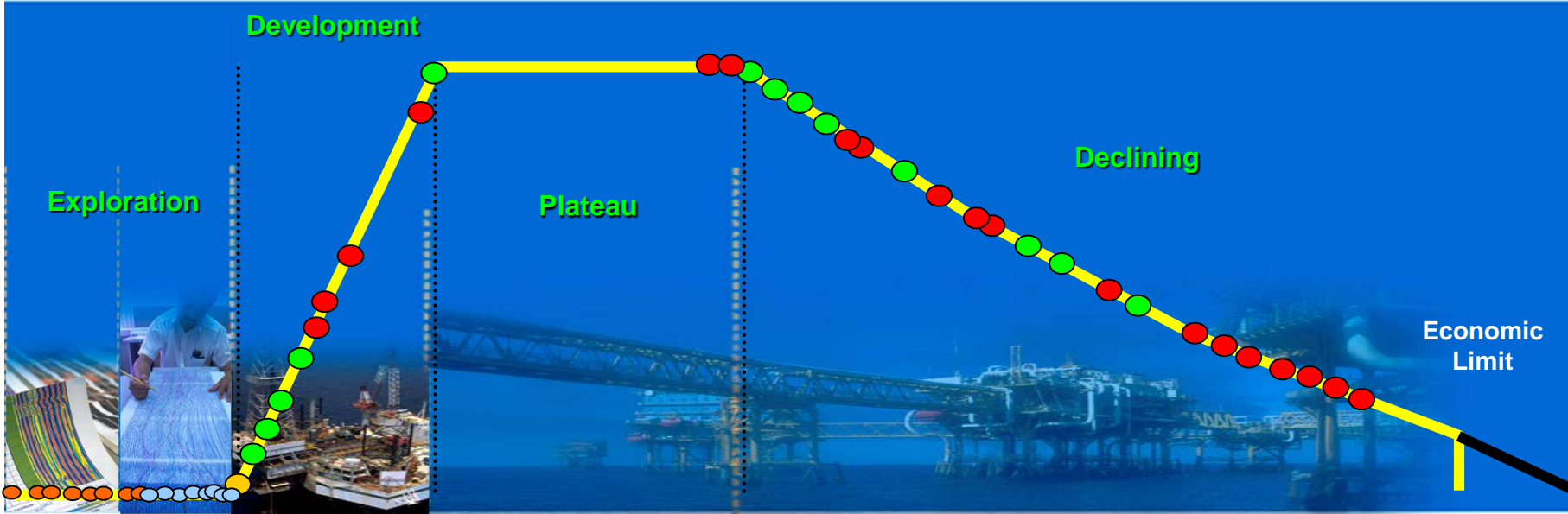
Agenda

- Overview of the Energy Reform.
- Bidding Rounds in México.
- Regulation Challenges.
- Solutions to face this Challenges.
- Final remarks.

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Overview of the Energy Reform



Source:-CNH-Pemex

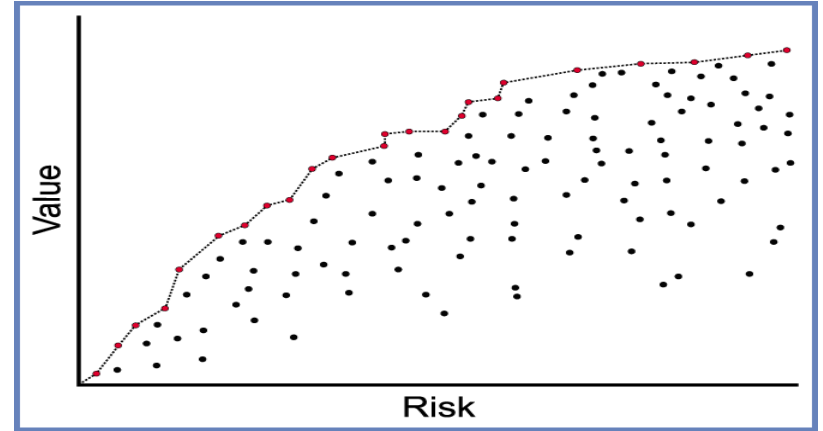
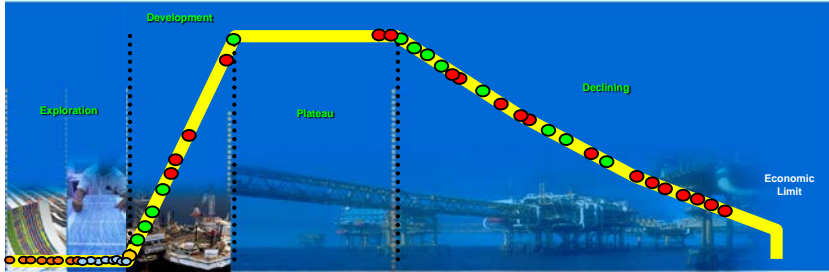


Comisión Nacional de Hidrocarburos

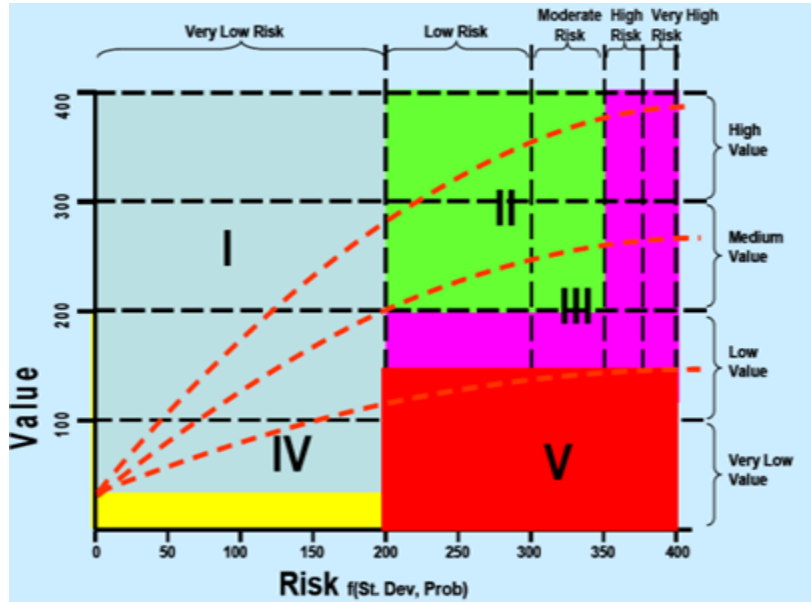
- Deep and Shallow Waters
- Unconventionals

- Offshore
- Onshore

Value and Risk in the portfolio



Participation Strategy

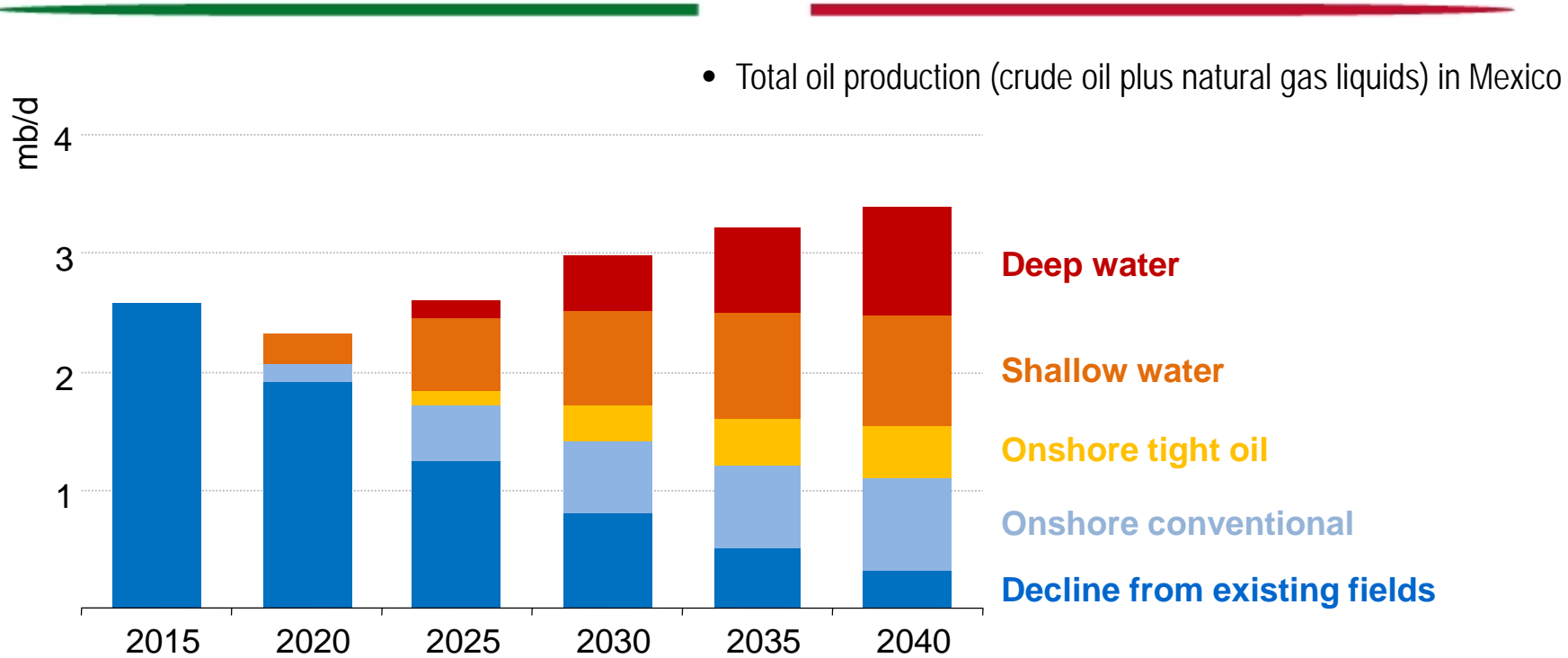


- **GROUP I**
Own Operation with full equity financing (100% equity)
- **GROUP II**
Own Operation with project financing (20% equity, 80% financing)
- **GROUP III**
Partnership with Major Companies
- **GROUP IV**
Partnership with Small & Medium Companies
- **GROUP V**
Partial Farm-out

Source: Schlumberger



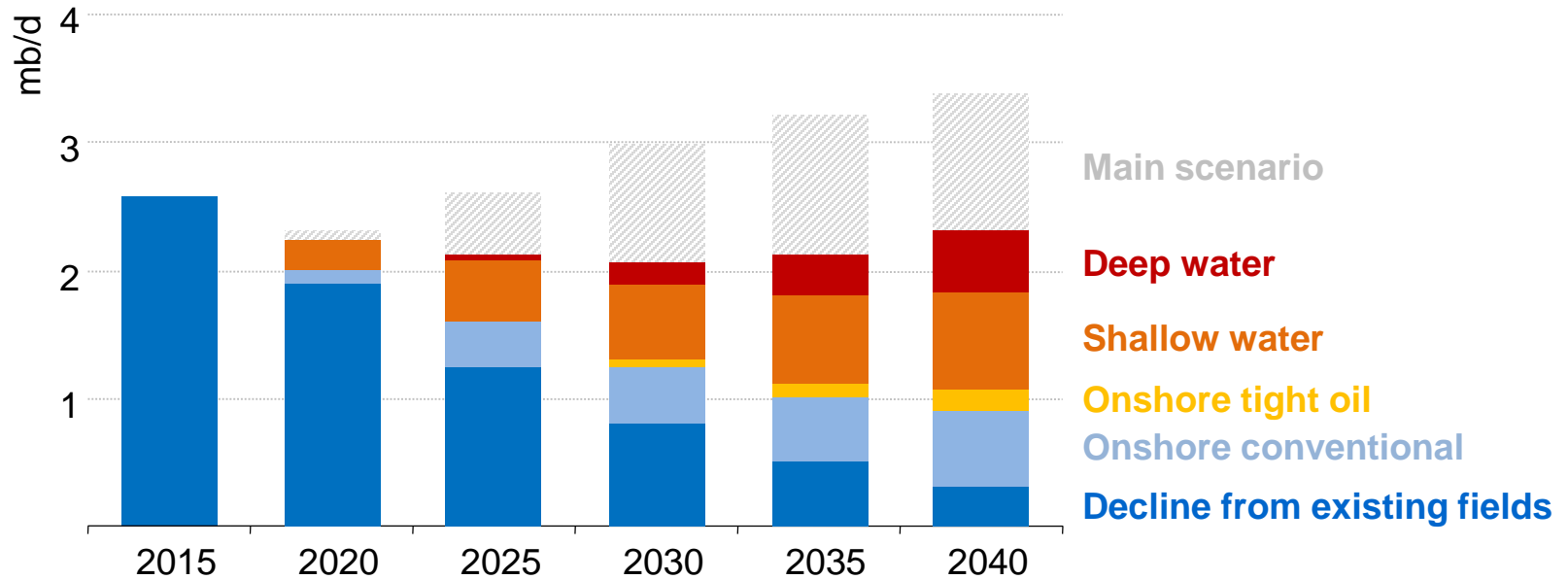
Time to turn the oil sector around



New partnerships, technologies and players help Mexico to develop new resources, notably in deepwater & tight oil, while slowing declines in the shallow offshore

Without the Reform, oil struggles to recover

- Total oil production (crude oil plus natural gas liquids) in a No Reform Case



Maintaining the pre-Reform patterns of investment leaves oil production more than 1 mb/d lower by 2040, removing an important source of non-OPEC supply growth

Overview of the Energy Reform

The Mexican Energy Reform has taken concrete steps to:

1. Stop the decline on oil production,
2. Allow private participation to attract investments,
3. Improve energy security, and
4. Strengthen environmental sustainability in the energy sector.

The key principles of the reform are:

- ✓ Reaffirming the constitutional principle of the state ownership over subsoil resources;
- ✓ Free competition among economic actors in the sector;
- ✓ Strengthening of regulatory agencies.

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Round 1 Results

Country
 Mexico
 United States of America
 England
 Colombia
 Argentina
 Norway
 Netherlands
 Malaysia
 Japan
 Italy
 France
 China
 Canada
 Australia

39 Contracts were awarded

5

Production sharing contracts

34

License contracts

- In total, 55 areas were offered
 - 71% allocation success rate
- Total expected Investment: 49 Bn USD
- 22 wells committed to be drilled in the next 5 years, from which 10 are in Deepwaters
- 6 Benefited states.
- 60% utility average for the state.



2.1

June 19
2017

Shallow Waters - Light Oil



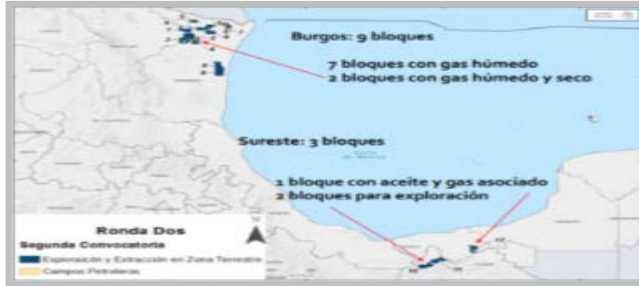
- 10 Exploration and Production blocks

R. 2.1
Exploration in shallow
waters (oil)

- 10 contracts awarded
- Investment. 8.2 Bn USD
- Expected Production*: 180 kb/d

Onshore Wet & Dry Gas

2.2



Onshore Oil and Gas

2.3



July
2017

R. 2.1 and 2.2
Exploration and
Production Onshore

- 21 contracts awarded
- Investment. 2.1 Bn USD
- Production*: 80 kb/d
- 0.5 bcf/d

CNH

More bids during the administration



Round 2.4 - Bidding Process: January 2018

- 30 Blocks
- 70,844 km²
- Investment around 4.5 Bn usd per block

Next FarmOuts

- Ayin Batsil
- Cárdenas-Mora
- Ogarrio

Next Bidding Rounds:

- 3.1 Unconventionals
- 3.2 Deep Waters



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Key stakeholders in the Energy Reform

Administration of
Petroleum income

Dependencies with
new responsibilities

Coordination council for the
energy sector

Determines recommendations and approval of the coordinating mechanisms for the compliance of the energy policy of Mexico

Strengthened
and new
Regulatory
Agencies

State-
Owned
productive
companies

Technical organisms in charge of
developing new markets



CNH role and functions

1. Contract design

Area selection

SENER
SECRETARÍA DE ENERGÍA

With assistance of:



Technical design and bidding conditions

SENER
SECRETARÍA DE ENERGÍA

With opinion of:

SE SECRETARÍA DE ECONOMÍA
SHCP SECRETARÍA DE HACIENDA Y CRÉDITO PÚBLICO



Fiscal and economic terms

SHCP
SECRETARÍA DE HACIENDA Y CRÉDITO PÚBLICO

With opinion of:

SENER
SECRETARÍA DE ENERGÍA

2. Bidding process

Data rooms



Contract bid process



Contract award and signature



3. Operation and Regulation

Technical approval (Regulation)



Exploration activities



Technical Contracts Administration



Health, Safety and Environment



4. Petroleum Income



The Mexican Petroleum Fund performs the payments (State and Operators) and the administration of Petroleum Incomes

Extraction Process Regulation is Key Element in the Energy Reform

Reserves

National reserves

Production measurement

Determine production volumes and quality



Development plan

Field Development Plan and Economic Evaluation

Commercialization

Internal and External Market Analysis

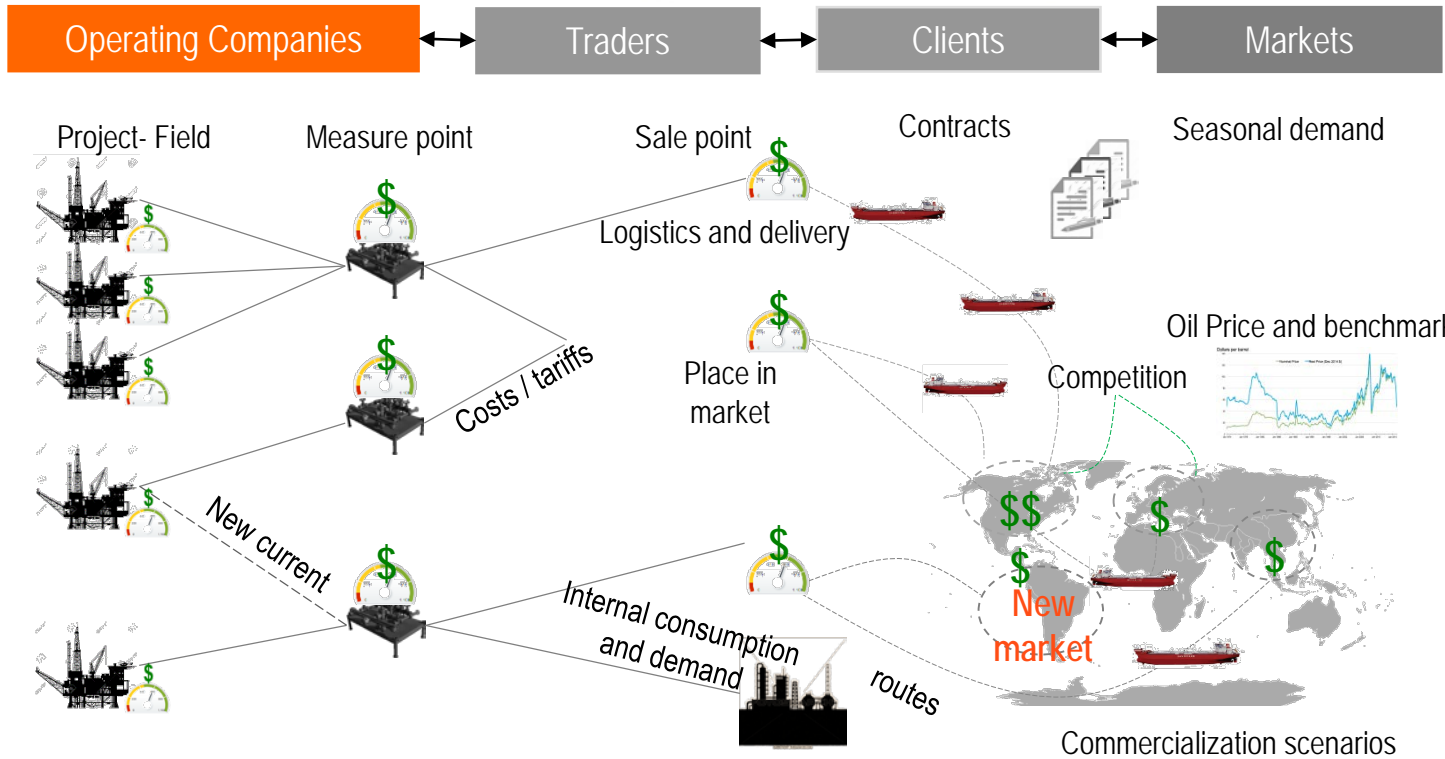
Information requirements from internal and external stakeholders

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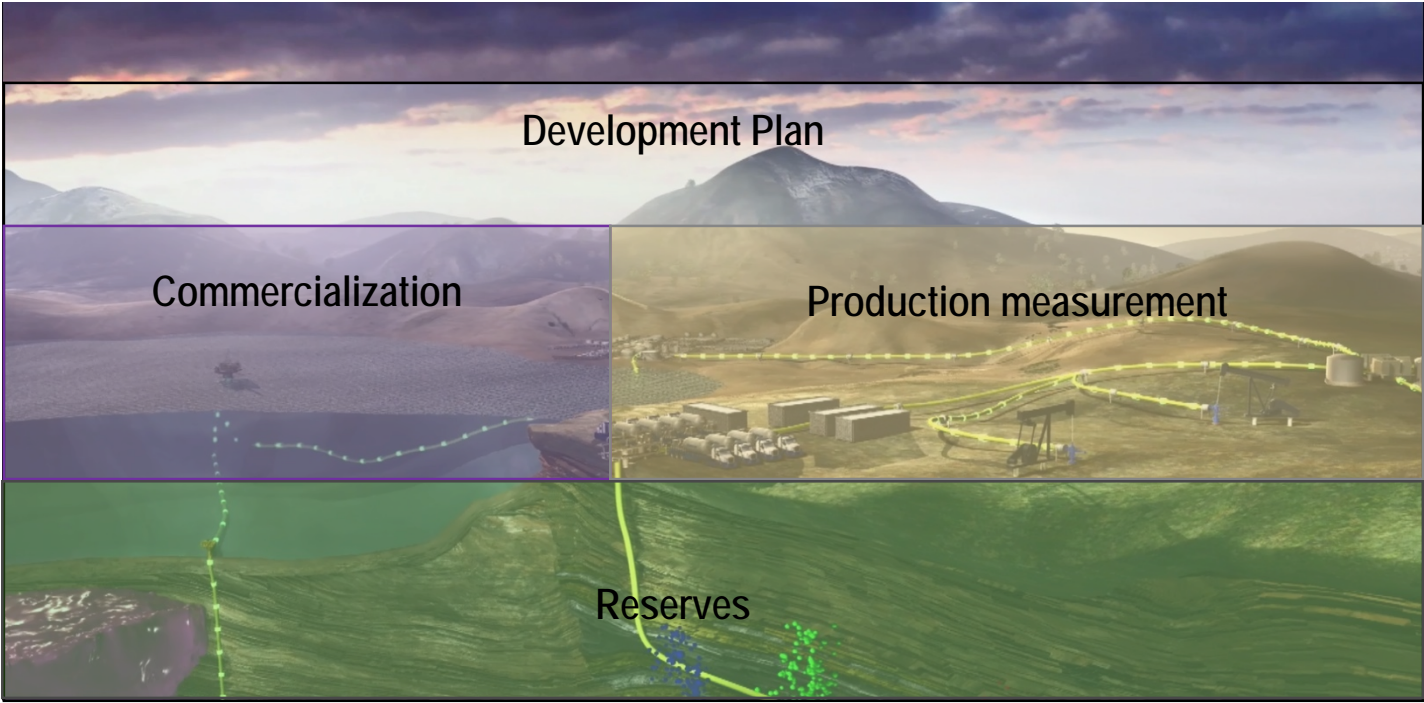
From the reservoir to the commercialization



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Upstream Regulation (Extraction)

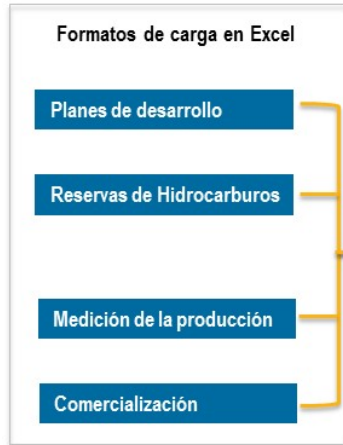


Regulation and supervision framework



Hydrocarbons Integral Extraction System - SIEH

Data reception



Data loading standardization

Process and integration



Automatic quality controls and reports



Storage and availability in production and petroleum economics technologies



Automatic data transfer

CNH integral analysis



Executive and technical dashboards

Executive summary dashboard



La Comisión Nacional de Hidrocarburos es un órgano regulador coordinado en materia energética dependiente del Poder Ejecutivo Federal, con personalidad jurídica propia y autonomía técnica, operativa y de gestión para emitir sus propios actos y resoluciones.

Tiene a su cargo el ejercicio de las atribuciones y facultades que expresamente le encomienda la Constitución Política de los Estados Unidos Mexicanos, las leyes de los Órganos Regulatorios Coordinados en Materia Energética, de Hidrocarburos y demás aplicables en la materia, así como los reglamentos, decretos, acuerdos y circulares que emita el Presidente de los Estados Unidos Mexicanos.

- Ejecutivo 
- Reservas de Hidrocarburos 
- Dictámenes de planes 
- Medición de la producción 
- Comercialización 



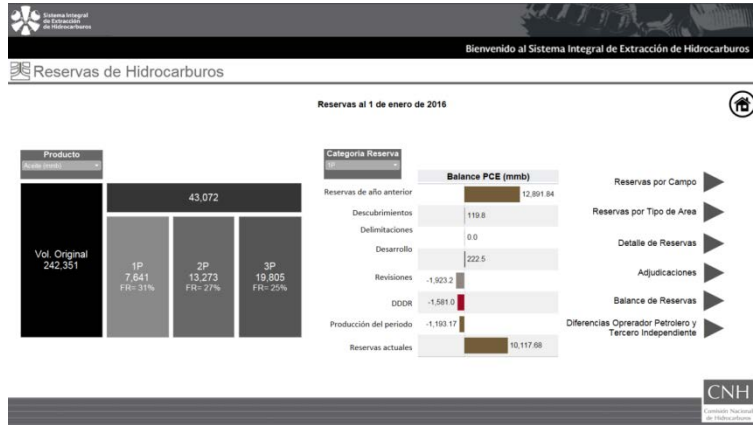
- Reserves volumes.
- Price scenarios analysis.
- Economic indicators .
- Commercialization results.

Executive dashboard



Example: Reserves summary and analysis dashboards

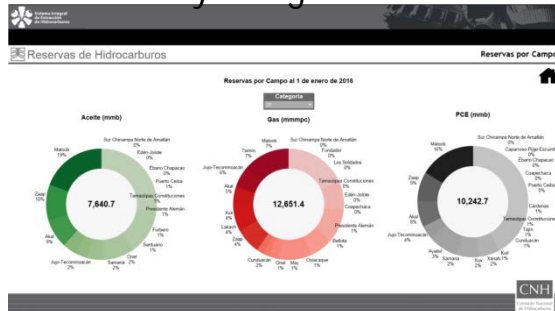
Reserves summary



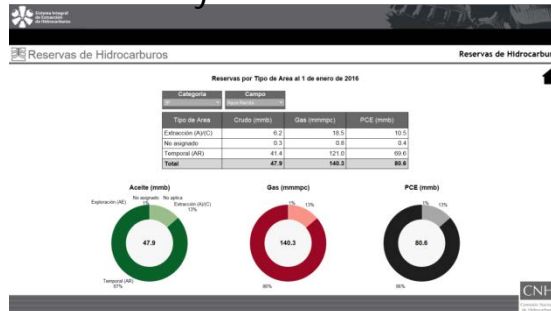
Reserves comparison operator-third party



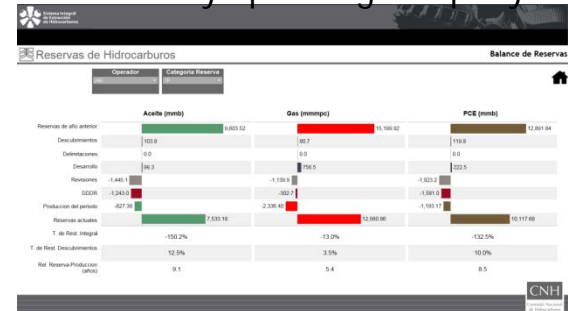
Reserves by categorie



Reserves by block



Reserves by operating company



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- Oil projects in Mexico have different nature: onshore fields, shallow water, extra heavy oils, deepwater, and unconventional.
- Mexico need investments and new participants along the entire value chain.
- Broaden analyses capabilities, strategy conformation and opportunities development to maximize the benefits to the State.
- Strengthen the decision-making and analyses capabilities related to the key elements of hydrocarbon's extraction.

- The SIEH system provides a framework that integrates the four domains for production regulation and analysis.
- There is a seamless integration of SIS petro-technical technologies in production and petroleum economics with regulation strategies.
- Mexico as part of the IEA
 - Energy Security
 - Environmental Protection
 - Economic Growth
 - Engagement Worldwide

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