



# Towards a North American Renewable Energy Market

Leonardo Beltran, MPA/ID

CEC-JPAC Session  
Toronto, April 18, 2012

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# Content

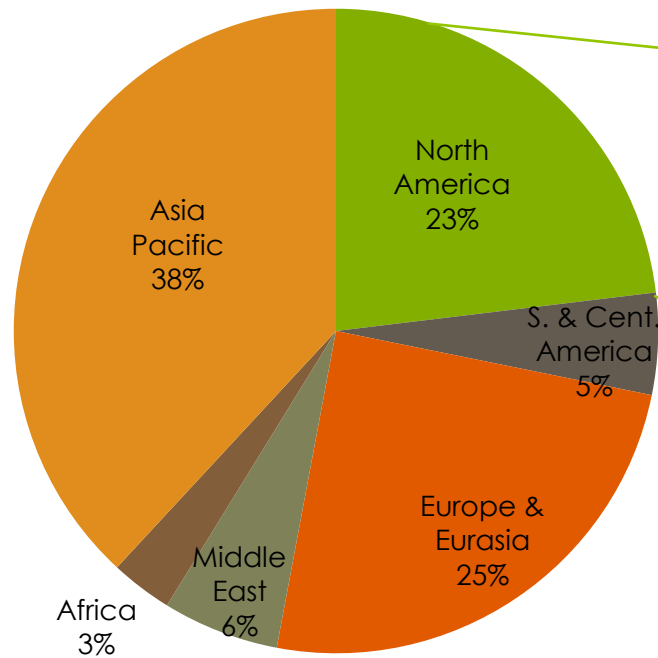
- 1.- Energy picture
- 2.- Mexican regulatory energy framework
- 3.- Prospects for North America

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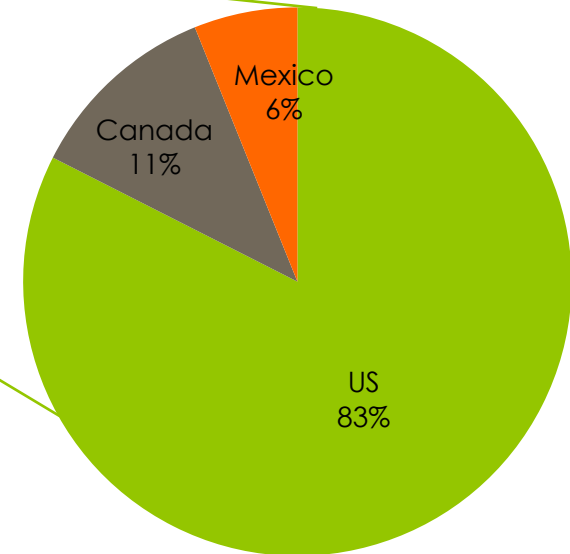
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## Primary Energy Consumption\* (2010)

### World



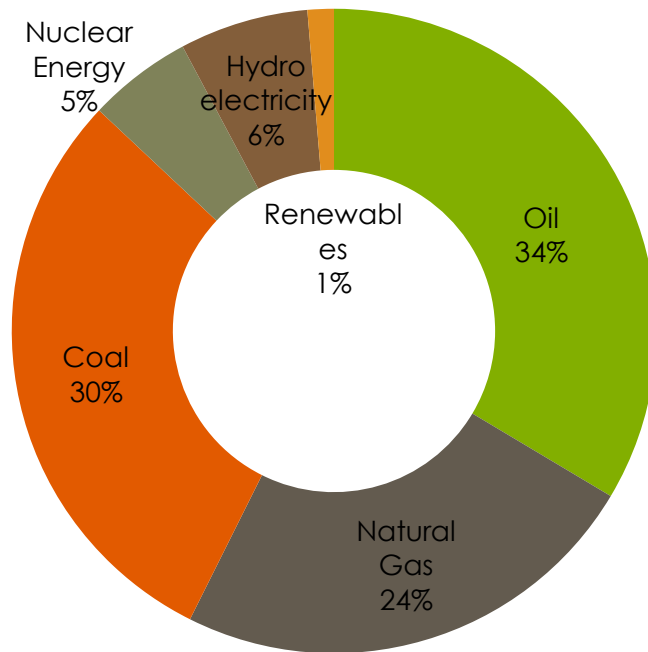
### North America



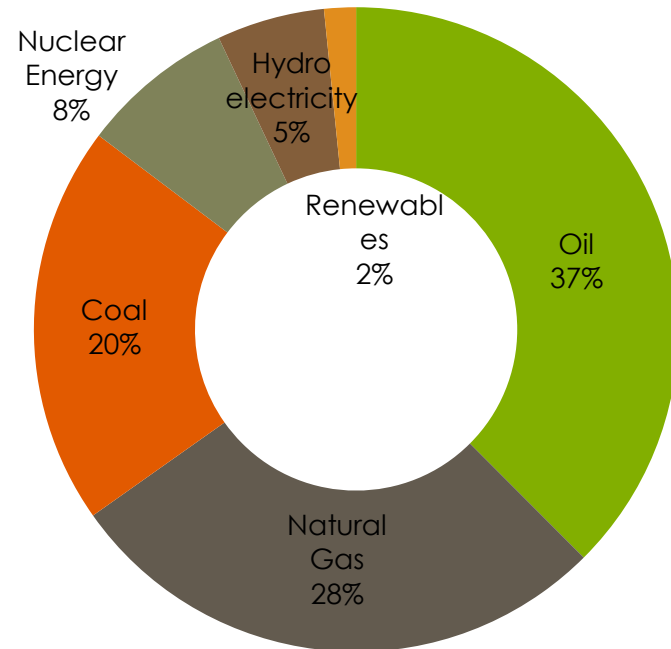
\* Source: BP Statistical Review

## Primary Energy Consumption by Fuel\* (2010)

### World



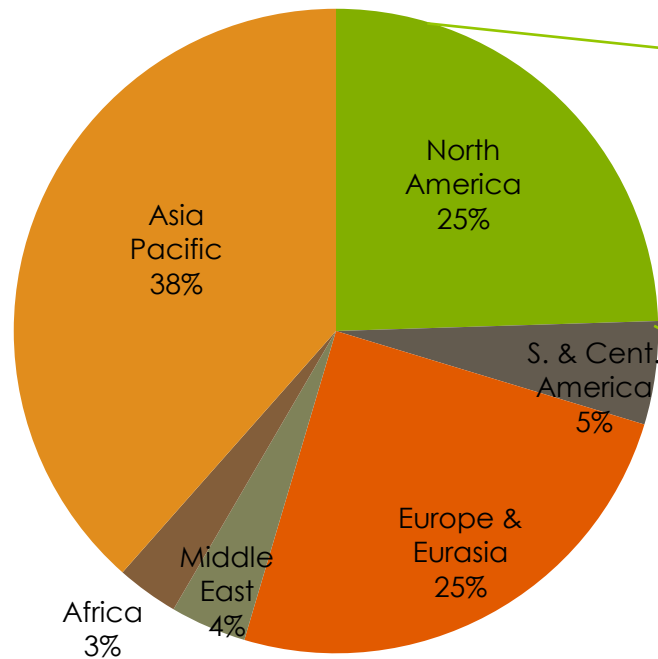
### North America



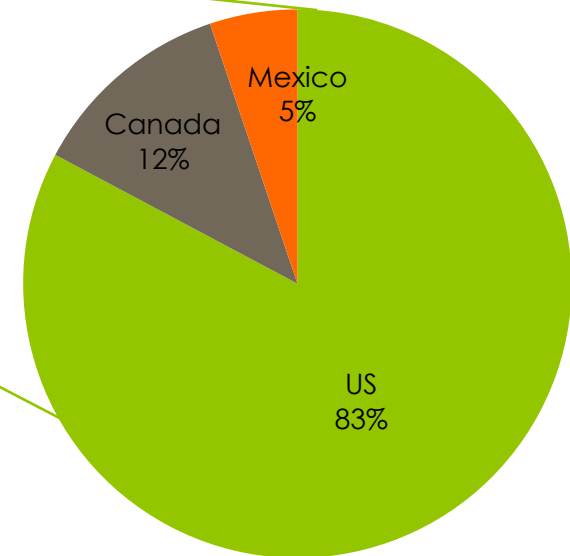
\* Source: BP Statistical Review

## Electricity Generation\* (2010)

### World



### North America

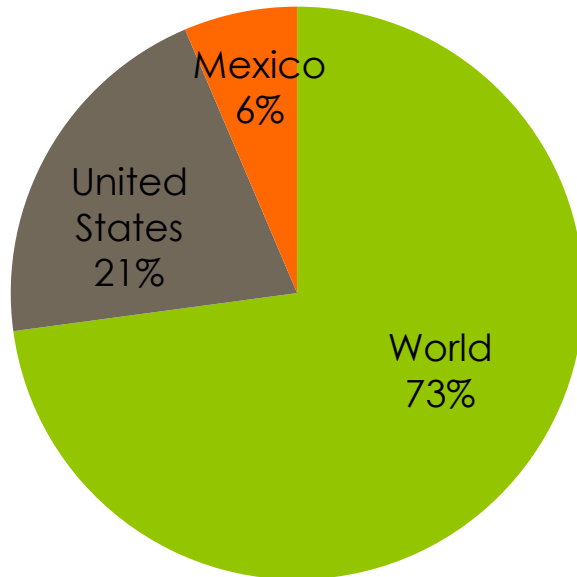


\* Source: BP Statistical Review

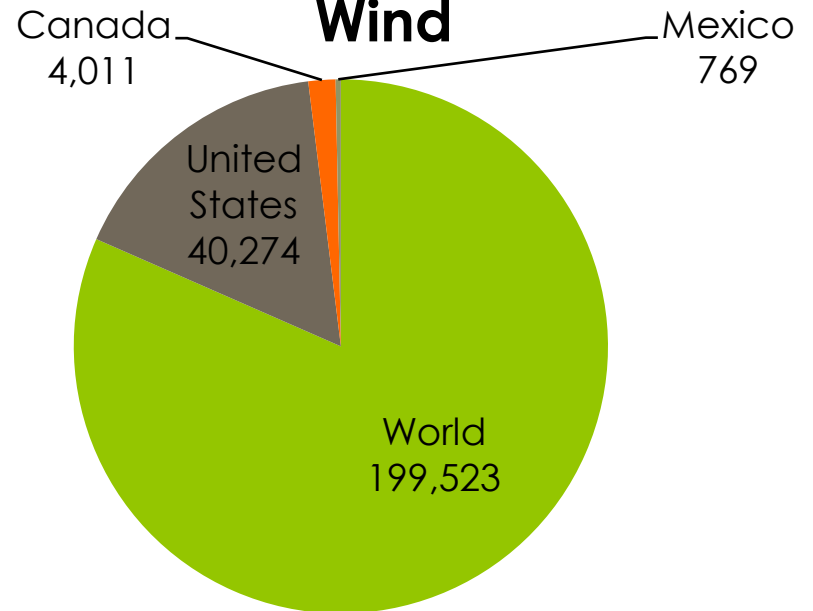
## Renewable Installed Capacity\*

(%, MW, 2010)

### Geothermal



### Wind



\* Source: BP Statistical Review

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## 2.- Mexican regulatory energy framework

### Constitution

- Articles: 25, 27, and 28

### Acts and Regulation

- Public Energy Service (A&R)
- Usage of Renewable Energy and the Financing of the Energy Transition (LAERFTE) (A&R)
- Energy Regulatory Commission

### Energy Policy Documents

- National Energy Strategy
- National Strategy for the Energy Transition and the Sustainable Use of Energy
- Special Program for the Use of Renewable Energy 2009-2012
- Outlooks: Power, Crude Oil, Natural Gas, Liquefied Petroleum Gas, Oil Related Products, and Renewables

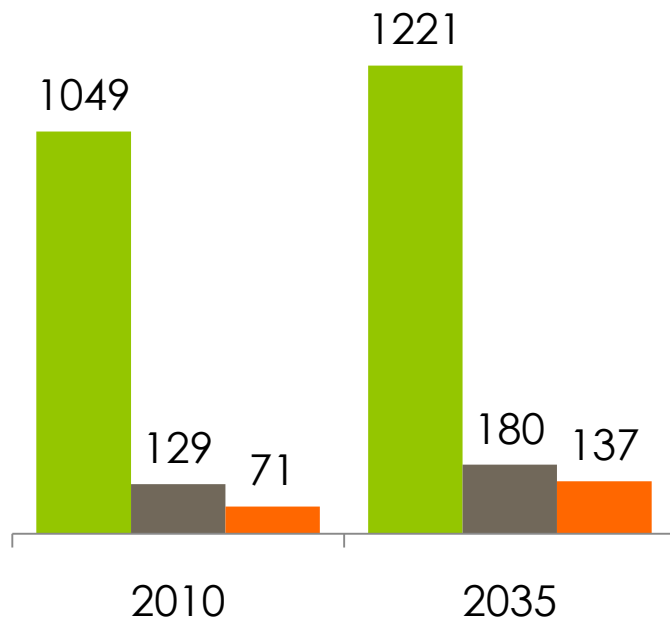
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# Installed Generating Capacity\* (GW)

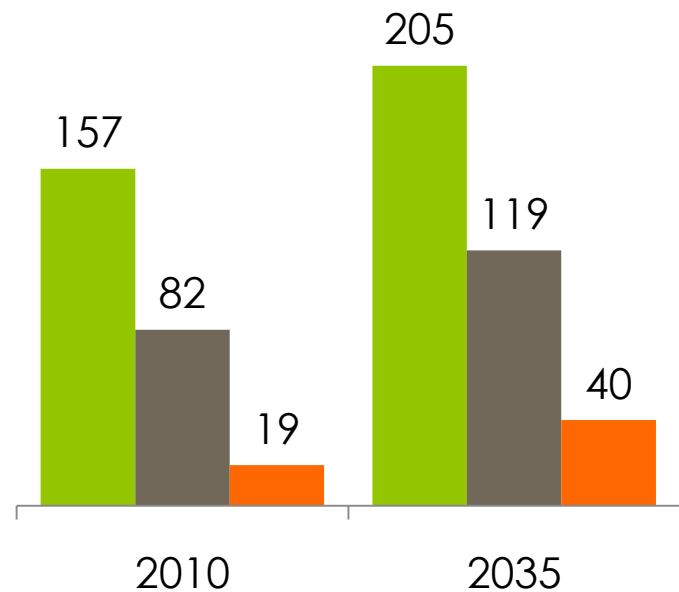
## Total

■ United States ■ Canada ■ Mexico



## Renewables

■ United States ■ Canada ■ Mexico



\* Source: US Energy Information Administration. International Energy Outlook 2011.

# Benefits of an integrated renewable energy market

- Greater energy security and lower import dependency
- Increased competition and lower electricity bills
- Diversified generation portfolio
- Development of regional industries (supporting and developers)
- Creation of research and development regional networks
- Value creation and large capital investments

# Proposals towards a regional renewable energy market

- 1. Electric transmission corridor between Sonora and Baja California-Arizona-California.**
  - Wind energy potential in the area of La Rumorosa, Baja California, between 1.800 and 2.400 MW.
  - The peninsula of Baja California is not connected to the Mexican electricity grid and has only two interconnections with California, with a capacity of 800 MW.
  - Insufficient transmission lines on both sides of the border and a congested system in California, limits the flow that could be traded.
  - First step, to develop a joint study of the electrical system operators, to assess the impacts of incorporating large amounts of intermittent power to the system, the dispatch requirements, and stability of the grid.

# Proposals towards a regional renewable energy market

## 2. **Regional standard for biofuels.**

- Pemex issued a tender for 50 to 230 million liters (ml) per year over the next five years.
- USA estimates to consume about 67,600 ml of ethanol by 2020 and Canada 3,600 ml.
- There is no regional criteria to ensure the quality or the use of inputs that do not compete with food.
- Evaluate the feasibility of developing a regional standard, first on cultivation, up to full standardization.

# Proposals towards a regional renewable energy market

## 3. Regional wind map projection methods with emphasis on border areas.

- In Ontario the potential in the Great Lakes area is 47,000 MW.
- In the border between California and Baja California the potential range between 1,800 and 2,400 MW.
- Develop economic evaluation studies, environmental and social impact assessments, with harmonized analysis and simulation methods to evaluate the potential of the region.



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[lbeltran@post.harvard.edu](mailto:lbeltran@post.harvard.edu)

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