



MACQUARIE CAPITAL

Investing in Renewable Energy Projects in Mexico



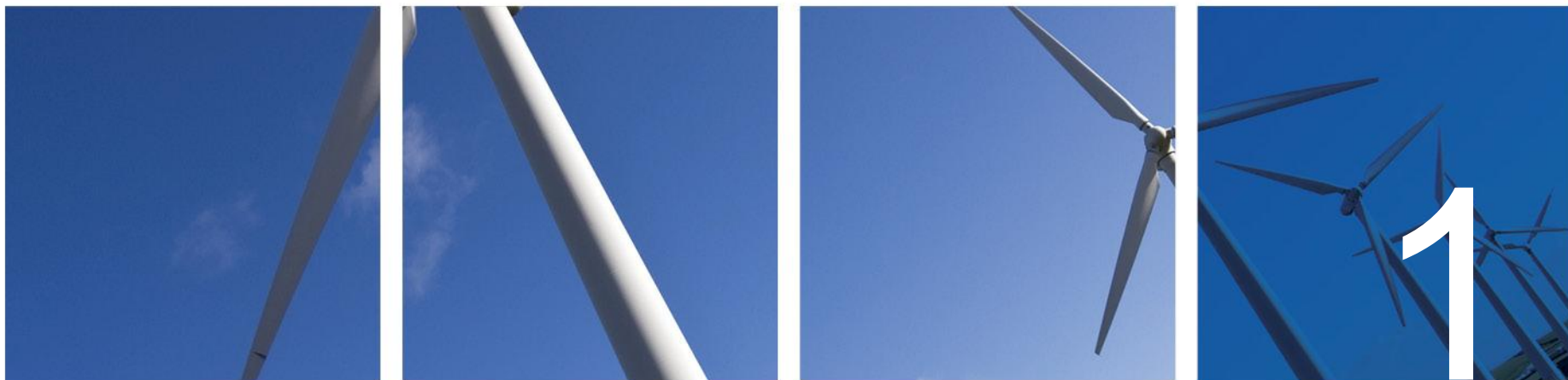
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November 2012

# INVESTING IN RENEWABLE ENERGY PROJECTS IN MEXICO



- The Mexican Renewable Energy Sector in Context
- Investment drivers
- The Mexican financing and development environment
- How is it done? Marena Renovables case study
- Future directions and challenges



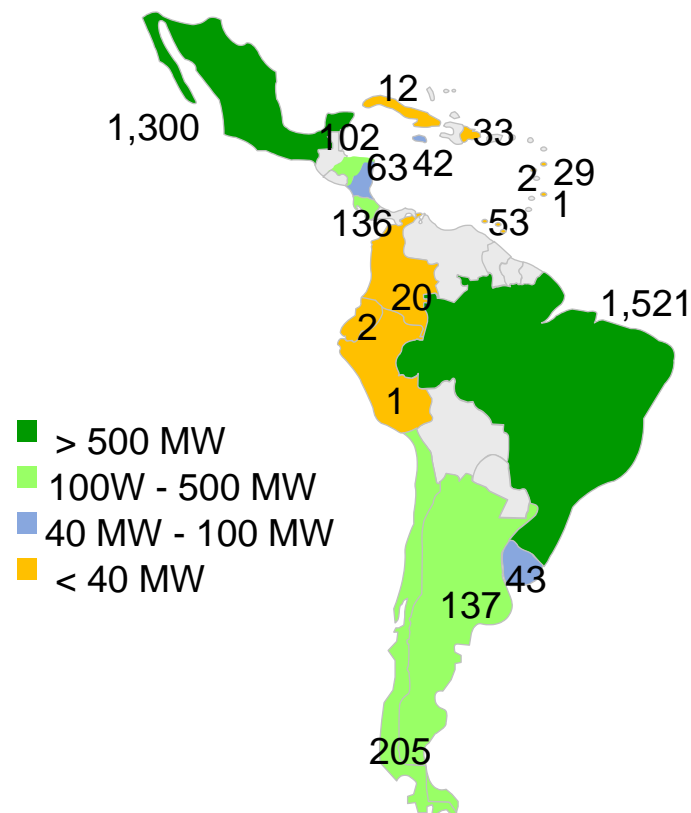
# THE MEXICAN RENEWABLE ENERGY SECTOR IN CONTEXT

# LATIN AMERICAN WIND POWER MARKET

## Brazil and Mexico dominate the Latin American wind power market : 2.8GW by 2012E

- Latin American market waking up to significant wind power potential
  
- Pipeline for new project developments in the region is substantial, especially for Mexico and Brazil
  - Mexico capacity expected to be 2,000MW by 2013
  - Brazil capacity expected to be >4,000MW by 2013
  
- Large number of smaller wind farms developed in high cost power markets as substitute to high cost fuel oil/diesel generation

### Latin America : Installed Wind Capacity (3.7 GW)

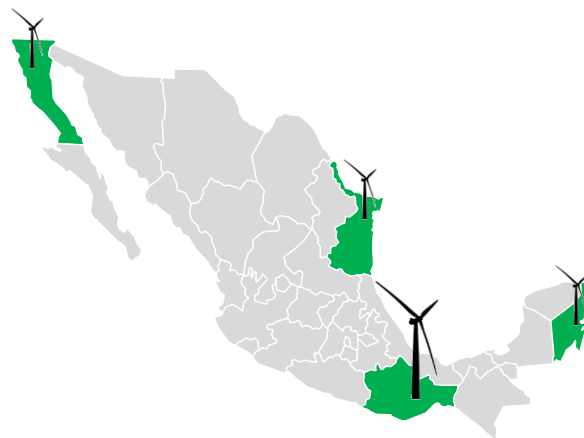


# MEXICO WIND POWER MARKET

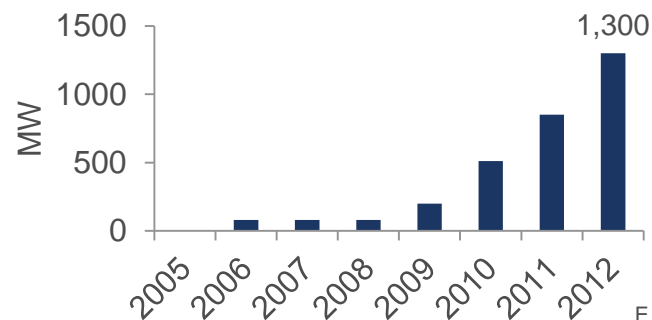
Wind power sector in Mexico has experienced exponential growth, moving from 3 MW in 2005 to more than 1,300 MW in 2012

- Government estimates wind energy potential at around 71GW in Mexico
- Development to date has focused on the high wind resource area in Oaxaca (14 projects out of 16 with total capacity of 1,260MW)
- CRE ran 3 Open Season processes in October 2011 to build new transmission lines in Oaxaca, Tamaulipas, and Baja California
- Other promising regions with good wind potential include Caribbean coast and the Bay of Campeche in the Gulf of Mexico

## Key Regions in Mexico with Wind Potential (up to 71 GW)



## Cumul. Installed Wind Power Capacity in Mexico (2006-2012)



Sources: GWEC Annual Reports, WindPower database, Macquarie

# MEXICAN POWER MARKET STRUCTURE

Electricity production, transmission and distribution in Mexico is managed by the CFE

## Ownership and Regulation

- Mexican electricity industry nationalised in 1960
- 1992 established a range of power generation activities which could be undertaken by the private sector
- Established the Energy Regulatory Commission (“**CRE**”)
  - Approves permits for power generation, gas transport, distribution and storage (LNG)
- Since 1992 the Mexican generation has been modernised
  - Shift from fuel oil to gas
  - Reserve margins increased
- Transmission and distribution remain exclusively undertaken by the Comisión Federal de Electricidad (“**CFE**”)

## CFE (Comisión Federal de Electricidad)

- Responsible for planning, developing and operating the national electricity system
- Largest electricity utility in Latin America
- Operates 39.2 GW of generation capacity (excluding IPP projects), and 49,747km of transmission lines
- Independent legal entity, rated Baa1 by Moody’s and BBB by S&P’s (shares sovereign foreign currency rating)

# PRIVATE PARTICIPATION IN THE POWER SECTOR

**Most common private generation structures are Self-Supply and IPP projects**

## “Self-Supply” Projects (4,391 MW)

- Regime for private power development
  - power is sold directly to private customers
  - Applicable for thermal + renewable generation
  - Current focus on renewable power development
- Widely developed sector: 491 permits<sup>1</sup> granted by CRE to date
- Contract (PPA) market:
  - Permit must specify offtakers
  - Consumer required to hold nominal equity in project
- Where transmission infrastructure is insufficient, CFE must initiate an open tender process for required infrastructure

## IPP Projects (13,246 MW)

- Contracts tendered by CFE for development of generation capacity
- CFE executes PPA with IPP generator to procure power for sales to public
- CFE typically shares key development risks – acquisition of site, permitting, interconnection
- Established regime with 28 permits<sup>1</sup> since 2000 – all IPP projects have been developed by international investors

1 - 445 operating, 35 under construction, 6 under development, 5 inactive

2- 27 operating, 1 under development

Source: Secretaría de Energía

# OPERATING WIND FARMS



## Ownership of operating wind farms dominated by international developers and utilities

### Operating Wind Farms in Mexico

#	Wind Farm Name	MW	Commissioning Date	Location	Sponsor
1	La Venta	1.6	1994	Oaxaca	CFE
2	La Venta II	83.3	2006	Oaxaca	CFE
3	Parques Ecológicos de México	79.9	2009	Oaxaca	Iberdrola
4	Eurus	250.0	2010	Oaxaca	Acciona
5	La Mata-La Ventosa	67.5	2010	Oaxaca	EDF EN
6	Bií Nee Stipa	26.4	2010	Oaxaca	Iberdrola
7	Gobierno de Baja California	10.0	2010	Baja California	Turbo Power
8	Fuerza Eólica del Istmo	80	2011	Oaxaca	Peñoles
9, 10, 11	Oaxaca II, III & IV	304.2	2011	Oaxaca	Acciona
12	Arriaga	28.8	2012	Chiapas	Grupo Salinas
13	Bii Nee Stipa II	74.0	2012	Oaxaca	Enel Green Power
14	La Venta III	101.0	2012	Oaxaca	Iberdrola
15	Piedra Larga	90.0	2012	Oaxaca	Renovalia
16	Oaxaca I	101.0	2012	Oaxaca	ACS
	<b>Total</b>	<b>1,297.7</b>			





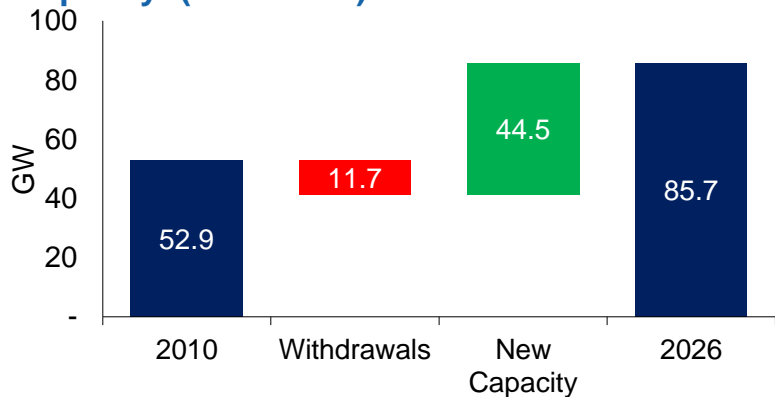
# INVESTMENT DRIVERS

# ROLE OF RENEWABLES IN GENERATION MIX

## Growth of Mexican energy demand will continue to require new generation capacity

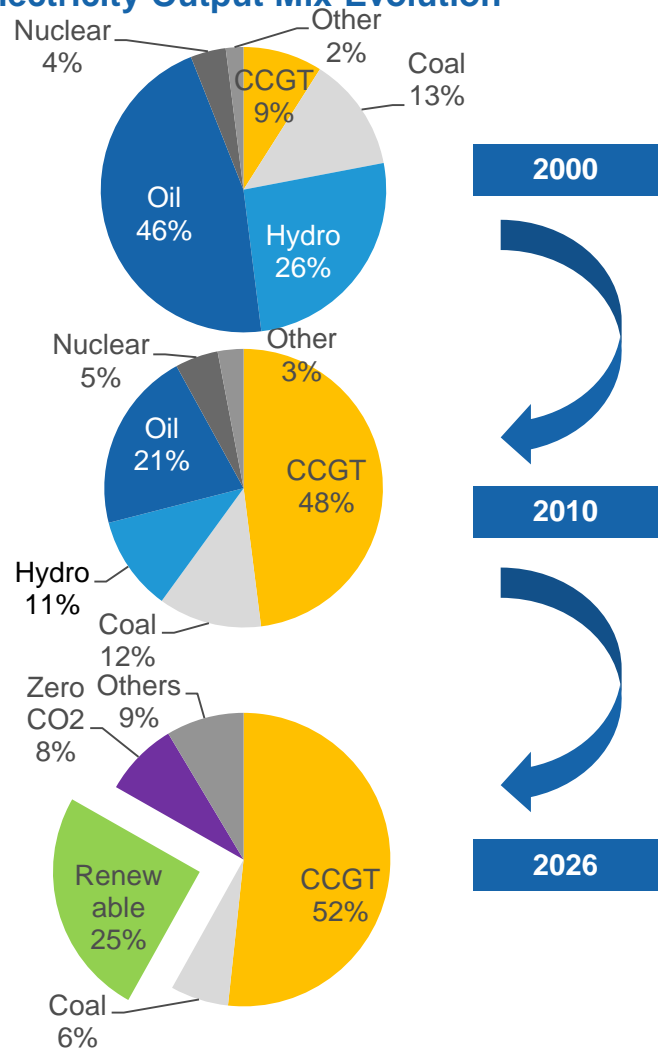
- Population and GDP growth will underpin strong demand growth over the medium term
- Government seeking to increase renewable energy capacity in fuel mix
  - Forecast to reach 25% in 2026 (~21.4 GW) representing growing share of output

### Evolution of Mexico's Gross Generation Capacity (2010-2026)



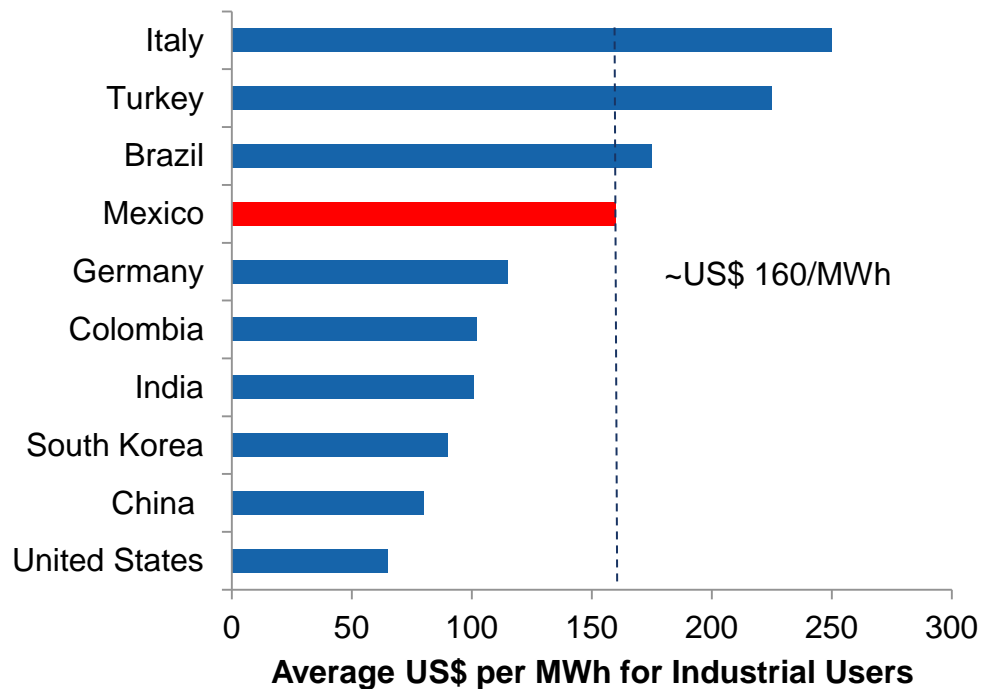
Source: Secretaría de Energía (SENER)

### Electricity Output Mix-Evolution



# POWER PRICE ENVIRONMENT

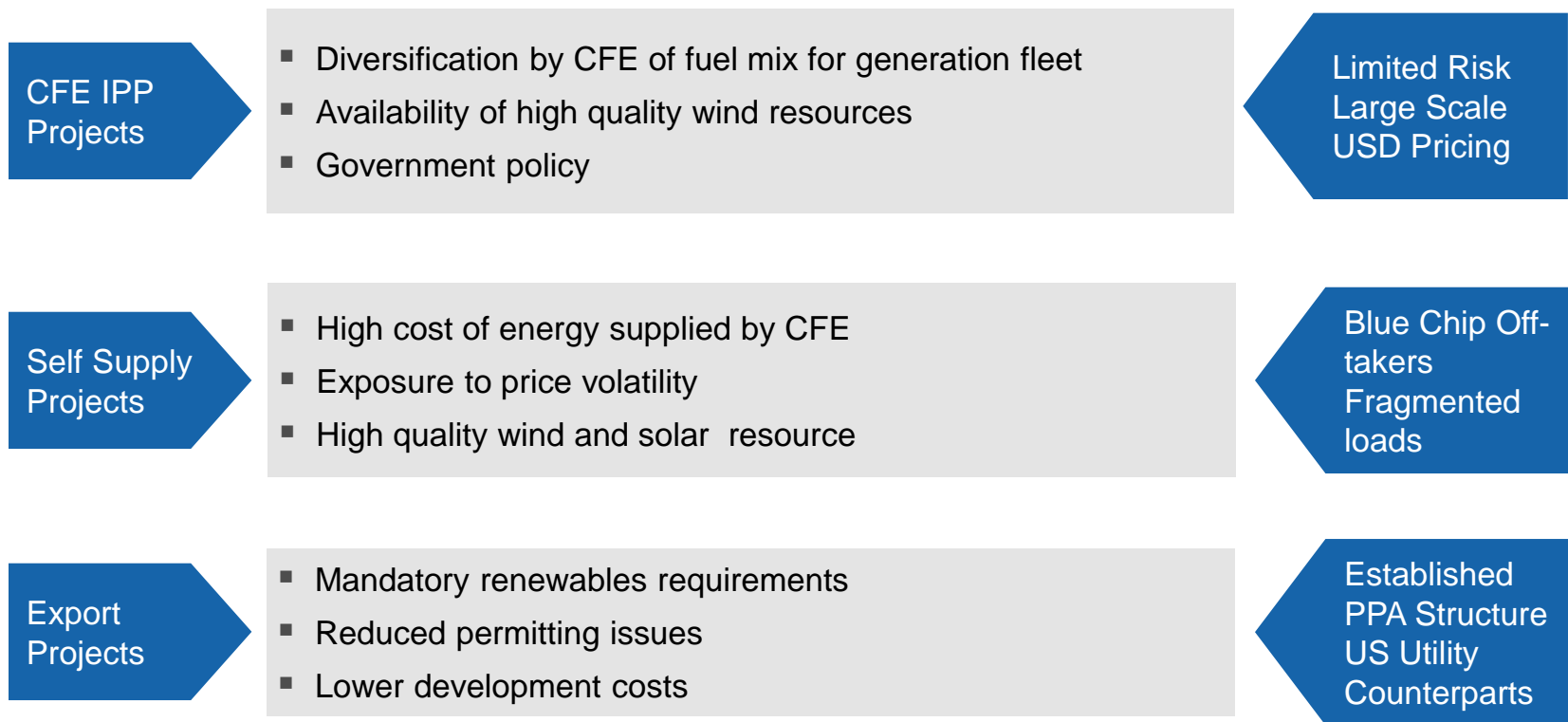
High power prices for industrial and commercial consumers make case for purchasing renewable power straight forward



# MEXICO WIND: INVESTMENT DRIVERS

High quality wind and solar resources have given renewable energy a cost advantage in different market segments

## Investment Drivers





# THE MEXICAN FINANCING AND DEVELOPMENT ENVIRONMENT

# MEXICAN FINANCING ENVIRONMENT

## Financing environment favourable for international participation

### Available Debt Financing

- Mexican banks are regarded as sound, with low level of dependence on foreign funding
- Extensive participation of international project finance lenders in local market
- Government development banks (BANOBRAS, NAFIN) and infrastructure fund (FONADIN) playing complementary role in financing.
- Interest rate and currency hedging available for peso loans – large trades may need to be executed over several days
- Debt capital markets are emerging as an alternative to bank debt market

### Straight forward repatriation of equity returns

- No exchange controls
- No capital taxes
- Repatriation of foreign investment returns or proceeds is guaranteed under various investment treaties (including NAFTA)

# DEBT FINANCING

Bank debt financing available for USD and MXN based projects – multilaterals play a key role

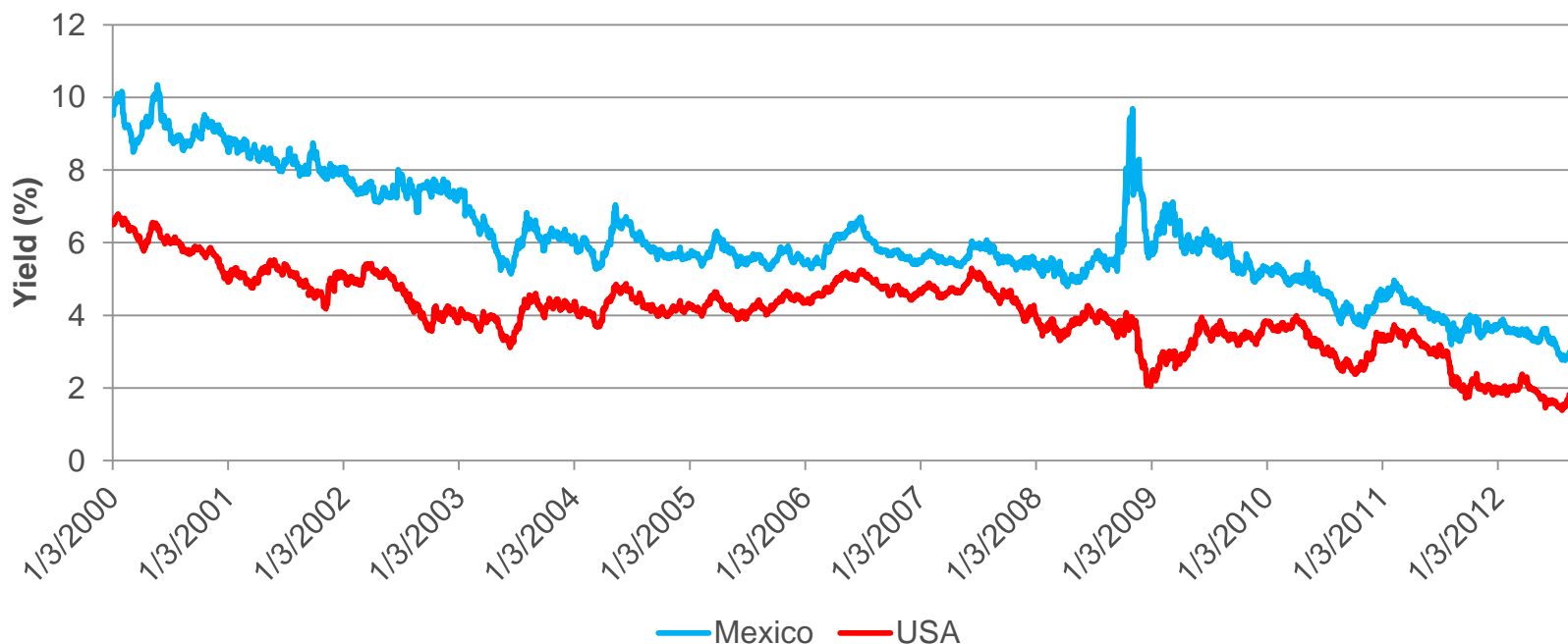
## Recent Financing of Wind Farms in Mexico

Project	Company	Type	Amount (US\$m)	
La Venta III	Iberdrola	Equity		} US\$ 127m
	European Investment Bank	Debt	102	
	World Bank	Debt	25	
La Ventosa	EDF Energies Nouvelles	Equity		} US\$138m
	US Export Import Bank	Debt	80	
	IFC	Debt	22	
	IDB	Debt	21	
	Climate Investment Fund	Debt	15	
Oaxaca III	Acciona	Equity		} US\$165m
	Banobras	Debt	115	
	BBVA	Debt	50	
Eurus	Acciona	Equity		} US\$ 247m
	Cemex	Equity	30	
	IDB	Debt	45	
	IFC	Debt	36	
	Others	Debt	166	

# EQUITY FINANCING

## Country risk premium typically applied to returns in US, Northern Europe

- The premium that the market requires to invest in US\$-denominated Mexico sovereign bonds relative to U.S. Treasuries of the same tenor indicates the market's view on Mexico sovereign risk
- Due to its improving macroeconomic fundamentals, Mexico's country risk has decreased considerably
- This premium has averaged 155 bps over the past twelve months, and 168 bps over the last 10 years



Source: Bloomberg September 2012





# HOW IS IT DONE? MAREÑA RENOVABLES CASE STUDY

# MAREÑA RENOVABLES: OVERVIEW

## Acquisition, development and financing of Latin America's largest wind farm


- Macquarie Capital advised a consortium that acquired a 396 MW wind farm from Preneal
- Project highlights
  - Largest wind farm development in Latin America
  - One of the strongest wind resources in the world
  - Long-term power purchase agreement with investment-grade off-takers: FEMSA (world's largest Coca-Cola bottler) and Heineken Mexico




- Macquarie Capital roles
  - Principal investor for 22.5% of the development equity
  - Sole financial advisor for the Project
  - Lead developer
- International team spanning Macquarie offices in Mexico, Austin, Sydney, Tokyo, Amsterdam and New York
- All land, permits and commercial contracts required for the project in place at financial close – 11 months after acquisition

### CER Monetization

Acquisition of CERs




**Confidential**  
October 2011  
Sole Financial Advisor










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### Debt Financing



Commercial Banks


HSBC       

Development Banks

BANBRAS  

Partial Guarantor

**MXN 8.886 million**  
February 2012  
Sole Financial Advisor



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### Equity Financing

 Mitsubishi Corporation



acquired 0.376 equity stake in Mareña Renovables from

February 2012  
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# MAREÑA RENOVABLES EQUITY FINANCING

## 67.5% of the Project equity sold to Mitsubishi and PGGM

### Equity Sell-down Process Summary

- Macquarie Capital led a sell-down process over 11 months reaching out to more than 90 investors worldwide (61 financial sponsors and 31 strategics)
- In February 2012, Macquarie Capital and FEMSA successfully sold down their 67.5% equity stake to
  - PGGM, a leading Dutch pension fund service provider with around EUR 115 billion pension assets under management; and
  - Mitsubishi Corporation, a Tokyo-based conglomerate with significant expertise in power development and generation
- MMIF remains a long-term investor with 32.5% of the Project equity



Mitsubishi Corporation



PGGM

acquired 67.5% equity stake in  
Mareña Renovables from



FEMSA



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# MAREÑA RENOVABLES: DEBT FINANCING



**Macquarie Capital successfully raised a total of MXN 8,885.6 million (~US\$700m) debt financing from 9 lenders**




## Final Debt Structure

Term Debt Facility Amount	—MXN 8,885.6 million (~US\$700m)
Currency	—Mexican Pesos (MXN)
Tenor	—21-month Availability Period, 14.7-year Operating Period
Amortization	—Sculpted amortization
Export Credit Agency	—EKF is guaranteeing MXN equivalent of US\$250m (MXN 3,183m)






Commercial Banks


HSBC   **CRÉDIT AGRICOLE**  
CORPORATE & INVESTMENT BANK

 **BANORTE**  **Santander**  **BBVA** Bancomer

Development Banks

 **BANBRAS**  **IDB**  **IFC**  
International Finance Corporation


Partial Guarantor

 **EKF**  
EXPORT KREDIT FONDEN

**MXN 8.886 million**

February 2012

Sole Financial Advisor



*“Macquarie’s Wind Energy Financing Blazes a Trail in the Mexican Renewables Market”*

Source: InfraNews Americas – May 2012



## FUTURE DIRECTIONS AND CHALLENGES

# KEY SHORT AND MEDIUM TERM CHALLENGES

**Sector must address a number of challenges to continue evolution and growth**

## **Transmission access**

- High wind resource areas now facing capacity constraints (Oaxaca, Tamaulipas)
- Open season process is not providing certainty required to finance development
- Cross border (export) sector has huge potential but also limited by transmission access

## **Technological evolution**

- Lower panel prices are opening up solar market
- New turbine models are expanding viable resource areas

## **Financing**

- Structures to accommodate lower credit quality off-takers, fragmented loads
- Refinancing of bank debt in capital markets

## **Price environment**

- Impact of long term shift to gas on long term power pricing



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