



# GLOBELEQ

*Generating **Power** for Emerging Markets*

**Issues for Power Development in Central America –  
What Has Changed in 2008**

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**Central America Energy: Renewables, Integration & Investment**

San Salvador, December 12, 2008



## 2008 – A Year of Change

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- > The Central American Power Market
- > Impact of changes in the global markets in 2008
  - Financial markets and the economy
  - Commodity markets
  - Energy suppliers
- > Outlook for the next few years



## Central American Power Market: 1985 vs 2007

	Installed Capacity		Net Generation	
	<u>1985</u>	<u>2007</u>	<u>1985</u>	<u>2007</u>
Total:	3.9 GW	9.5 GW	10,562 GWh	37,713 GWh
Hydro	66%	44%	76%	47%
Thermal / Oil	31%	42%	17%	38%
Thermal / Coal	2%	2%	1%	3%
Other	3%	12%	6%	13%

Peak Demand:	<u>1985</u>	<u>2007</u>
	2.0 GW	6.5 GW
Private Generation:	1%	61%



## Trends over Recent Decades (1)

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- > Strong economic growth drove demand; supply-demand tighter
- > Privatization and new private investment
- > New power market rules and regulation; spot markets grew
- > Increasing integration, cross-border transactions, but:
  - Country-by-country market fragmentation limited ability to take advantage of large-scale plants
  - Regulatory and market restrictions limited benefit of transmission interconnections
- > Distribution companies faced challenges with level of contracting and pass through of rising generation costs – challenge to set suitable tariff regimes and subsidy policies



## Trends over Recent Decades (2)

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- > Increase in dependence on / effect of petroleum-based plants
- > Variability of hydrology
- > Need to diversify power generation matrix
- > Severe cyclical swings in investor interest and credit availability
- > Governments have been inconsistent in addressing environmental and community issues



## 2008 – Large Changes in Markets

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### > Financial Markets and the Economy:

- Recession in the US and the region could lead to slower power demand growth
  - Strong economic growth and rising incomes drove demand
- Credit availability for large projects may curtail which plants get built, and when
- Credit is more expensive for all, especially in Emerging Markets



# Emerging Market Financing Costs since 2000

Global Emerging Market Bond Spreads





## Oil and Carbon Credit Price Effects

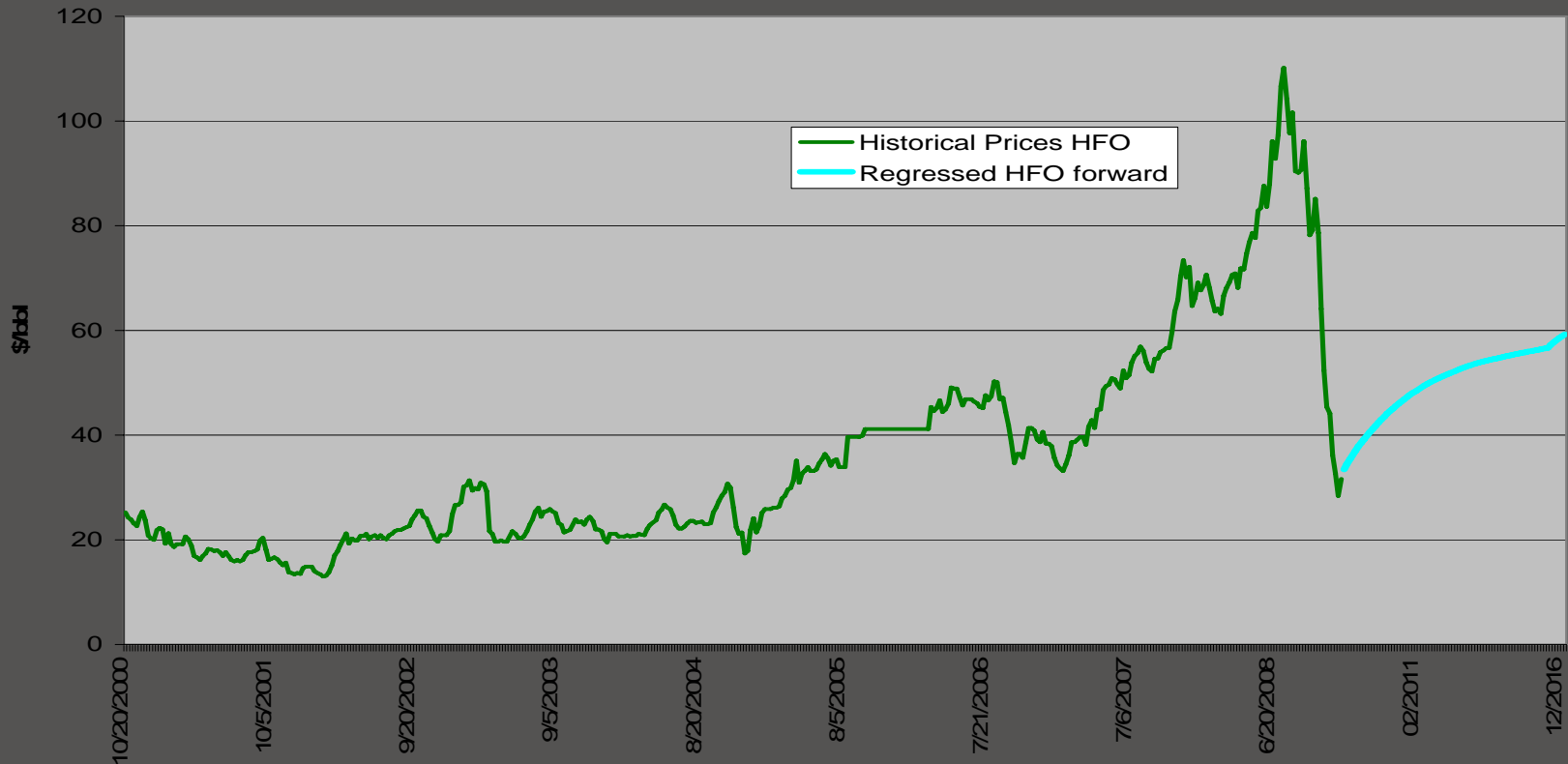
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- > Rising thermal fuel costs and carbon credit prices improved the competitiveness of renewables
- > Higher thermal fuel costs
  - Direct comparison with alternative costs and foreign exchange requirements
  - Assumptions about spot market prices
- > Carbon credit prices had risen, especially in dollars
  - For credits through 2012, prices rose in Euros
  - The weak dollar magnified the value in Central America
- > For now: alternative fuel prices, carbon credits, and the dollar are lower



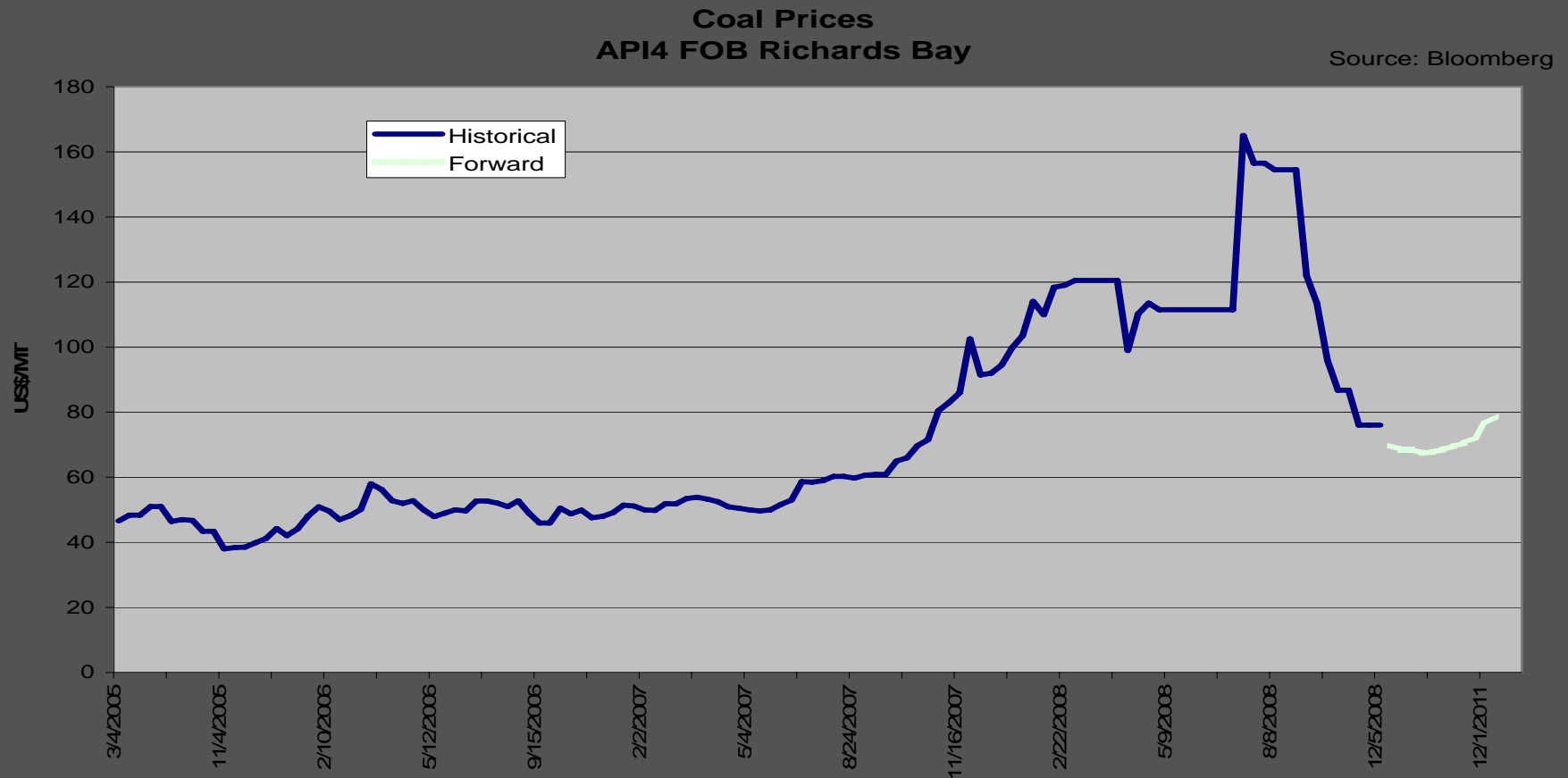
# HFO since 2000

Heavy Fuel Oil (No. 6, Caribbean FOB, 2.2% Sulfur)





# Coal since 2005





## Carbon Credits in US\$ during 2008





## Positive Factors for Renewables

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- > Equipment and construction costs had soared
  - Prices should decrease and time schedules shorten
    - Orders for equipment have been canceled
    - Primary input costs (e.g., steel) has dropped
  
- > New US administration may support renewables more
  - More aggressive climate change agenda
  - Possible competition from US renewables expansion
  - But US domestic labor politics may hurt trade flow and remittances



## Globeleq in the Region

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- > Extensive investments in the past
  - PQP / Poliwatt and Orzunil (Guatemala)
  - Nejapa Power (El Salvador)
  - EEC (Nicaragua)
  - Fortuna and Pedregal Power (Panama)
  - CEPP, EgeHaina and Cogentrix (Dominican Republic)
  - JPPC (Jamaica)
- > Mission to support Emerging Markets leads to countercyclical investment plans
- > Interest in Greenfield development and acquisition options
- > Emphasis on diversifying energy matrix, meeting needs of markets – best fit for market



## Outlook

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- > Short-term trends have worked against investment in renewables (financial and commodity markets, credit)
- > Longer term, development of renewables and new sources of supply will be important:
  - Diversification of energy matrix
  - Reduced impact of petroleum costs / foreign exchange requirement
  - Environmental considerations
  - More efficient generation to replace aging plants and meet new demand
- > Increased regional integration and coordination needed
- > Globeleq looking to support development efforts in the region