

Agora  
Energiewende



# The Energy Transition in Mexico: Fundament for social inclusion and prosperity

*Side Event & Expert Workshop*



BERLIN  
ENERGY  
TRANSITION  
DIALOGUE  
2019

Energiewende – New Horizons

**8<sup>th</sup> April 2019, 2:00 pm – 5:30 pm**

**AGORA ENERGIEWENDE | ANNA-LOUISA-  
KARSCH-STRASSE 2 | 10178 BERLIN**



## Agenda

Time	Agenda
2:30 - 2:50	<b>Mexico in a nutshell</b> <i>Cecilia Reyes Retana</i> , Latin America Team, Agora Energiewende
<b>Part I: Analysis of Mexico's Status Quo in Terms of Fiscal Context and Energy Policy</b>	
2:50 - 3:10	<b>Fundament I: Evolution, Status and Challenges of Mexico's Fiscal Situation:</b> <i>Alejandro Limón Portillo</i> , Researcher at Centro de Investigación Económica y Presupuestaria (CIEP)
3:10 - 3:30	<b>Fundament II: Oil &amp; Gas in Mexico: Challenges &amp; Opportunities</b> <i>Mariza Montes de Oca León</i> , Researcher and PhD candidate DIW
3:30 - 3:50	<b>Fundament III: Status and Outlook of the Power Sector</b> <i>Juan Rosellón</i> , Professor-Researcher División de Economía -CIDE
3:50 - 4:10	<b>Discussion and Indicative Conclusions on the Status Quo</b>

Time	Agenda
4:10 - 4:30	<b>Coffee Break</b>
<b>Part II: Fundaments and Assumptions for a Socially Equitable Energy Transition</b>	
4:30 - 4:50	<b>Renewable Energy and Electrification: A New Development Plan for Mexico</b> <i>Daniel Chacón</i> , Energy Director at Iniciativa Climática de México
4:50 - 5:10	<b>Trends &amp; assumptions for a socially equitable energy transition in Mexico</b> <i>Philipp Hauser</i> , Senior Associate, Agora Energiewende
5:10 - 5:30	<b>Discussion and Closing Remarks</b>
5:30 - 6:00	<b>Networking Coffee</b>

## Agora Energiewende – Who are we?



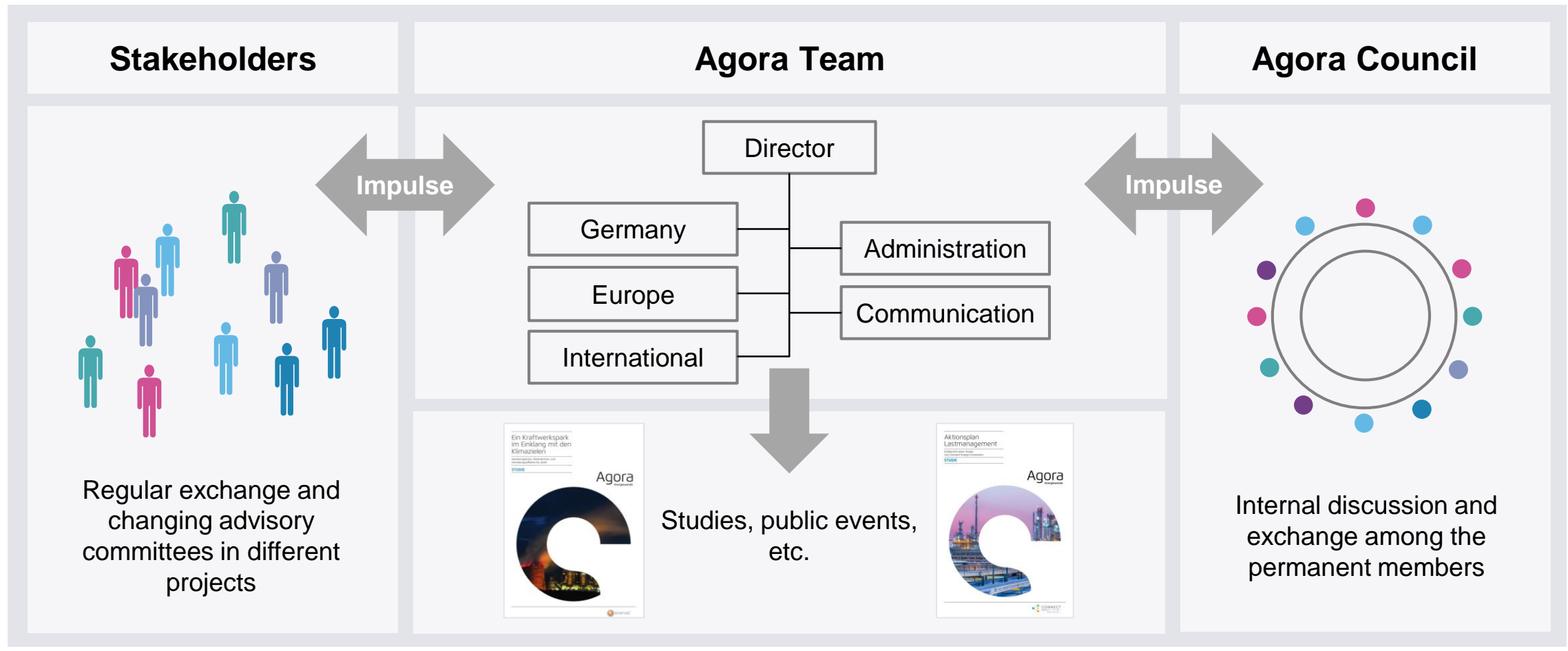
Agora is an independent Think Tank with more than 30 experts with diverse profile & expertise

Agora is financed by the Mercator Foundation & the ECF with a budget for 2012 – 2021

Mission: Ensure a successful energy transition in Germany & support our international partners

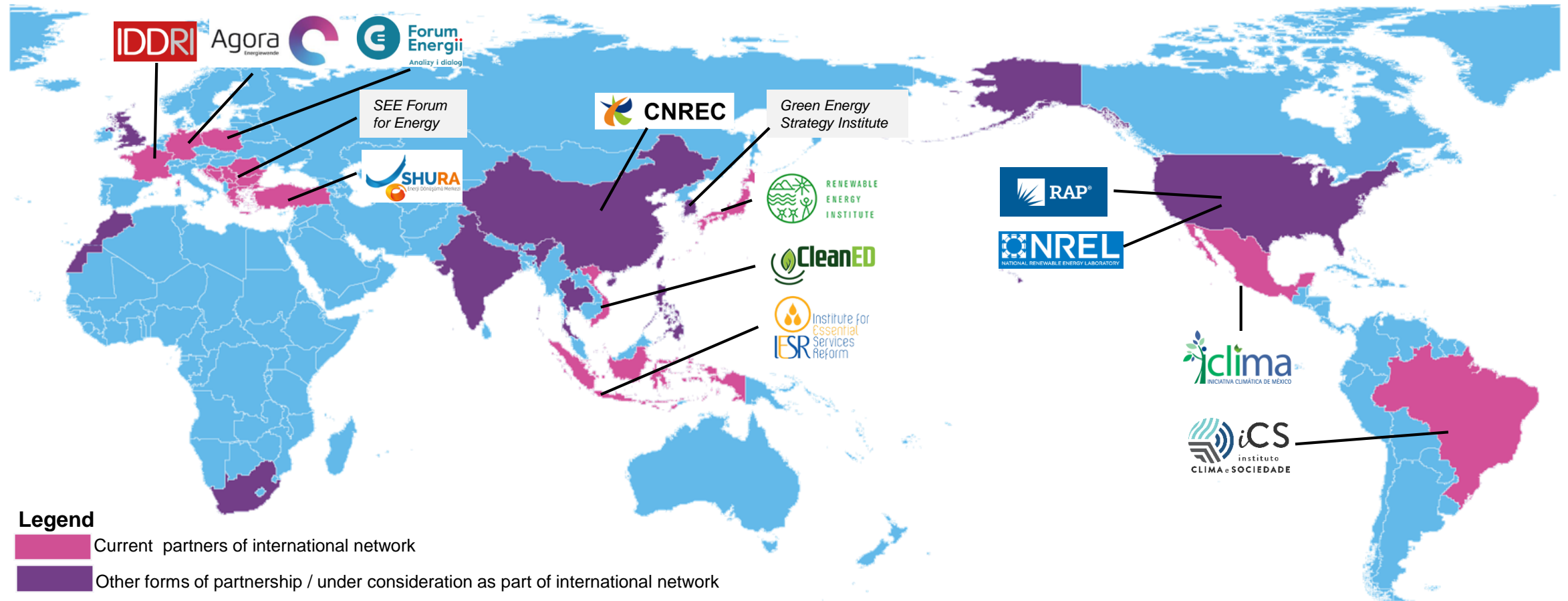
Method: Engage with stakeholders to define problems and use our expertise to develop solutions

## Agora Energiewende – The way we work







## Agora Energiewende – Our International Network






**More information and relevant studies available at our website  
[www.agora-energiewende.org](http://www.agora-energiewende.org)**

*La Energiewende en síntesis*  
10 preguntas y respuestas sobre la transición energética alemana  
**INFORME**

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Current and Future  
Cost of Photovoltaics  
Long-term Scenarios for Market Development,  
System Prices and LCOE of Utility-Scale PV Systems  
**STUDY**

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European Energy  
Transition 2030:  
The Big Picture  
Ten Priorities for the next European  
Commission to meet the EU's 2030  
targets and accelerate towards 2050  
**IMPULSE**

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# Mexico in a nutshell

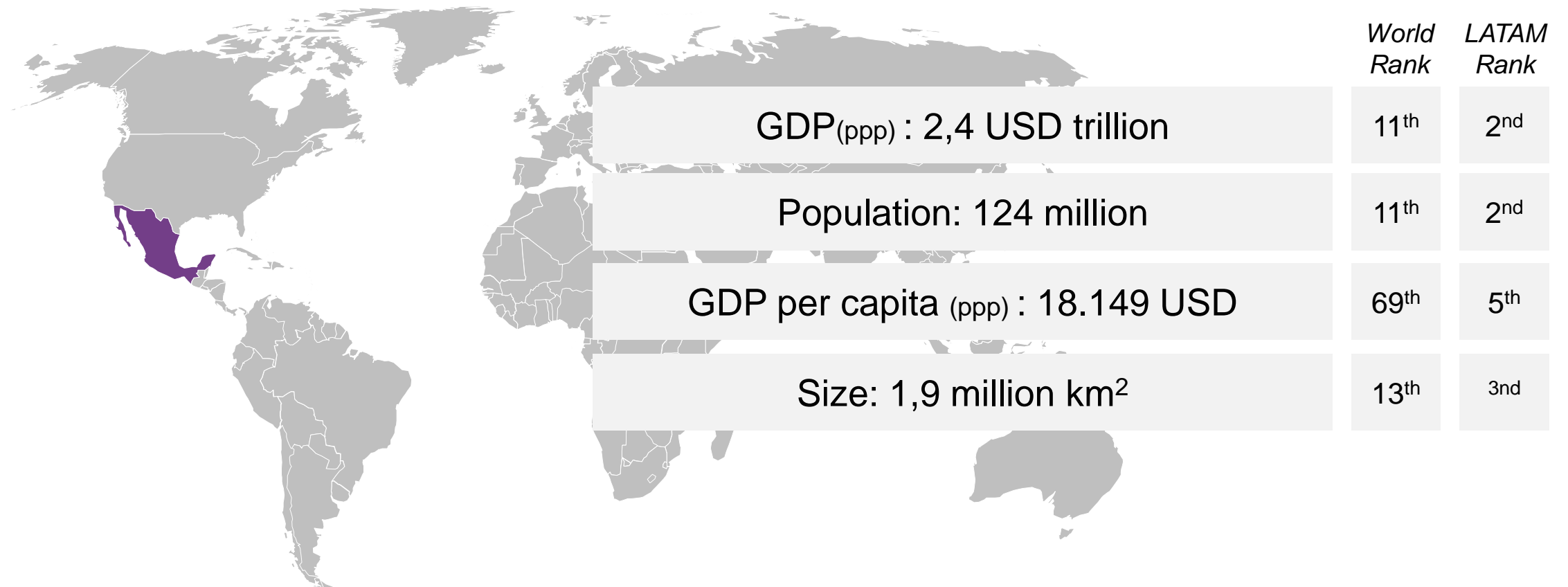
*Country Profile*

**Cecilia Reyes Retana**

**BERLIN, 08/04/2019**



# Mexico in a nutshell





# Some quick demographic and geographic facts



Growth Rate  
1.3%  
(156 million in 2050)



54 million  
people in labor  
force (12<sup>th</sup>)



Top 10 producer  
of 16 minerals



Median age 29  
years  
(2050 – 40 years)



79% urban areas  
(38% in cities > 1M)



12<sup>th</sup> forest cover  
(35% lost  
1994-2004)



Fertility rate 2.2  
(2.1 replacement)



Megadiverse (4<sup>th</sup>)  
200k species



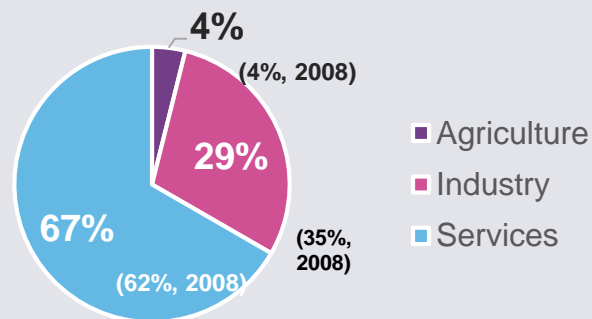
11% arable land

# Mexico is expected to keep growing and it is a relevant player in the international markets

## GDP Growth

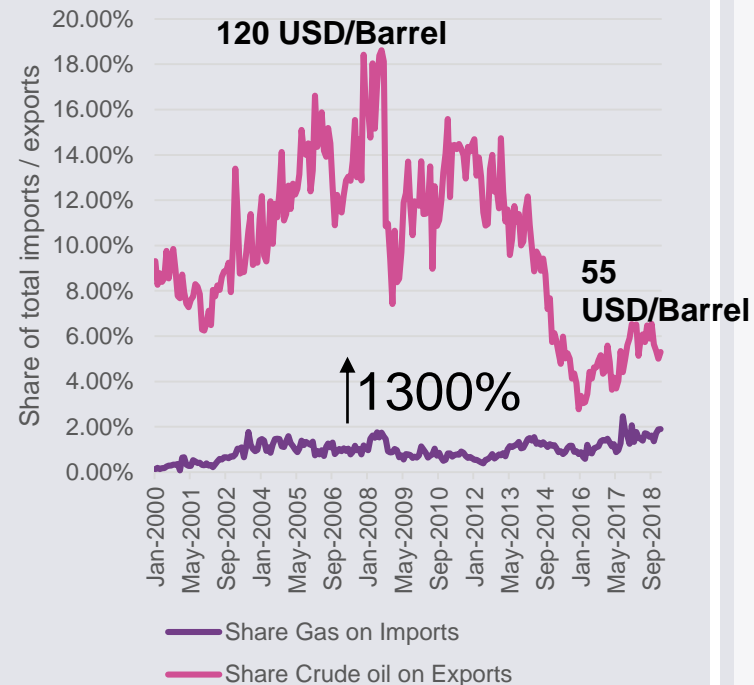
2.1% 2018, expected 2.5% 2019 (EMEs 4.7%)  
 2.6% average growth last five years  
 Growth rate expected to increase in 0.1 pp until 2030 (2.9%)

## GDP Composition by sector



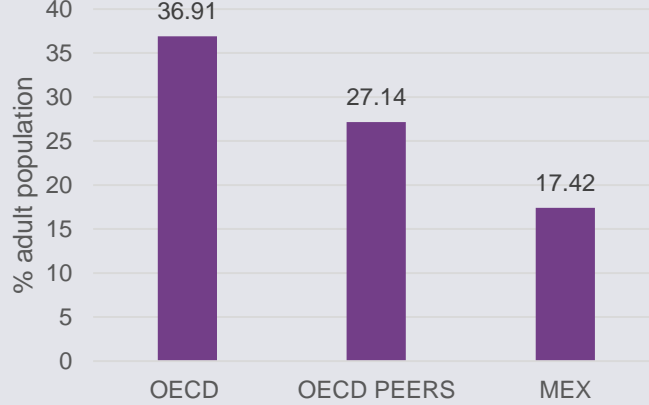
INEGI 2019

## Changes in the trade balance



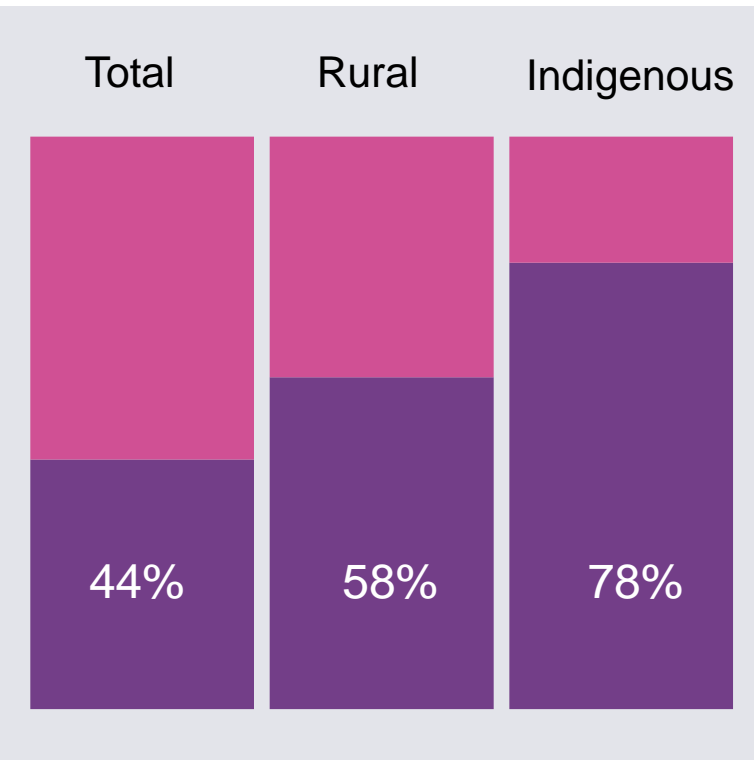
- 12<sup>th</sup> largest exporter in the world (409B USD)
- Exports are higher than the aggregated of the next 5 main exporters in LATAM (Brazil, Chile, Argentina, Colombia, Peru)
- 79% exports US → second largest source of US imports 13.7%
- 90% under 12 trade agreements. 46 Free trade agreements (most in the world)
- 14<sup>th</sup> largest importer in the world (420 B USD)
- 9 best countries to invest in 2019 (PwC)

# Mexico's growth is constrained by low labor productivity, high informal sector and workers low level of qualification

Labor productivity	Informality	Unskilled workers																		
 <table border="1"> <caption>GDP per Hours Worked</caption> <thead> <tr> <th>Country</th> <th>GDP per Hours Worked</th> </tr> </thead> <tbody> <tr> <td>MEXICO</td> <td>8.40</td> </tr> <tr> <td>OECD PEERS</td> <td>15.97</td> </tr> <tr> <td>OECD</td> <td>24.28</td> </tr> <tr> <td>GERMANY</td> <td>36.62</td> </tr> </tbody> </table>	Country	GDP per Hours Worked	MEXICO	8.40	OECD PEERS	15.97	OECD	24.28	GERMANY	36.62	<p>23% of GDP. It has remained stable for the past 10 years.</p> <p>56.8% of workers (30 million) in informality, includes subsistence agriculture.</p> <ul style="list-style-type: none"> <li>• 14 M in non-registered activities</li> <li>• 7 M in companies, industry or government</li> <li>• 6 M in agriculture</li> </ul>	<p>60% deficit of qualified workers (PwC)</p> <ul style="list-style-type: none"> <li>• 67% of Mexican CEOs find harder to hire workers in their industries</li> </ul> <p>Tertiary education</p>  <table border="1"> <caption>% adult population with tertiary education</caption> <thead> <tr> <th>Country</th> <th>% adult population</th> </tr> </thead> <tbody> <tr> <td>OECD</td> <td>36.91</td> </tr> <tr> <td>OECD PEERS</td> <td>27.14</td> </tr> <tr> <td>MEX</td> <td>17.42</td> </tr> </tbody> </table>	Country	% adult population	OECD	36.91	OECD PEERS	27.14	MEX	17.42
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OECD 2016	INEGI 2019	OECD 2017																		

# Mexico's growth is not distributed amongst its population, it is very unequal and poverty rates are very high

People living below the absolute poverty line



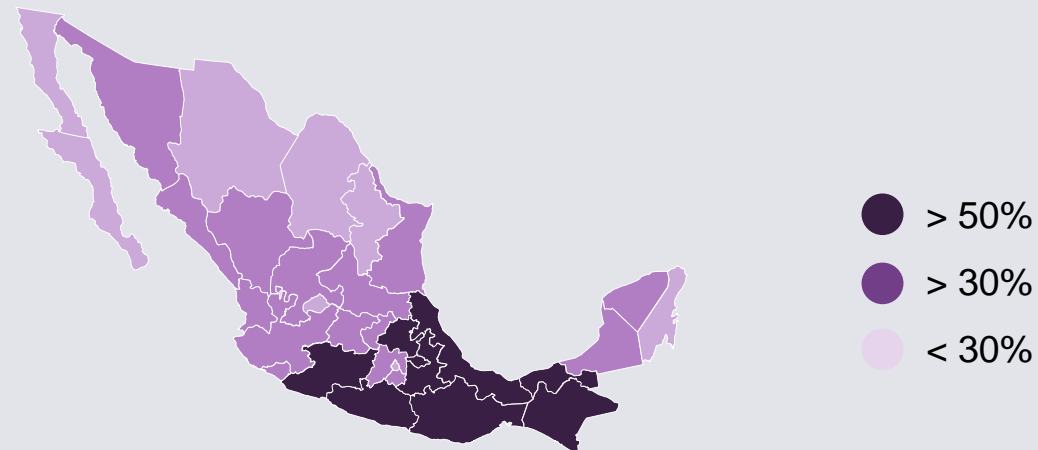
Coneval 2017

→ GINI index

- Mexico 0.51 → 0.49 after taxes and transfers (*Highest in OECD*)
- OECD 0.47 → 0.29 after taxes and transfers

→ Top 20% earn 10.4 times more than bottom 20% (*Highest in OECD, avg 5.4*)

People living below the poverty line by state

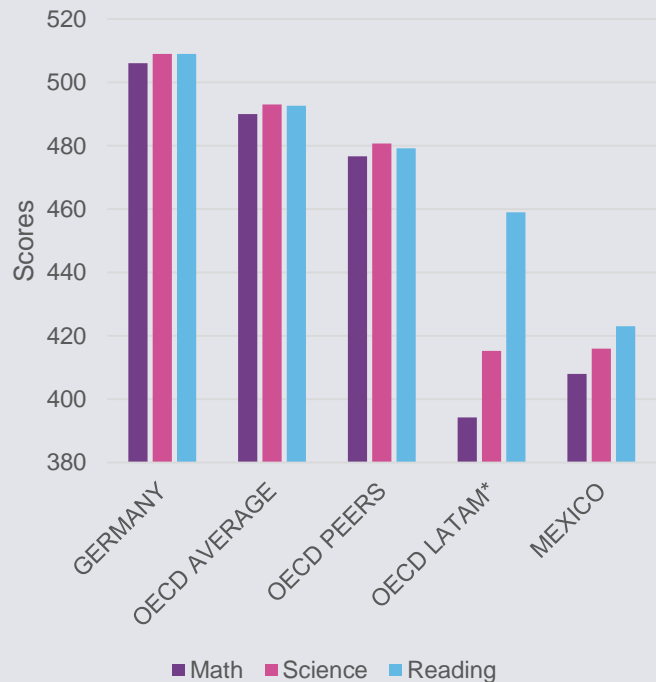


Coneval 2017

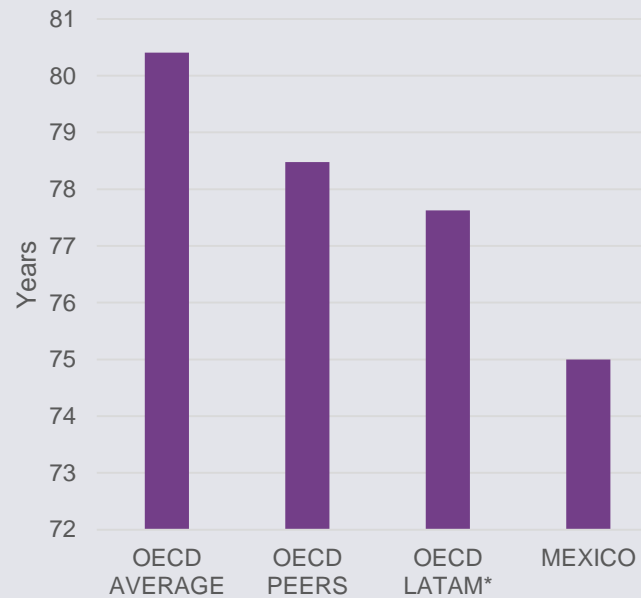


# Mexico underperforms in multiple social indicators, even compared with OECD peers or LATAM countries

Education: PISA Performance



Health: Life Expectancy



Corruption & Organized Crime

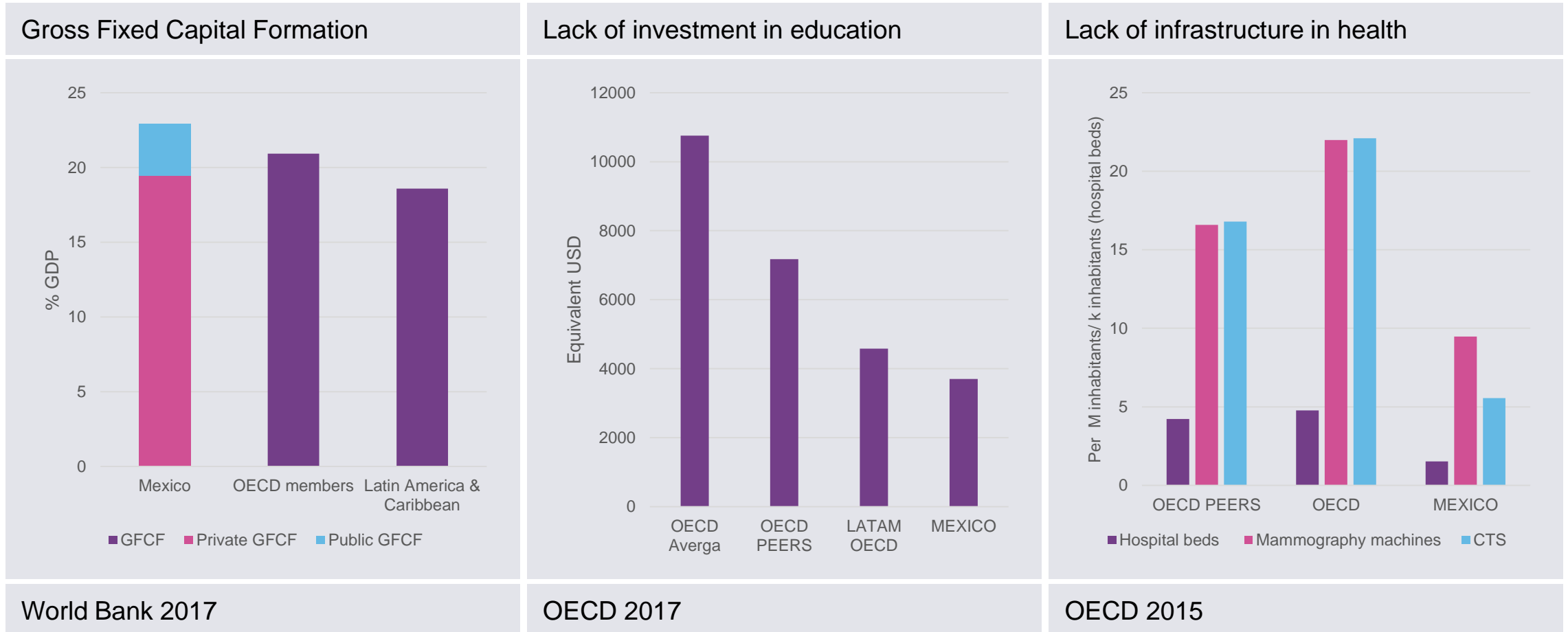
138 of 180 in the Corruption Perception Index 2018 by Transparency International

- Worst performer of OECD
- 5<sup>th</sup> worst in LATAM

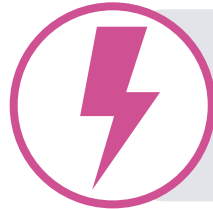
134 of 137 in WEF Competitiveness Report for Organized crime and 131 Business costs of crime and violence

OECD 2018, WEF 2018

# Investment in Mexico is high, but there is a gap in social investment



# Some quick facts about the energy trends in Mexico



Energy demand  
grew by 25% (2000-  
2016)



Electricity  
consumption grew  
by 60%  
(2000-2016)



Energy intensity  
improved 7%,  
OECD 21%



Per capita energy  
demand 40% lower  
than OECD



Energy demand for  
transport 45%  
OECD 37.5%



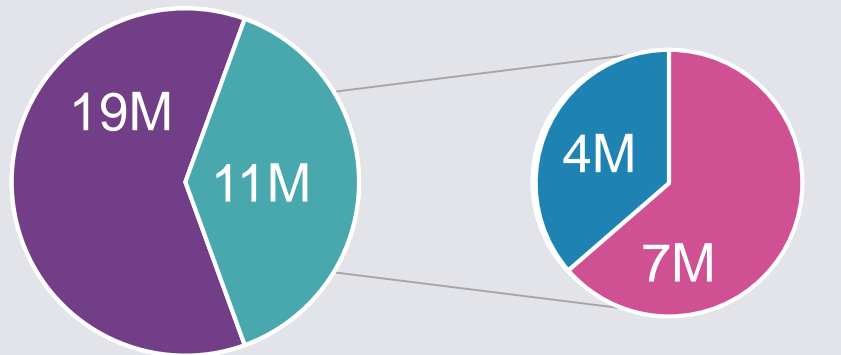
Residential electricity  
demand pc 75% lower  
than OECD average



Highest share of oil  
in primary energy  
supply among all  
major economies

# Low electric consumption relates closely to poverty and inequality

## Poor & Energy poor Households



- Do not suffer from energy poverty
- Energy poverty
- Not captured by multidimensional poverty
- Captured by multidimensional poverty

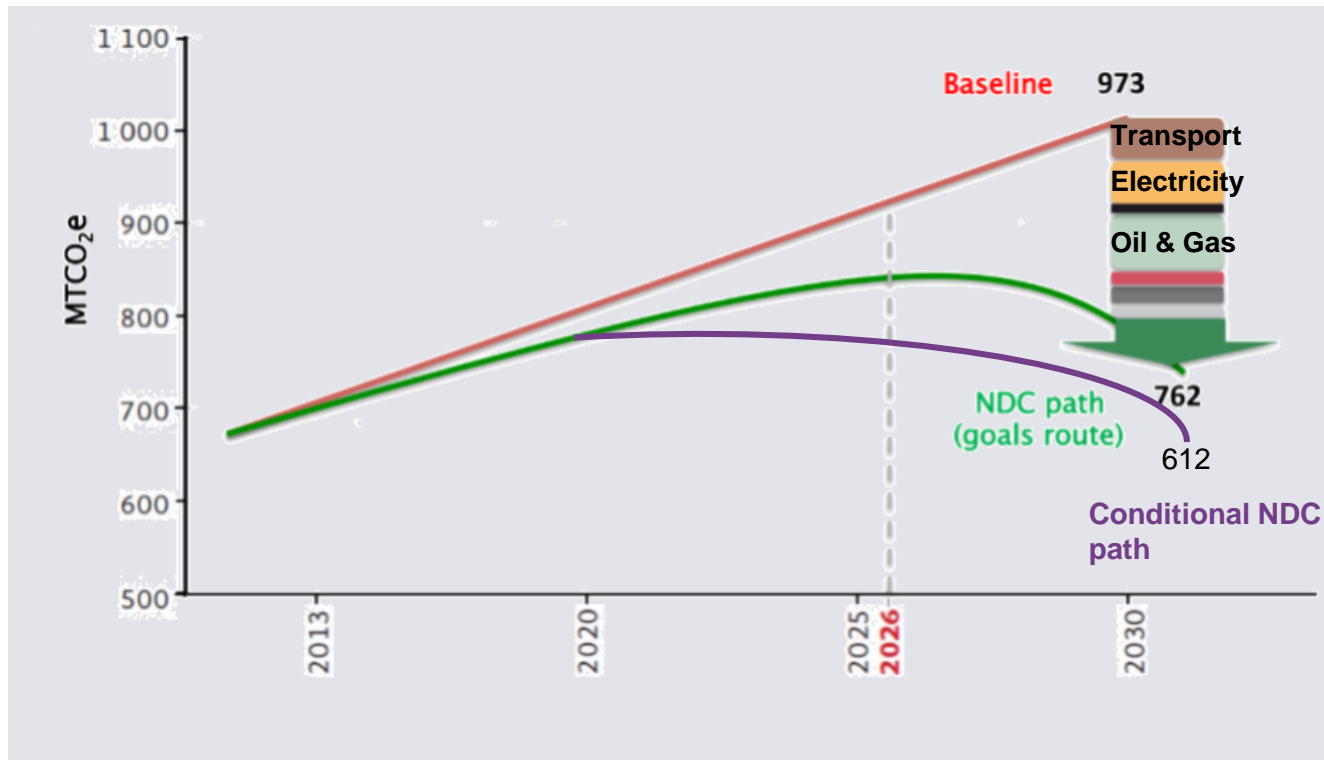
Garcia-Ochiam & Graizbord (2016)

- 98.7% electricity coverage
  - 240,000 inhabitants live in regions without electric access
  - However, 320,000 households do not have electricity
- Energy poverty is not considered as part of the multidimensional poverty measure by CONAPO
  - Relative deprivation: lightning, refrigeration, thermal comfort, entertainment, water heating & cooking



# Mexico set important clean energy targets under the Paris Agreement

BAU vs NDC Path



INECC 2016

- Under the Paris Agreement, Mexico committed to reduce by 2030 its GHG emissions in 22% and the carbon intensity of the GDP in 40%
- In the energy sector, Mexico aims to achieve 35% clean energy, which includes nuclear and cogeneration by 2024, and 43% by 2030, reducing 30% of GHG emissions from the power sector
- If we consider **conditional commitments**, an extra emission reductions of 14% than in the unconditional pledges. Conditional commitments depend on international cooperation with technological transfers, access to carbon finance and international carbon markets.

## Another key aspect of the Mexican Energy Sector was the long-awaited 2013 Energy Reform

- 2013 Constitutional reform that allowed for the first time in 75 years private and foreign investment throughout the value chain of the Energy Sector

### 2013 Reform: Oil & Gas

- Pemex “Productive State Company” (EPE),
- Pemex allowed to sign licenses, shared production contracts, profit-sharing contracts and service contracts
- Bidding rounds for upstream
- Oil Stabilization Fund → increase transparency and fiscal discipline

### 2013 Reform: Power sector

- Private participation in all the value chain
- Generation became a competitive activity
- CFE as EPE and separated vertically and horizontally to avoid monopolistic behavior.
- The system operation was transferred from CFE to CENACE

- Strong regulatory bodies & system operators: CRE, CNH, ASEA, CENAGAS, CENACE

## New political environment

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- December 2018 – New government under **Andrés Manuel López Obrador**
- Leftist platform
- **Won with 52% of votes.** Highest since Mexico has real electoral competition
- MORENA, AMLO's party, has a **simple majority in both houses of congress**
- 100 days of government – **rate of approval 80%**
- Objectives: Social equality, prosperity and fighting corruption
- Promote a **new economic model** based on welfare, productivity, Strong Internal Market, Fair Wages, Strong SMEs, International Competitiveness and the state as a guide of investment
- Criticizes the 2013 Energy Reform arguing that it has **reduced the role and capacity of the state monopolies PEMEX and CFE**, endangering energy sovereignty & that the **benefits have not reached most of the population**



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# Thank you for your time!

Questions or Comments? Feel free to contact me:  
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Agora Energiewende is a joint initiative of the Mercator  
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