

Mexico's New Energy Industry: Investing in the Transformation

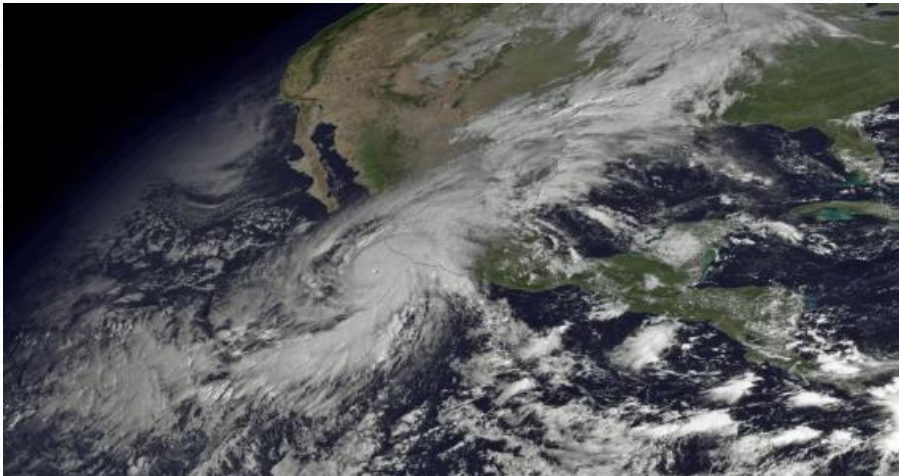
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CHANGING GLOBAL ENVIRONMENT

Global changes and developing economic trends are transforming the way we use and produce energy around the world.



This presents increasing challenges for all countries, as well as opportunities to **transform the energy industry into an efficient and competitive motor for cleaner growth.**

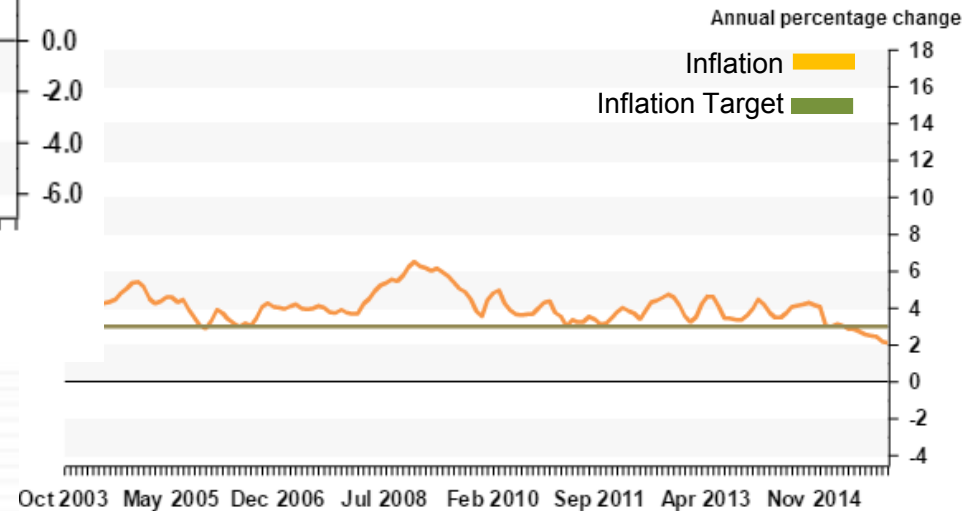
MEXICO: KEY GLOBAL PARTNER



GDP
(constant 2008 prices)
Annual percentage change



INFLATION



*The current **global economic environment** has increased pressure on the Mexican economy, the Government has implemented measures to preserve the stability and foster **growth without increasing public debt.***

PROMOTING FREE TRADE

- **11 Free trade agreements** with **46 countries** (NAFTA, EU-MX)
- **9 Economic cooperation agreements** (South America, Japan)
- **33 Agreements** on Reciprocal Investment Promotion and Protection
- Ongoing **TPP** ratification process

MULTILATERAL ORGANIZATIONS

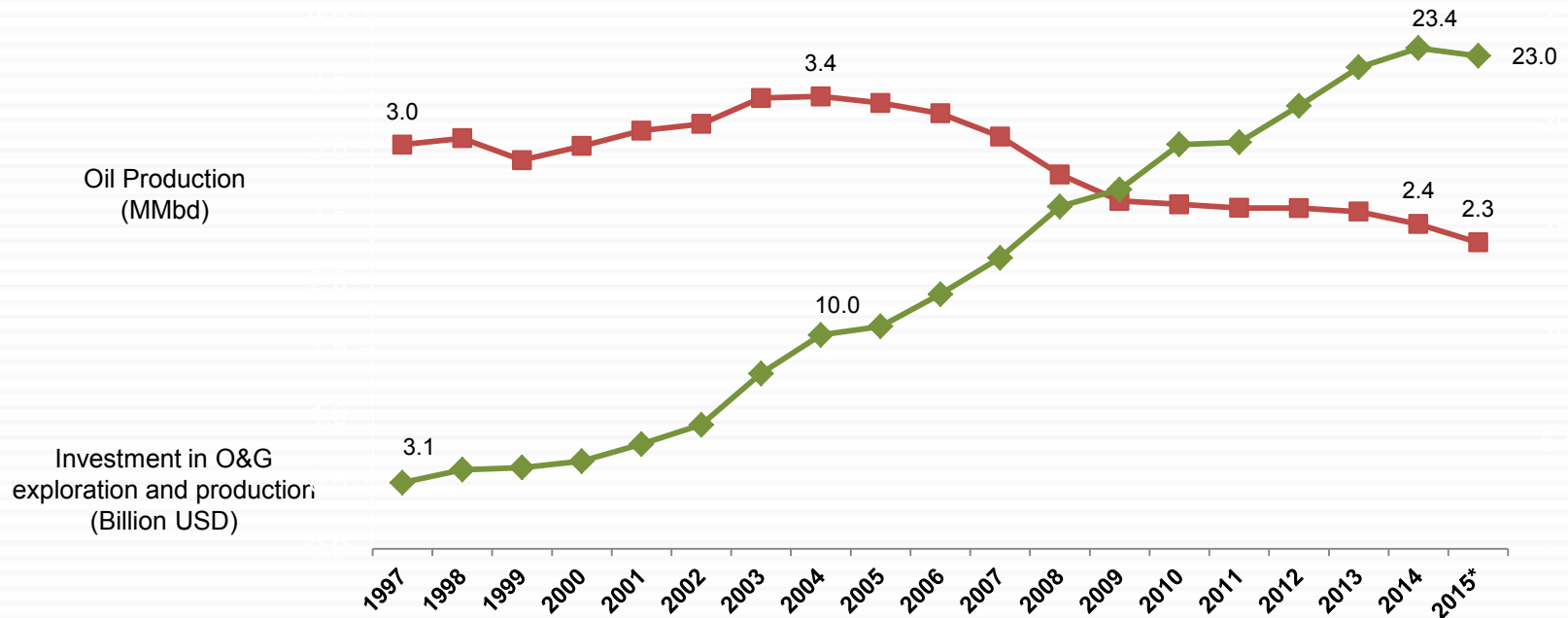
- **OECD**
- **APEC**
- **WTO**

*The Energy Reform positions Mexico as a strong and **competitive energy hub**, with the capacity to **provide fuels and electricity** at lower cost, under reliable and environmentally safe conditions, to boost **economic productivity**.*

MEXICO: THE NEED FOR AN ENERGY REFORM

Mexico hadn't been able to adapt at the required speed to the changing global energy environment, resulting in:

- **Declining oil and gas production.**
- Increasing **power production costs.**
- Stagnant **investment in renewables.**
- **Ageing infrastructure** and limited investment.
- Limited **technological development.**
- Widening **human resources gap.**
- Increasing **dependency on natural gas and oil products imports.**



MEXICO'S ENERGY REFORM: THE TRANSFORMATION

**STATE OWNED
MONOPOLY**



**OPEN
MARKET**

Clear rules, roles and responsibilities

Balancing **risks and returns**

Optimization of Mexico's resources

Access to **state of the art technology**

Comprehensive **industrial development** strategy

Human resources strategy

Access to **capital**

**HYDROCARBONS
BELONG TO THE
NATION**

RULE OF LAW

**STRONGER
INSTITUTIONS**

SUSTAINABILITY

TRANSPARENCY

KEY PRINCIPLES

MEXICO'S ENERGY REFORM: OPPORTUNITIES FOR BUSINESS

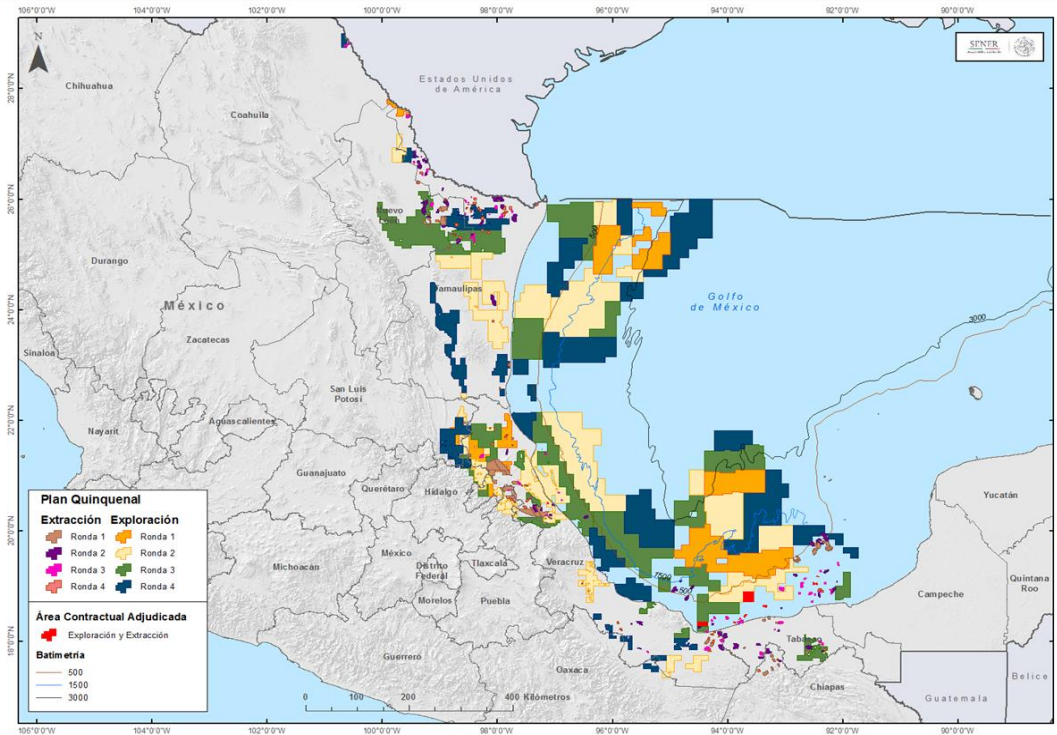


PROJECT DEVELOPMENT AND FINANCE

RESEARCH, DEVELOPMENT AND TECHNOLOGY TRANSFER

HUMAN RESOURCES DEVELOPMENT

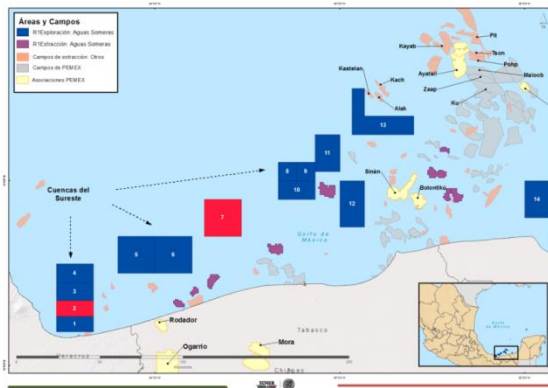
- **Open participation** in exploration and production activities through bidding rounds organized by the State.
- **Competitive and flexible contract models**, based on international best practices.
- Greater certainty for investors through an Exploration and Extraction **Five Year Plan**.*



INVESTING IN MEXICO: ROUND ONE

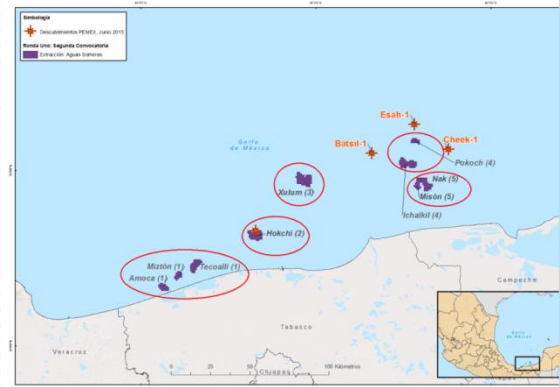


INVESTING IN MEXICO: ROUND ONE



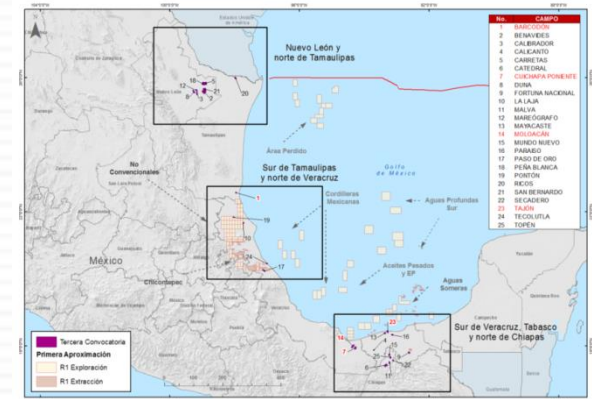
1st Bid: Exploration in Shallow Waters

- Production Sharing Contract
- 2 contracts awarded on July 15, 2015
- First oil: 2019
- Peak production: 79 Mboed
- Estimated Investment: 2.7 billion USD



2nd Bid: Extraction in Shallow Waters

- Production Sharing Contract
- 3 contracts awarded on Sept. 30, 2015
- First oil: 2018
- Peak production: 124 Mboed
- Estimated Investment: 3.1 billion USD



3rd Bid: Extraction in Onshore Fields

- License Contract
- 25 contracts awarded on Dec. 15, 2015
- First oil: 2016-2017
- Peak production: 77 Mboed
- Estimated Investment: 1.1 billion USD

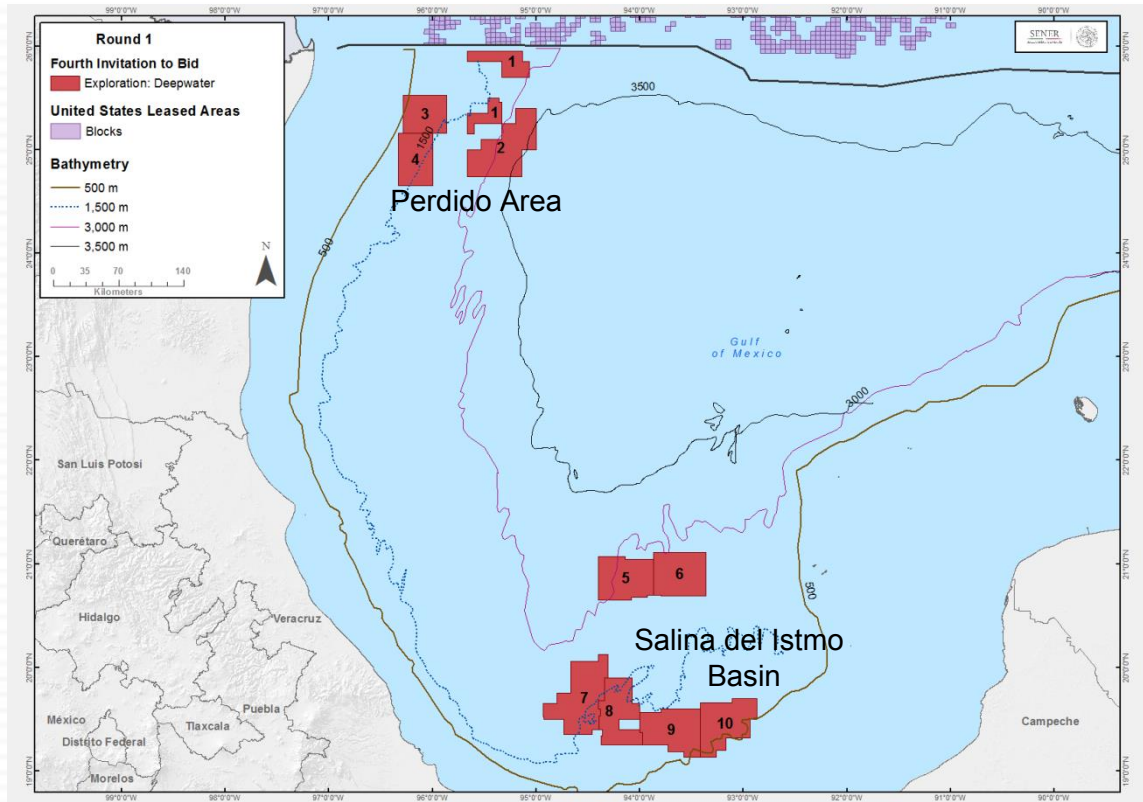
*Mexico's new upstream contracting model is designed to **balance risks, attract investment** and access the **best available technology** as we move into frontier fields to stop the decline in oil and gas production.*

4th Bid:

Exploration in Deep Waters

- License Contract
- 10 exploration areas
- Depth range: 500 -3,600 km
- Resources: super light, light and heavy oil, gas and wet gas
- Exploration phase: 4 -10 years.

PREQUALIFICATION CRITERIA



INVESTING IN MEXICO: FOURTH BID - PREQUALIFICATION

WHO CAN PARTICIPATE?

- **Mexican or foreign companies** and State Productive Enterprises, **individually or in partnership**.
- Companies can **prequalify as Operators or Non-Operators**. Operators must pay a **fee to access the Data Room**.
- Operators can participate in one or more Bidding Groups, with other Operators or Non-Operators.

WHAT CAPACITIES MUST THEY DEMONSTRATE?

TECHNICAL (OPERATORS)

1. Experience in at least **one exploration and production project** in deep waters of at least **1 km of depth**, from 2011-2015.
2. Capital **investments** in **exploration and/or production** projects of at least **2 billion USD in total**.
3. Experience in **industrial and operation safety**, and **environmental protection** in deep waters, certified over the past 5 years through OHSAS 18001 (safety) or ISO 14001 (environment).

FINANCIAL

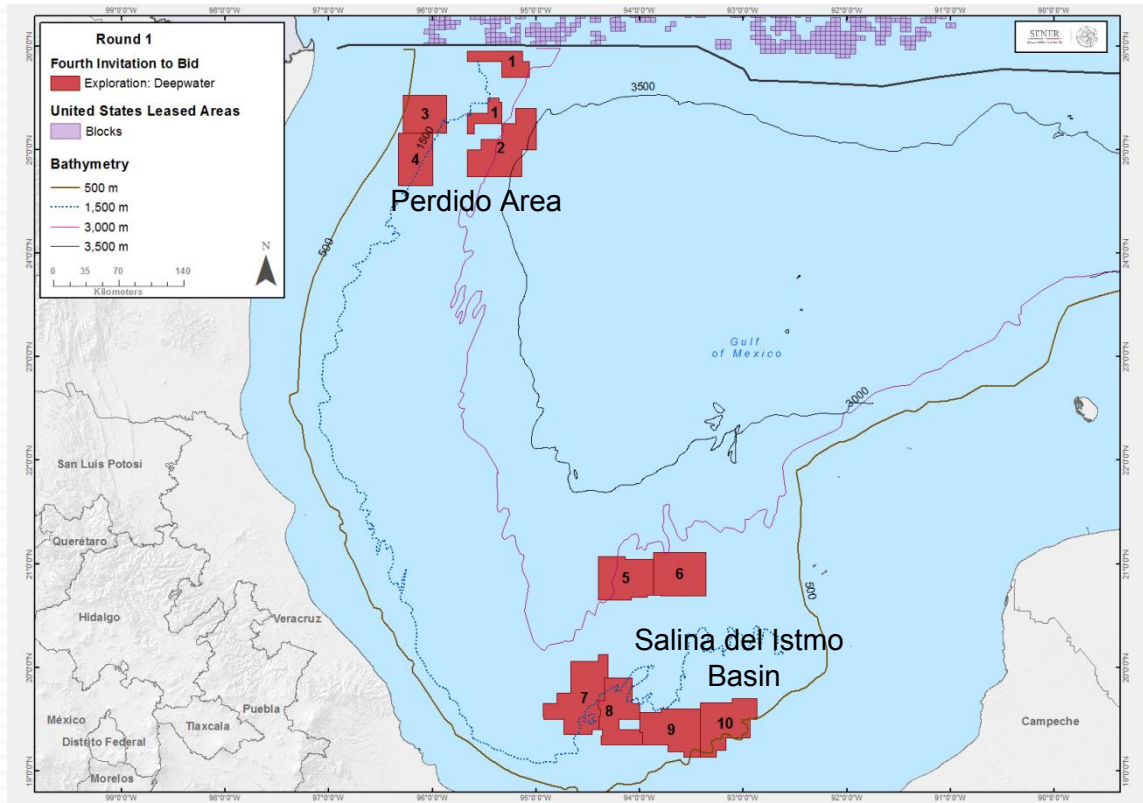
1. The **Operator** must demonstrate having:
 - a) **Equity of at least 2 billion USD**; or,
 - b) **Total assets** with a minimum value of **10 billion USD** and an investment grade credit rating issued in 2014 or 2015 (Fitch Ratings, Moody's Investors Service, or Standard & Poors, Rating Services).
2. The **Non-Operator** must demonstrate having:
Equity of at least 250 million USD.

*Mexico's new upstream contracting model is designed to **balance risks, attract investment** and access the **best available technology** as we move into frontier fields to stop the decline in oil and gas production.*

4th Bid:

Exploration in Deep Waters

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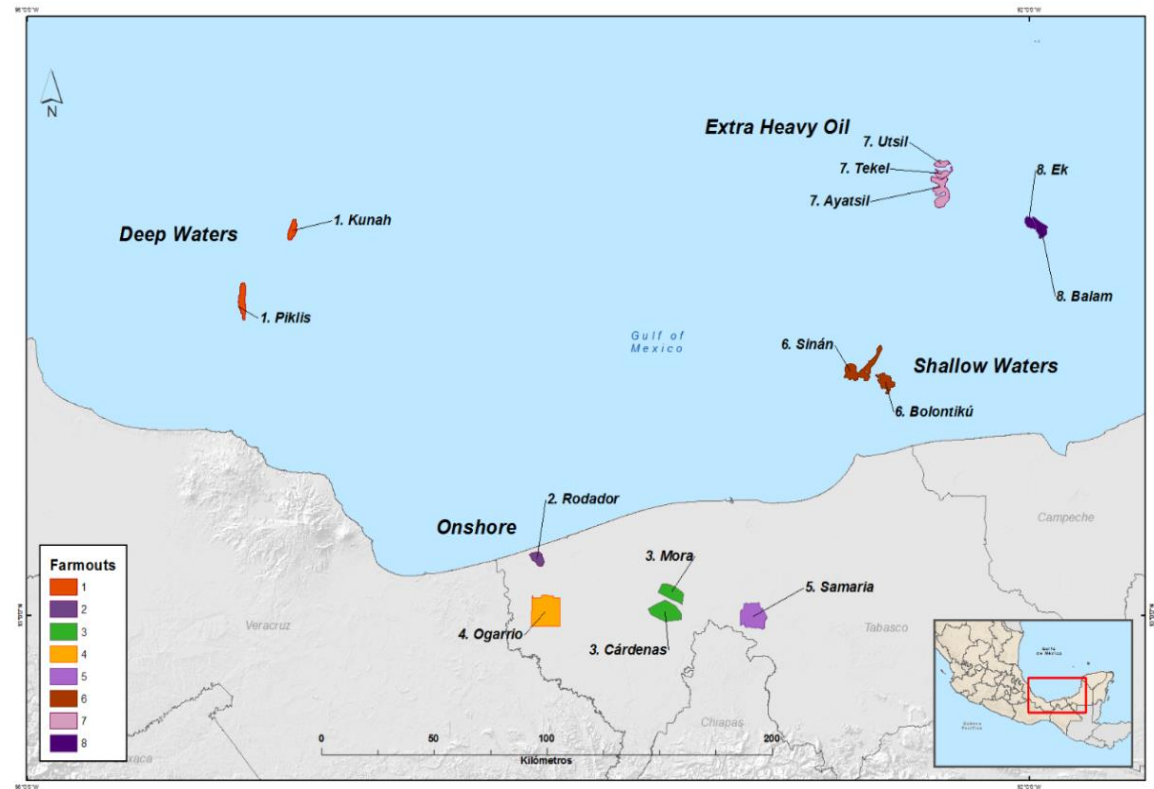


PREQUALIFICATION CRITERIA

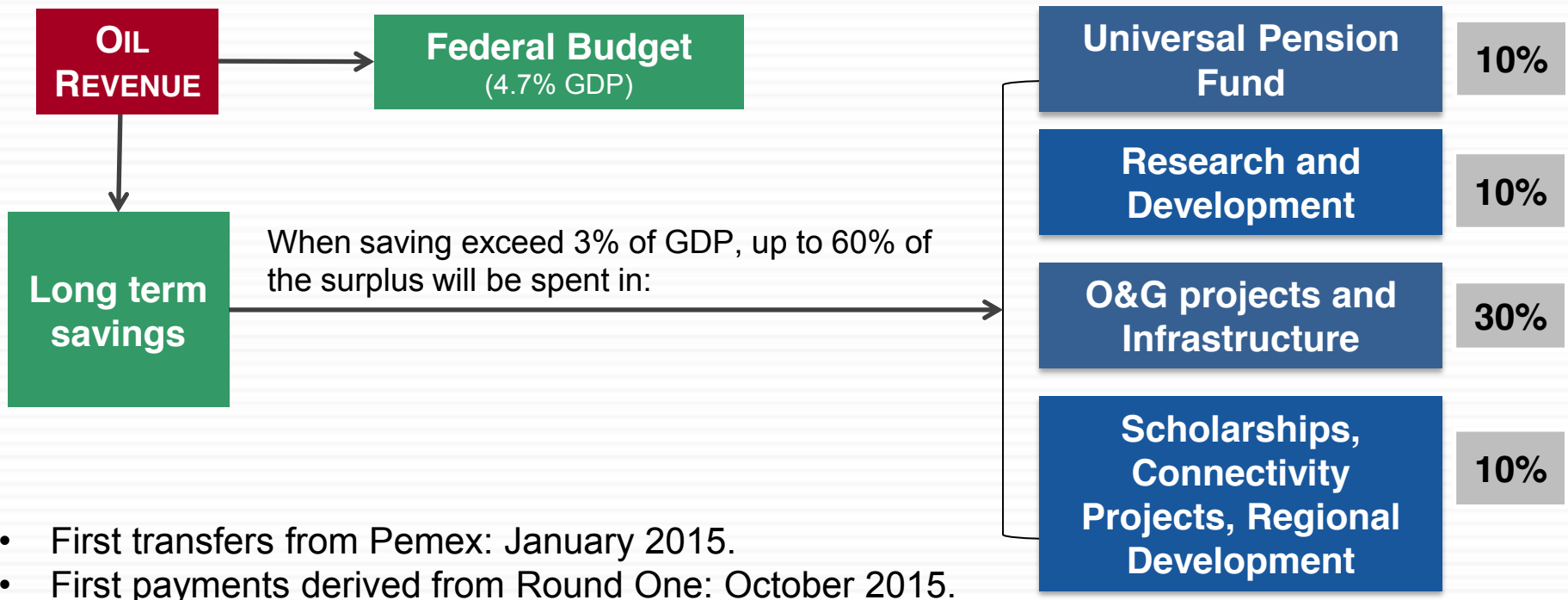
INVESTING IN MEXICO: PEMEX E&P PROJECTS

PEMEX can partner up with other companies through farm-outs to access the capital and technologies required to develop advanced projects.

- Pemex has requested to farm-out 14 assigned fields into 8 new contracts.
- The JOAs must include some non-negotiable terms in accordance to the Hydrocarbons Law (Art. 29).
- Partners will be selected through **bidding processes**.



The **Mexican Petroleum Fund** is designed to **optimize the use of Mexico's oil revenue** following unprecedented transparency and accountability standards, contributing to the **stabilization of Mexico's public finances**, and fostering **industrial and human development** in the **medium and long term**.



- First transfers from Pemex: January 2015.
- First payments derived from Round One: October 2015.

Financial information related to the Mexican Petroleum Fund is available at:

www.fmped.org.mx

INVESTING IN MEXICO: INTERNATIONAL CONTEXT



*Low oil prices **improve refining margins** and present opportunities to **invest in the expansion of Mexico's midstream and downstream infrastructure** to satisfy **domestic demand** and take advantage of regional opportunities in the **North American market**.*

Energy Policy

- Supply policy.
- Instruct the development of strategic and social projects.
- Opinion on the distribution network expansion.

Independent System Operator

- System management.
- Network operation.
- Bidding of strategic and social projects.

Coordinated Regulatory Entity

- Permits for pipeline transportation, distribution, storage, liquefaction, regasification, compression, decompression, retail and integrated systems management. .
- Service fees.
- Opinion on the bidding guidelines.
- Wholesale market regulation.
- Service terms and conditions.

Safety, Energy and Environment Agency

- Industrial and operational safety.
- Decommissioning and abandonment.
- Emissions and waste control.



State Productive Enterprises

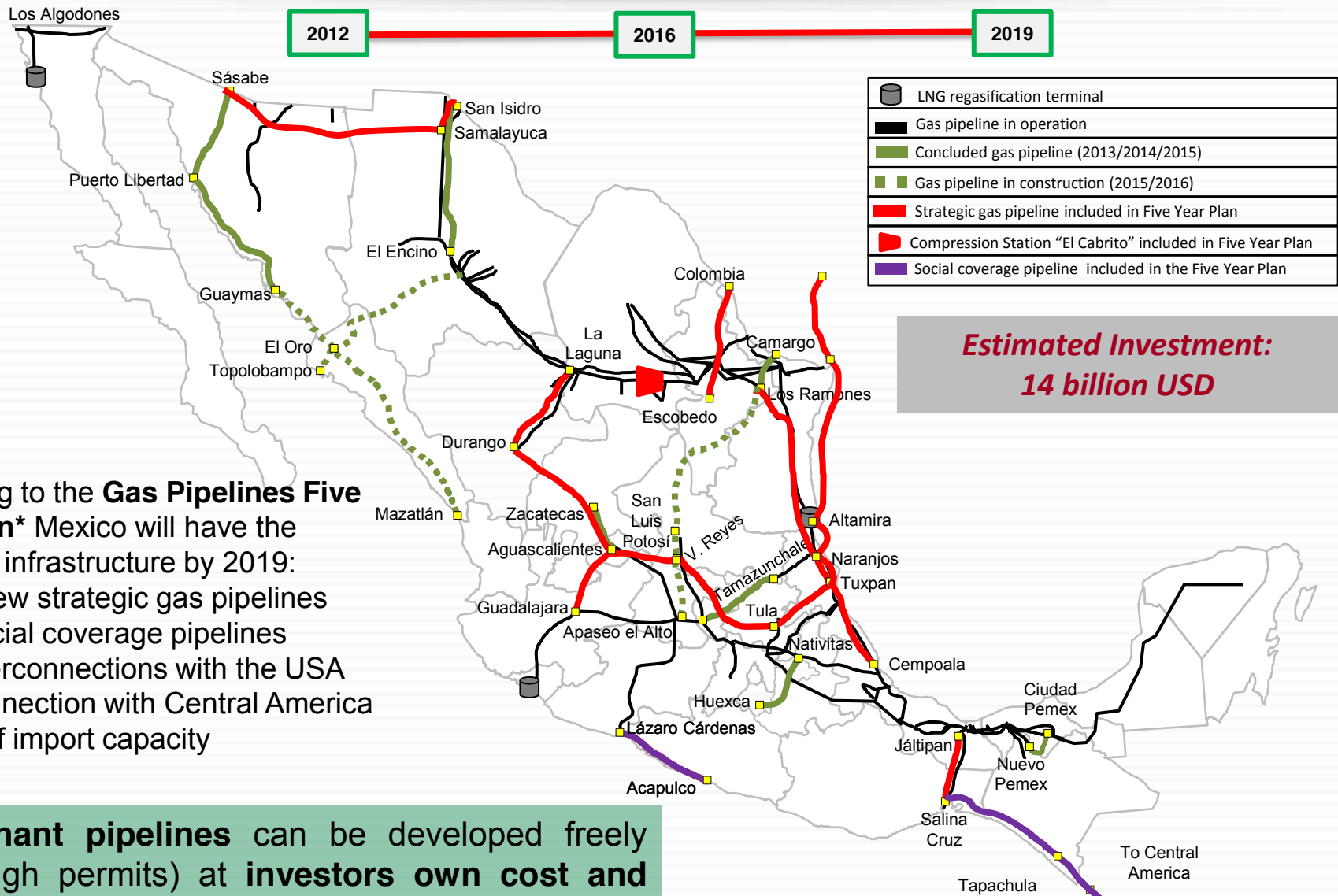
- Guarantee demand.
- Will bid strategic projects instructed by Sener until August 2016.



Private Companies

- Infrastructure development.
- Transportation and storage services.
- Natural gas commercialization.

EXPANSION OF THE GAS PIPELINE NETWORK (2012-2019)



According to the **Gas Pipelines Five Year Plan*** Mexico will have the following infrastructure by 2019:

- 10 New strategic gas pipelines
- 2 Social coverage pipelines
- 7 interconnections with the USA
- 1 connection with Central America
- 9 Bcf import capacity

Merchant pipelines can be developed freely (through permits) at **investors own cost and risk**, and are excluded from the Five Year Plan.

Energy Policy

- Industrial transformation and refining permits.
- Oil products import and export permits.
- Diagnosis of the oil products logistics' systems.
- Storage and supply policy.

Coordinated Regulatory Entity

- Gasoline and diesel storage, transportation and retail permits.
- Service fees.
- Wholesale market regulation.
- Open access to infrastructure guidelines.

Safety, Energy and Environment Agency

- Industrial and operational safety.
- Decommissioning and abandonment.
- Emissions and waste control.

State Productive Enterprise

- New projects.
- Pemex Logistics will operate existing transport and storage infrastructure under regulated tariffs established by CRE.



Private Companies

- Invest in and operate new projects, individually or in association with Pemex or other companies.

INVESTING IN MEXICO: MID & DOWNSTREAM



Storage baseline:

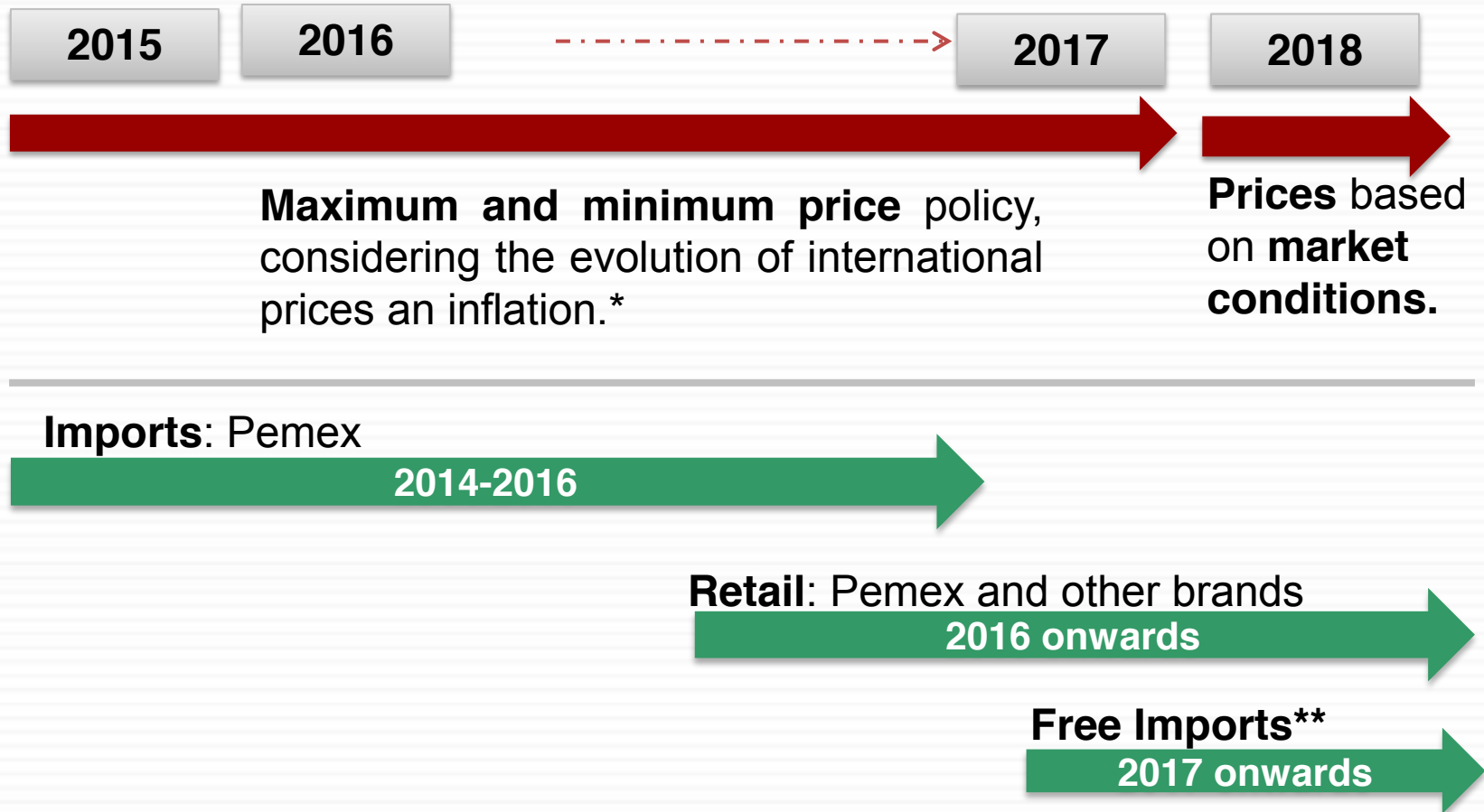
- 77 Storage and Distribution Terminals
- 5 Maritime Operation Terminals
- Nominal capacity: 30.5 Million barrels
- Useful capacity: 23.7 Million barrels

Mexico imports:

Petrochemicals 75%
Gasolines 53%
Diesel 38%
Jetfuel 34%
LPG 36%
Natural gas 40%

*The variety of **North American crudes** (light and sweet vs. heavy and sour) allows for the optimization of **existing regional refining infrastructure** to fulfill the current and growing demand for fuels and other oil derived products.*

MARKET LIBERALIZATION: GASOLINE AND DIESEL



* Fiscal and Federal Income Law 2016.

** Or sooner if market conditions allow it. (Transitory 14, II, Hydrocarbons Law).



DEVELOPING MEXICO'S NEW O&G INDUSTRY

Mexico has established a **Comprehensive Industrial Development Strategy** to foster the development of **new supply chains** aiming to transform Mexico's energy industry into a motor for **economic growth**.

The strategy includes a **Human Resources Development Program**, a key element to **capture, develop and retain talent** at the required speed. The Program includes:

- Scholarships
- Research Centers
- Training Programs
- Global partnerships (Universities, Research Institutes, Companies)
- Academic and professional exchanges



Through the modernization of the **Mexican Petroleum Institute**, Mexico aims to take advantage of existing knowledge and expertise, and establish **new partnerships to foster innovation** and the **deployment of state of the art technologies and services** throughout the value chain.

DEVELOPING MEXICO'S NEW O&G INDUSTRY

*Mexico's new energy model calls for the implementation of new advanced technologies to **access frontier fields, optimize existing and new processing infrastructure and reduce the environmental impact of the oil and gas industry.***



OPPORTUNITIES FOR RESEARCH AND DEVELOPMENT

UPSTREAM

- **Advanced** materials.
- Operations at **high pressure and temperature**.
- **Submarine corrosion** prediction, monitoring and controlling.
- High temperature differentials **insulating materials**.
- **Ageing polymers** analysis and **non-metallic materials** classification.
- **Welding** in extreme environments.

MID AND DOWNSTREAM

- Refineries **upgrading and optimization**.
- **Processes integration**: cogeneration, efficiency, linkage of refining and petrochemical facilities.
- **Low energy intensity bio-processes** for crude processing and waste management.
- **Environmental impact reduction**.

INVESTING IN MEXICO: THE NATIONAL ELECTRICITY SYSTEM

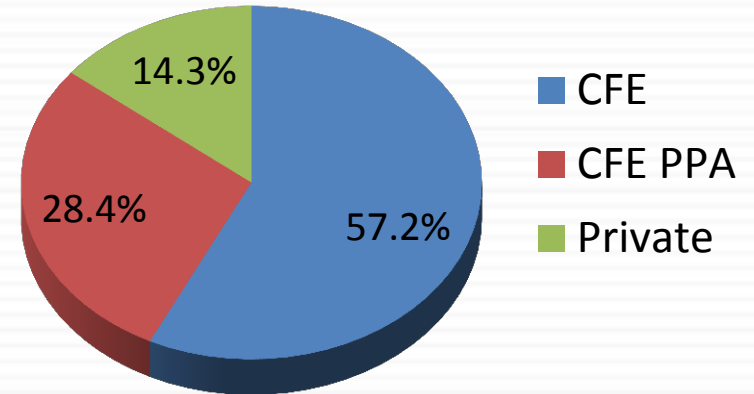
CONVENTIONAL
48,530 MW

CLEAN
16,921 MW

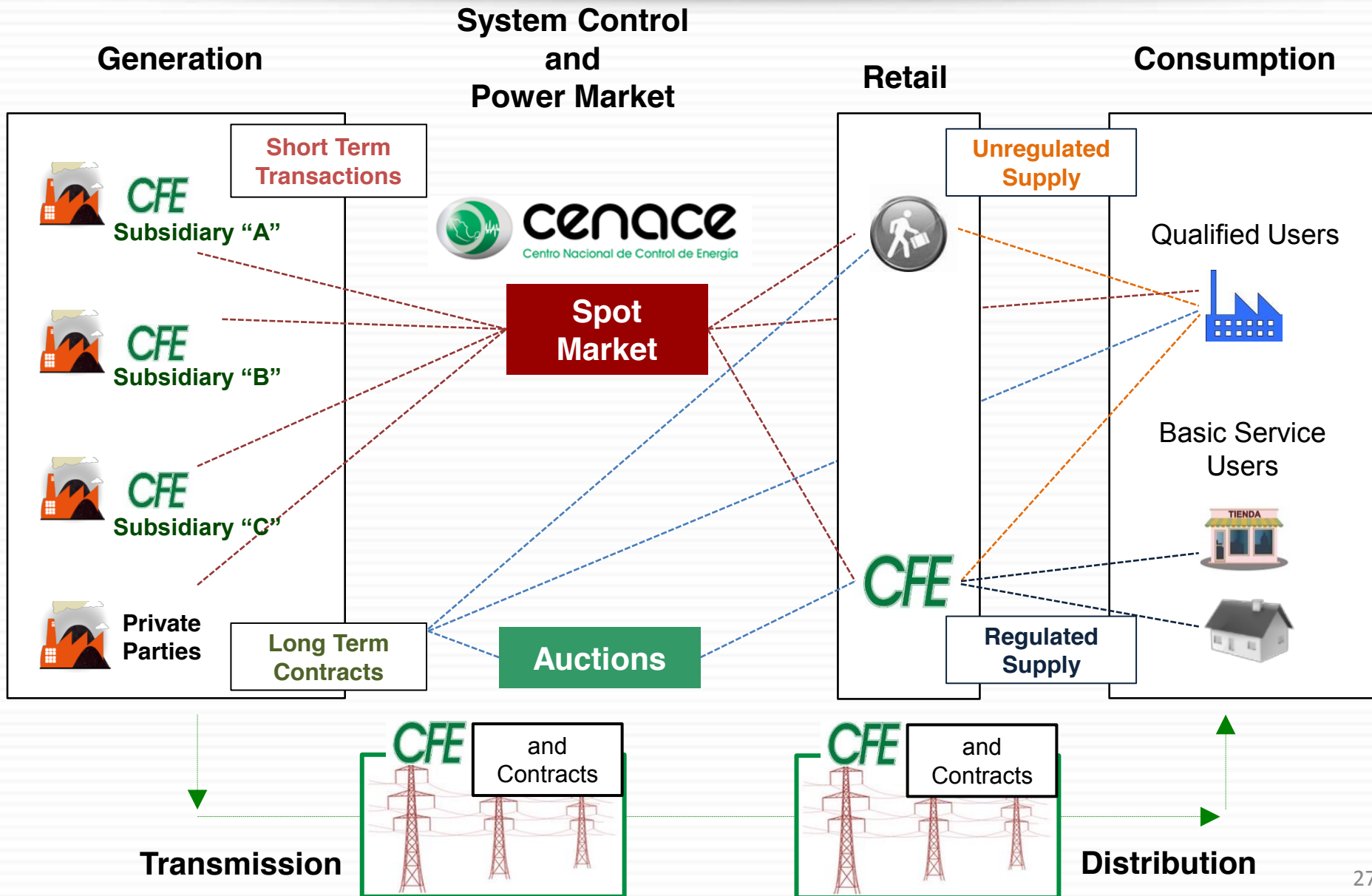
Generation Capacity (MW)	
Combined Cycle	23,309
Steam (Fuel Oil and Gas)	12,959
Coal	5,958
Simple Cycle	3,419
Internal Combustion	1,312
Multiple	1,573
Hydro	12,429
Wind	2,036
Geothermal	813
Solar	56
Nuclear	1,400
Biomass	180
Other	7
Total	65,452

Networks (km-c)	
400 kV	23,641
230 kV	27,543
Subtransmission (≥ 69 kV)	56,851
Distribution	683,226

GENERATION BY TYPE



INVESTING IN MEXICO: THE NEW MARKET STRUCTURE

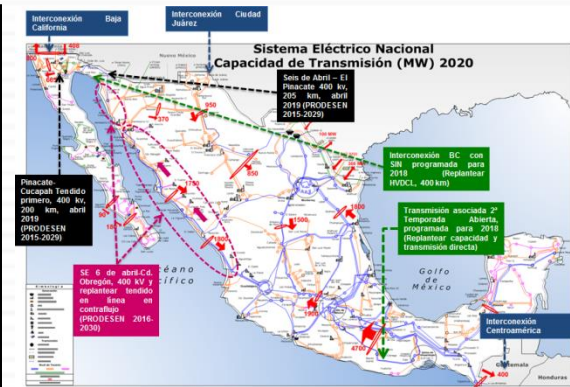
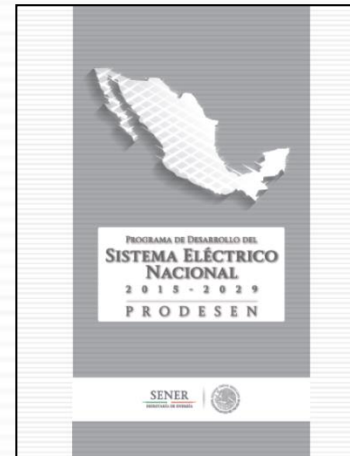


INVESTING IN MEXICO: INCREASING DEMAND FOR POWER

MEDIUM AND LONG TERM PLANNING

- CENACE sends the proposal.
- SENER develops and publishes the PRODESEN (Generation & Transmission Indicative Plan).
- New projects (CFE or PPPs).
- Equal access for all generators.
- Emphasis in areas with renewable energy potential.

FIRST PRODESEN: JUNE 30, 2015



REQUIRED INVESTMENT IN THE NEXT 15 YEARS*
(Generation, Transmission and Distribution)

**116 BILLION
US DOLLARS**

INVESTING IN MEXICO: GENERATION & TRANSMISSION

*Mexico will require **60 Gigawatts** of new installed capacity (90 Billion USD) in the next 15 years.*

- 44% Combined cycles (natural gas)
- 20% Wind power
- 13% Cogeneration
- 9% Hydro power
- 14% Others

New Generation Capacity, 2015-2029



25,000 km expansion of the national transmission network:

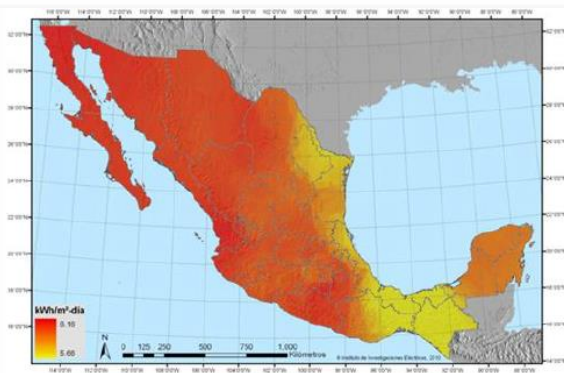
- Total Interconnection
- Interconnection with North and Central America

INVESTING IN MEXICO: CLEAN ENERGY POTENTIAL

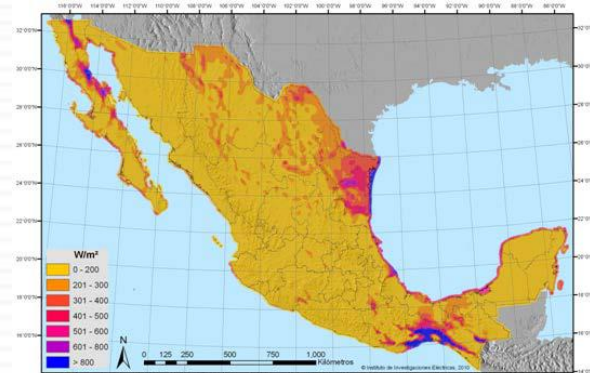
	Installed Capacity 2° semestre 2014 (MW)
Wind	1,900
Geothermal	823
Solar	64
Mini Hydro	419
Total	3,206

Renewable Energy Potential			
Actual Generation Year 2013 (% of total GWh)	Actual Generation + Proven Resources	Actual Generation + Proven Resources + Probable Resource	Actual Generation + Proven Resources + Probable Resources + Possible Resource
1.4%	5.3%	5.3%	34.8%
2.0%	2.2%	22.5%	40.0%
0.01%	0.6%	0.6%	2,189.4%
0.5%	1.7%	9.5%	24.4%
4.0%	9.9%	37.9%	2,288.6%

Solar Resources



Wind Resources



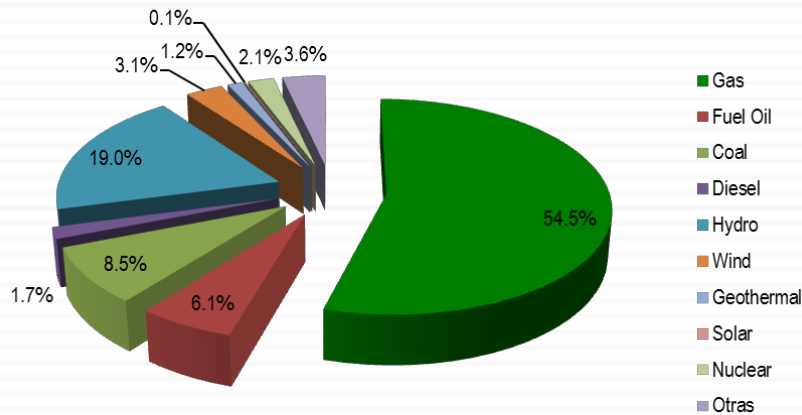
Geothermal Resources



INVESTING IN MEXICO: CLEAN ENERGIES

Long Term Goals:
*Mexico aims to achieve a **35% share of clean energies** from total generation capacity **by 2024**, **40% by 2035** and **50% by 2050**.*

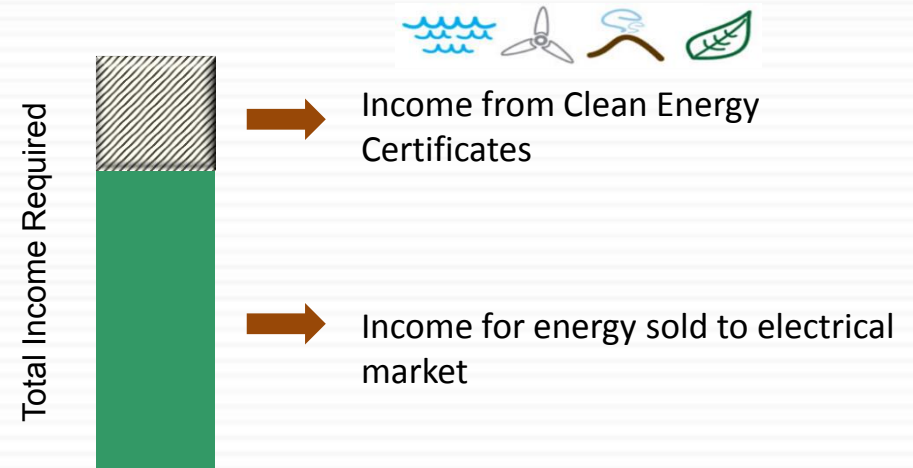
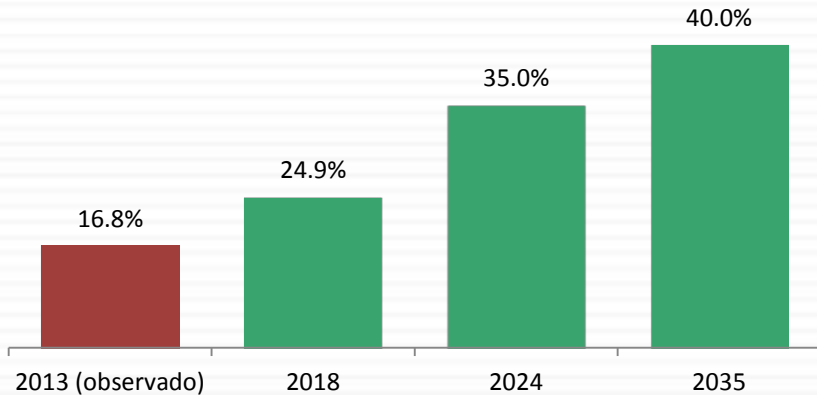
Capacity



Additional Clean Energy Capacity
2015 – 2029

Technology	MW	%
Hydropower	5,449.56	17%
Wind Power	11,952.15	37%
Geothermal	1,617.56	5%
Solar	1,822.45	6%
Efficient cogeneration	7,533.00	23%
Nuclear	4,070.00	13%
Bioenergy	107.60	0%
Total	32,552.32	100%

National Goals / Clean Energies
(% of Total Generation)

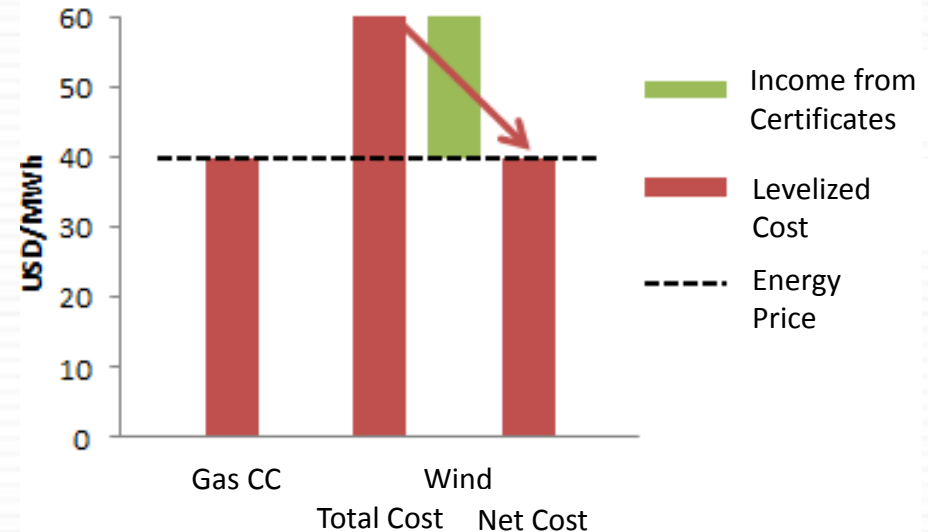


INVESTING IN MEXICO: CLEAN ENERGY CERTIFICATES (CEL)

OBJECTIVES

- Solve “missing money” problem for clean generators.
- Let the market make choices over technology (cost transparency).
- National goals will become individual obligations (use of CEL).
- Large consumers will have the obligation based on consumption.

Clean Energy Certificates



FEATURES

- CEL will become a stable revenue source for clean power producers.
- SENER establishes requirements to use a percentage of clean energy.
- Retailers fulfill their requirements by buying Certificates.
- CENACE and CRE operate market and verify compliance.

NEW INVESTMENT VEHICLES

Mexico's recently enacted **Structural Reforms** will boost investment and growth, allowing a broader investor base to participate in the development of key industries through **new investment vehicles**. These vehicles will allow investors to participate in the different stages of project development.

INVESTMENT OUTLOOK

**MACROECONOMIC
STABILITY**

**STRUCTURAL
REFORMS
GROWTH
OPPORTUNITIES**

**New Asset
Classes**

INVESTORS

**INSTITUTIONAL:
DOMESTIC AND
FOREIGN**

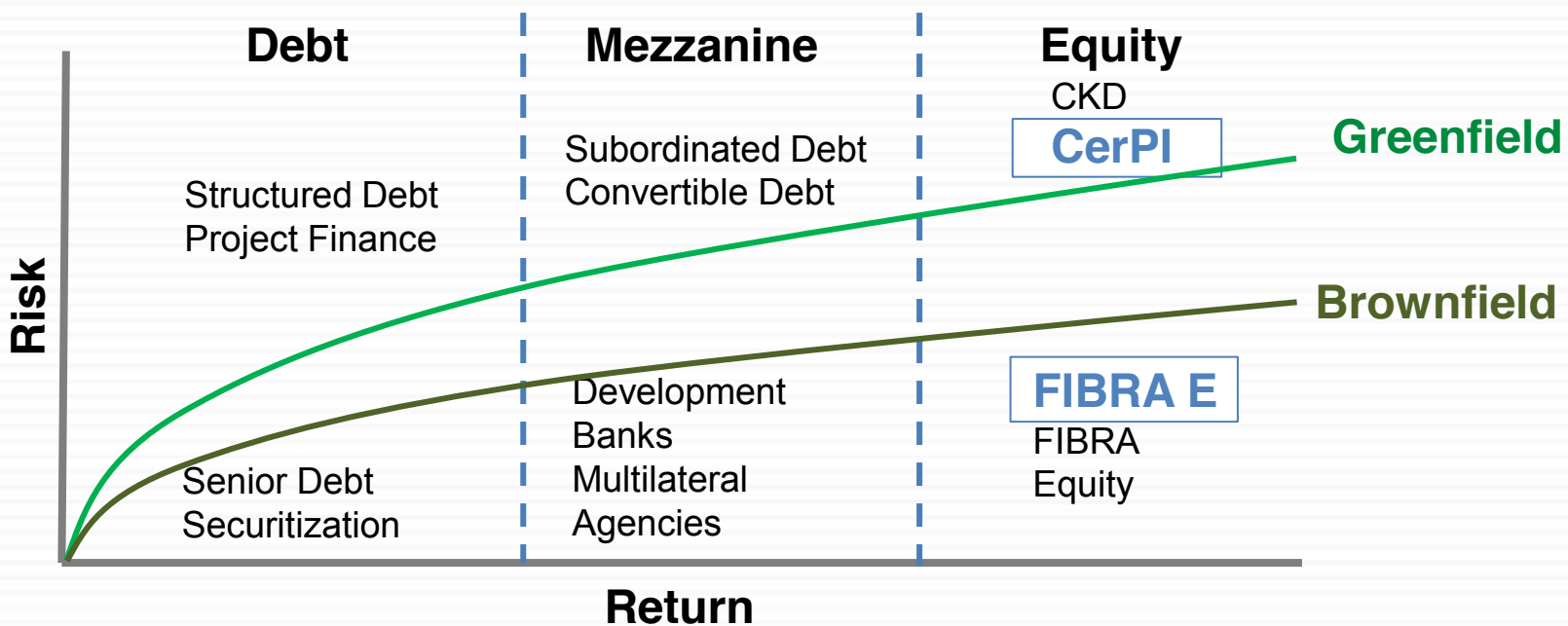
**RETAIL
INVESTORS**

INVESTMENT GROWTH

INVESTMENT VEHICLES TAXONOMY: RELEVANCE OF FIBRA E & CERPI

New investment opportunities need new financing vehicles.

- **FIBRA E**: Listed instrument that allows to **monetize stable infrastructure and energy cash flows** (brownfields assets), with a broad investor base (MLP like).
- **CerPI**: Private equity listed vehicle that can co-invest with local and external private equity structures in a traditional GP-LP framework.



FIBRA E: FEATURES & ADVANTAGES

MAIN FEATURES

Listed Security
(Corporate
Governance &
Transparency)

**Tax
Transparency**
No corporate
taxes (paid by the
investors)

FIBRA E
controlled by the
Sponsor (GP)

**Mature
Brownfield
Projects (>75%)**
(limited greenfield
investment <25%)

MAIN ADVANTAGES

**Enhanced
Valuation**
(Mature cash
flows and different
valuation
approach)

**Open investment
opportunities**
Exposure to
Mexico's
infrastructure

Access to the
benefits presented
by the **Energy
Reform**

**Minimum cash
flow distribution
requirements**

PEMEX, CFE, CENAGAS and private companies owning assets in the midstream, downstream, and power sectors can act as Sponsors of FIBRA E.

A new investment vehicle for private equity with flexible corporate governance, in line with private equity standards.

Designed to attract **top global asset managers** and alternative investment managers.

The vehicle will invest in a **wide range of industries**, with different risk exposures, combining resources of domestic and foreign investors.

Attractive for a broad base of **local and international Institutional Investors** (i.e pension funds, insurance companies).

Information transparency to adequately **align incentives** (managers, co-investors and investors).

Investment mechanism that allows **partnerships** with experienced global investment funds, managers and institutional investors.

MEXICO'S ENERGY REFORM: INVESTING IN THE TRANSFORMATION

*Mexico's Energy Reform presents opportunities for **private and public investment** that add to approximately **137 billion USD**.*

HYDROCARBONS

Round One

1st Bid: 2.7 billion USD

2nd Bid: 3.1 billion USD

3rd Bid: 1.1 billion USD

Natural gas transportation (by 2019)

Awarded, in bidding process or planning phase projects:

4.4 billion USD

Gas Pipelines Five Year Plan 2015-2019:

9.7 billion USD

ELECTRICITY

Power (by 2029)

Additional generation capacity (60GW):
90 billion USD

Transmission & Distribution (by 2029):

26 billion USD



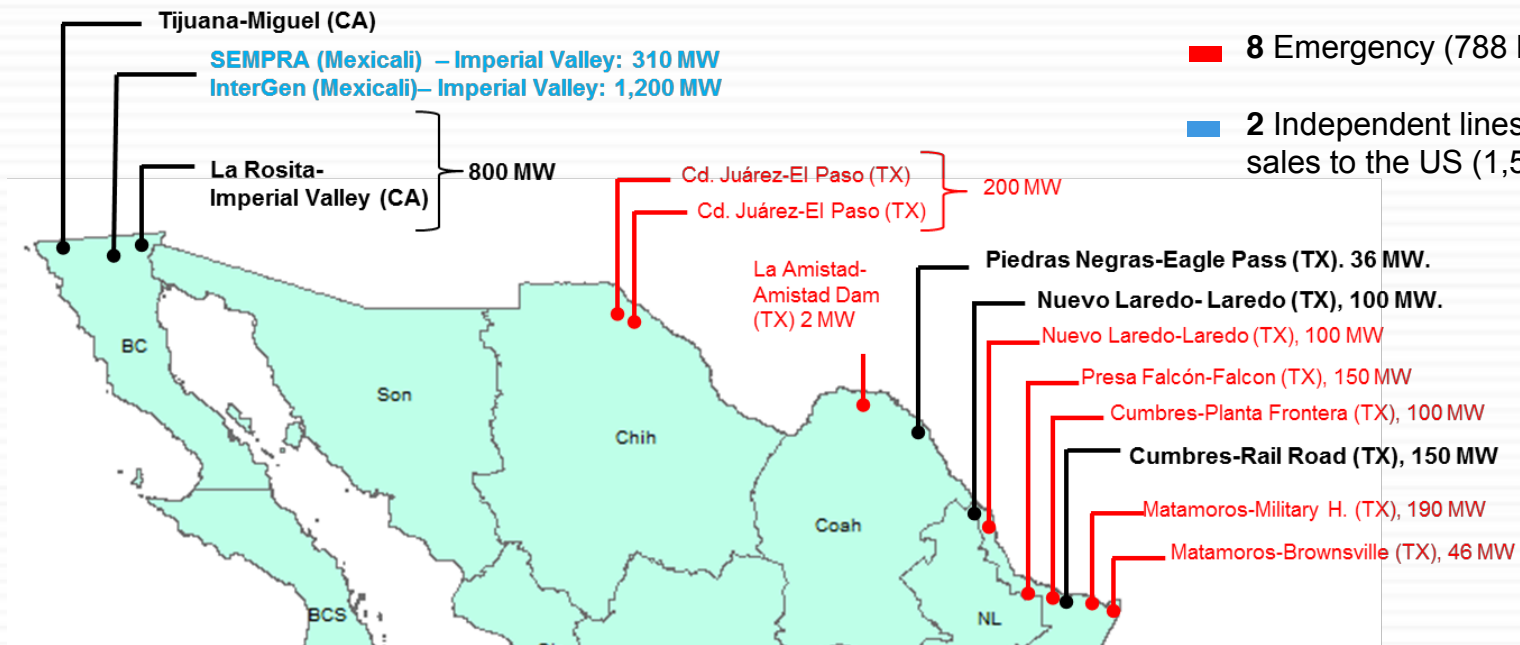
www.gob.mx/sener

www.ronda1.gob.mx

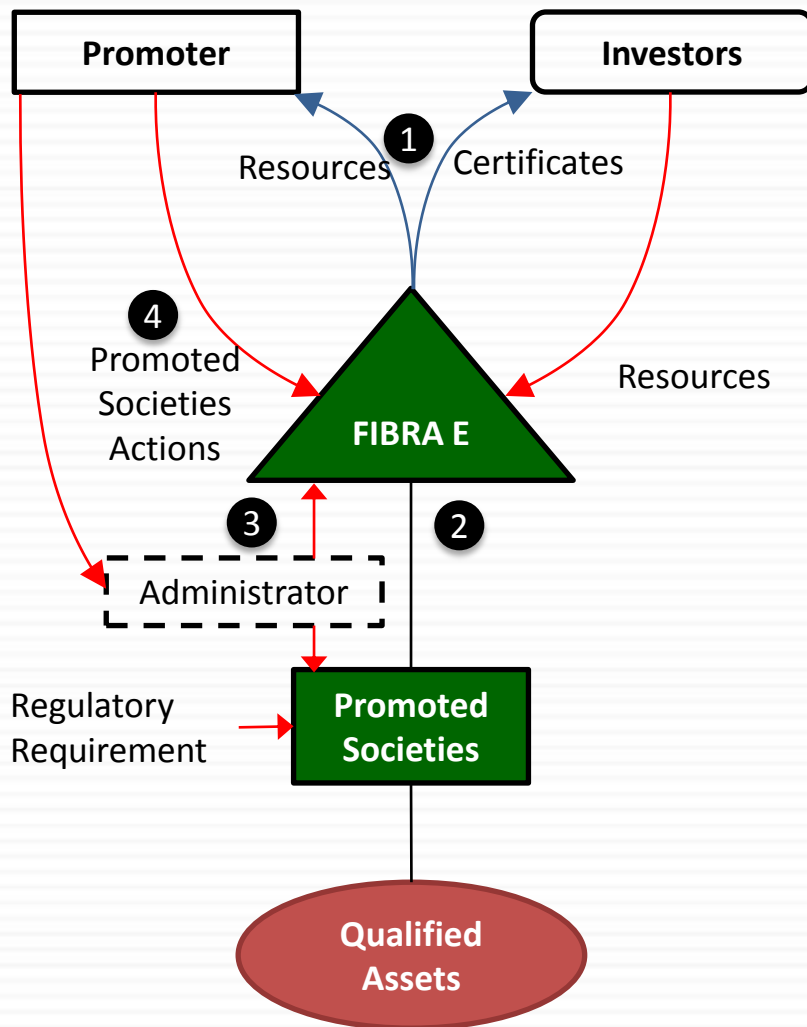
INVESTING IN MEXICO: REGIONAL POWER INTEGRATION

Existing interconnections:

- 5 Permanent (1,086 MW)
- 8 Emergency (788 MW)
- 2 Independent lines, excess power sales to the US (1,510 MW)



*Mexico's power sector has new tools to foster the development of **renewable energy projects**, this presents advantages to investors as companies in Mexico and the USA move to **fulfill recently approved clean energy objectives**.*



Operational Structure

1 FIBRA E issues certificates for participation on the capital of the Promoted Society.

2 The available revenue stream is periodically distributed between the certificate holders. The Administrator charges a management fee.

3 Once all the programmed revenue is distributed, the Administrator is entitled to a variable fee.

4 The promoter could continue to contribute more certificates of the original Promoted Society or from a different one (*drop-down*).

For international investors, there are several benefits regarding FIBRA E that arise from fiscal and securities regulation:

- ➡ **Integrated Structure**, involving a Trust and Commercial Corporations (Promoted Corporations).
- ➡ **Fiscal regulations** set specific requirements about basic investment purpose, type of income, registry obligations and compensation for the administrator.
- ➡ **Securities regulation** provides for basic requirements obligations/responsibilities of the structure's administrator, minor stakeholders rights and corporate governance.

SPECIAL PURPOSE VEHICLES (SPV)

Legal entities created for a specific purpose, like large project financing or acquisitions, while isolating from the parent company the risk arising from the transaction

Allows the parent company to send some of its risk to the vehicle.

This is made possible due to the vehicle acting as a separate legal entity.

Works as a cage isolating the financial risks of the company.

Risk Sharing

Makes it easier to raise capital, specially when the parent company's credit rating is bad: the SPV's rating is based on the quality of its assets.

Securitization

To unload from the loans and collectibles from the balance sheet (as the subprime loans market in the U.S.)

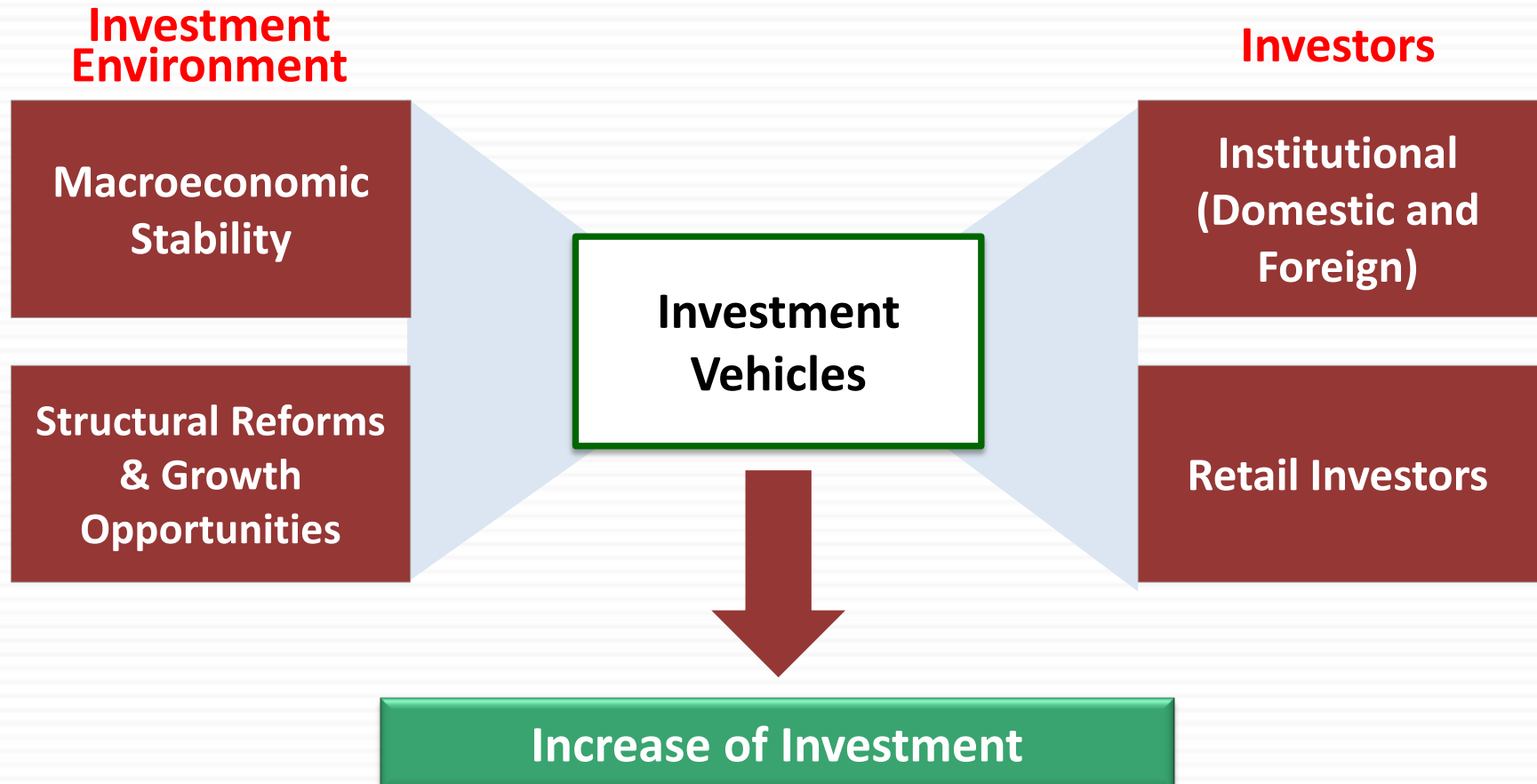
Raising Capital

Allows to finance a project without increasing the company's debt structure. Parent company can provide capital through third parties.

Financing

NEW INVESTMENT OPPORTUNITIES

Approved structural reforms allow investors to participate in new investment vehicles ensuring the development of strategic sectors that will detonate growth



Investment vehicle designed to monetize the revenue stream arising from mature energy and infrastructure projects; main objective is to create capital in order to finance new investments and to democratize access to new sectors.

Works as a **financing alternative** for the energy and infrastructure sectors.

Promotion vehicle for both sectors taking advantage of the regulatory changes arising from the Energy Reforms and infrastructure needs in the country.

This new investment tool **allows a flow of different type of investors** to energy and infrastructure markets.

Further development of the financial instruments market and an increase on the depth of the Securities Market.

Additional liquidity mechanism for investors focused on the development of infrastructure projects.

OBJECTIVES OF THE REFORM

Reform Objectives

- Reduce costs and rates
- More clean energy
- Spread the benefits



Reform Elements

- Industry Restructuring
- Competitive Market
- Clean Portfolio Standard
- Independent Planning



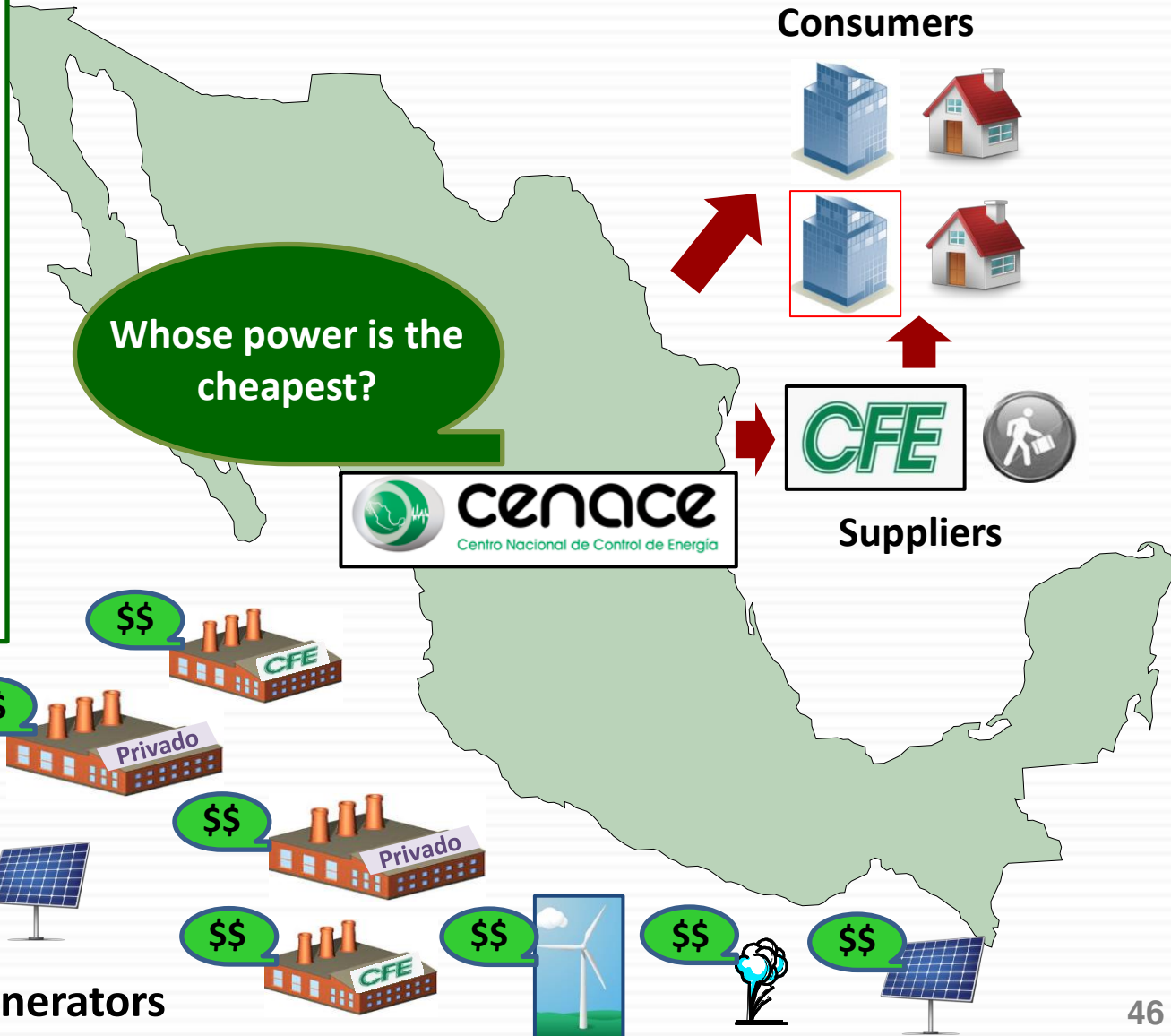
Reform Principles

- Incentives for value creation and efficient operation
- Decisions through competitive processes
- Open access and non-discrimination
- Promote Investment & Guarantee Transparency

NEW MEXICAN ELECTRICITY MARKET

Electricity Market:

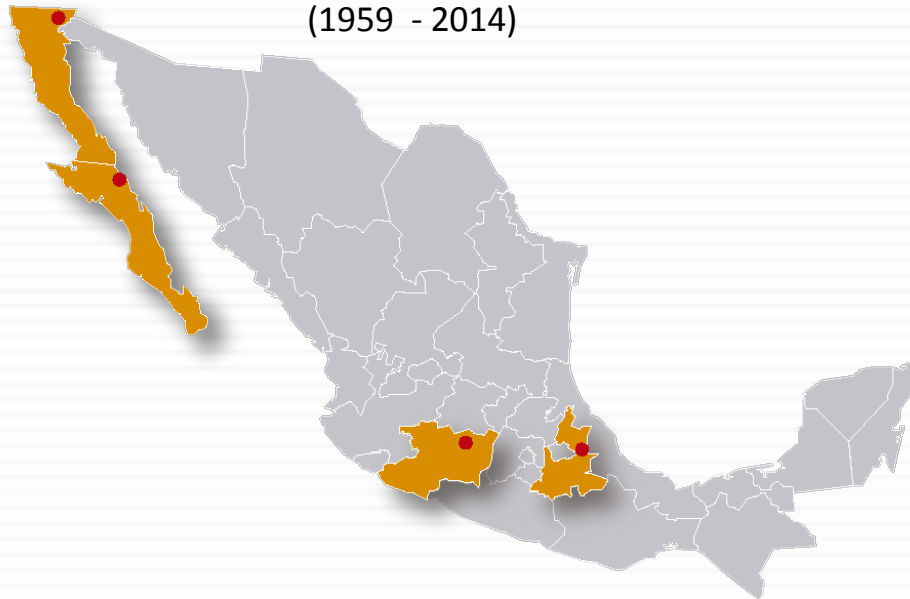
- Generators compete to sell electricity
- Users will have the freedom to choose who to buy from
- Suppliers will offer innovative products
- Promote investments



INVESTING IN MEXICO: 1ST GEOTHERMAL BIDDING ROUND

BEFORE THE REFORM

(1959 - 2014)

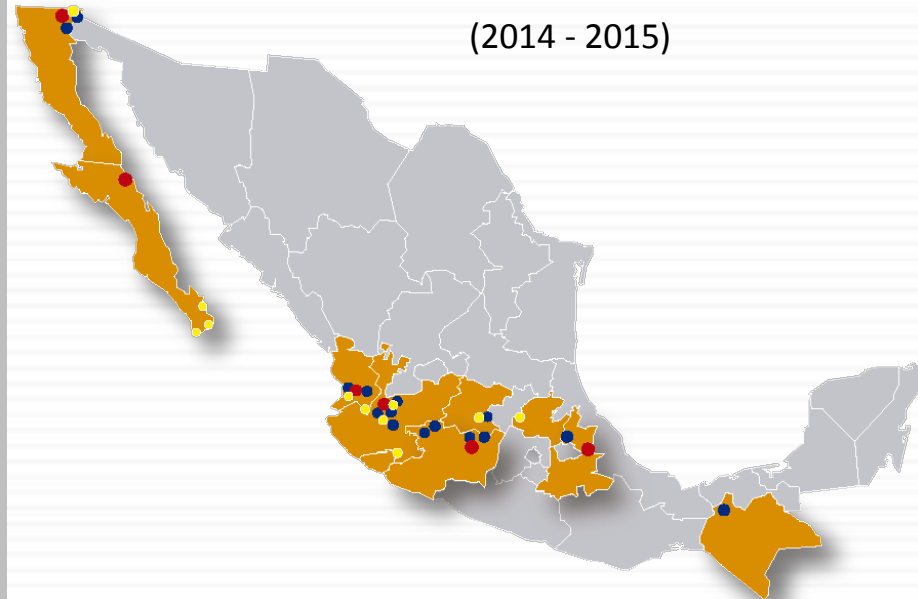


ONLY 4 GEOTHERMAL FIELDS IN
OPERATION

1 GENERATOR IN 4 STATES

AFTER THE REFORM

(2014 - 2015)



4 + 2 EXPLOITATION CONCESSIONS
50% INCREASE



15 EXPLORATION PERMITS



11 FILED REQUESTS UNDER EVALUATION

4 GENERATOR IN 10 STATES