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# Green Electricity Market And Associated Risk ECAs perspective

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1. Electricity Liberalized Market Structure
2. Renewable Energy (RE) Market Structure and Policy
3. Renewable Energy Market Risks – ECAs Perspective
4. ECA's role: Potential for RE Risk mitigation



- Electricity Market Structure

- RE Market Structure & Policy

- RE Market Risks

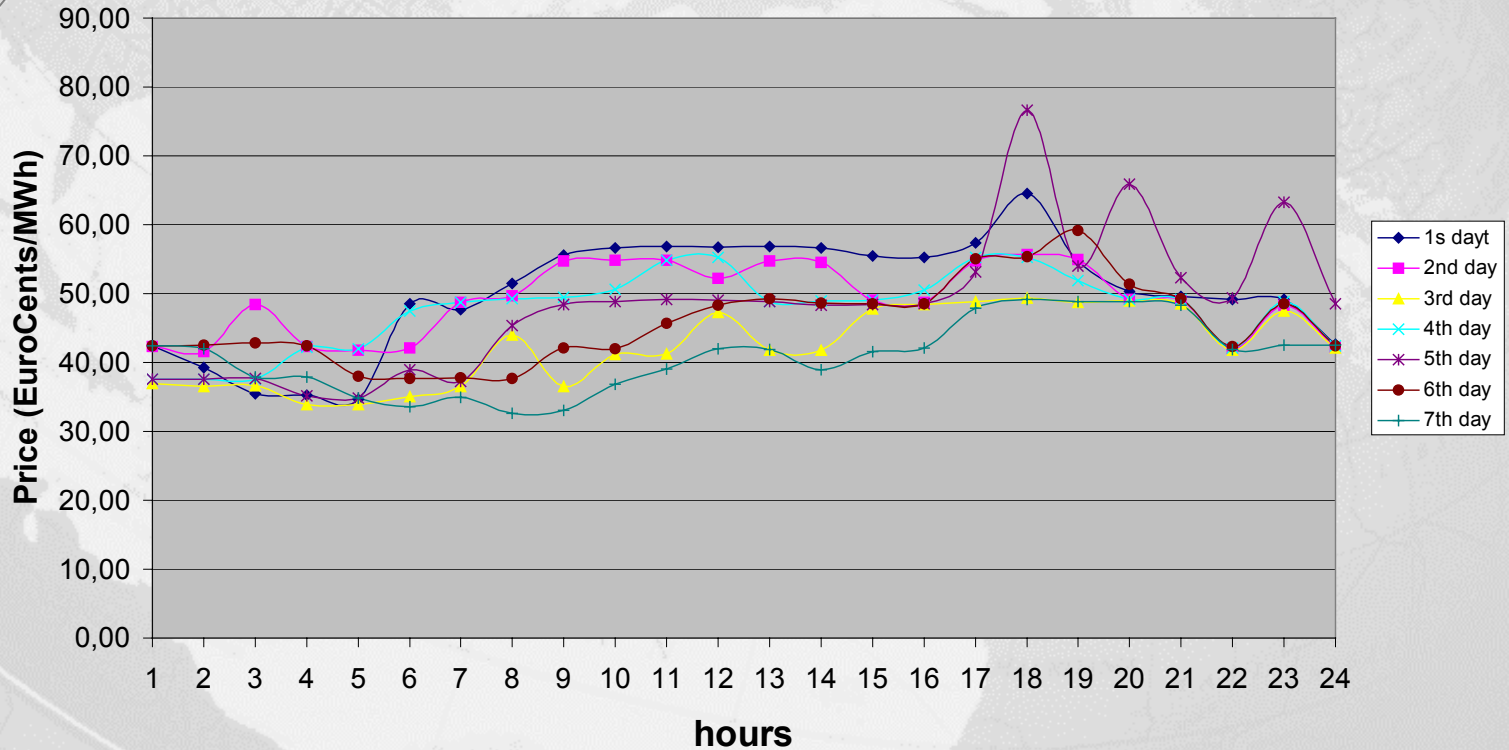
- ECA's and RE

- Generation-Transmission-Distribution
- Real Time balancing of locational supply and demand
- Hourly (or even less) price
- Network constraint

# Example of estimated\* electricity hourly prices

- Electricity Market Structure
- RE Market Structure & Policy
- RE Market Risks
- ECA's and RE

Electricity Hourly Price (one week)

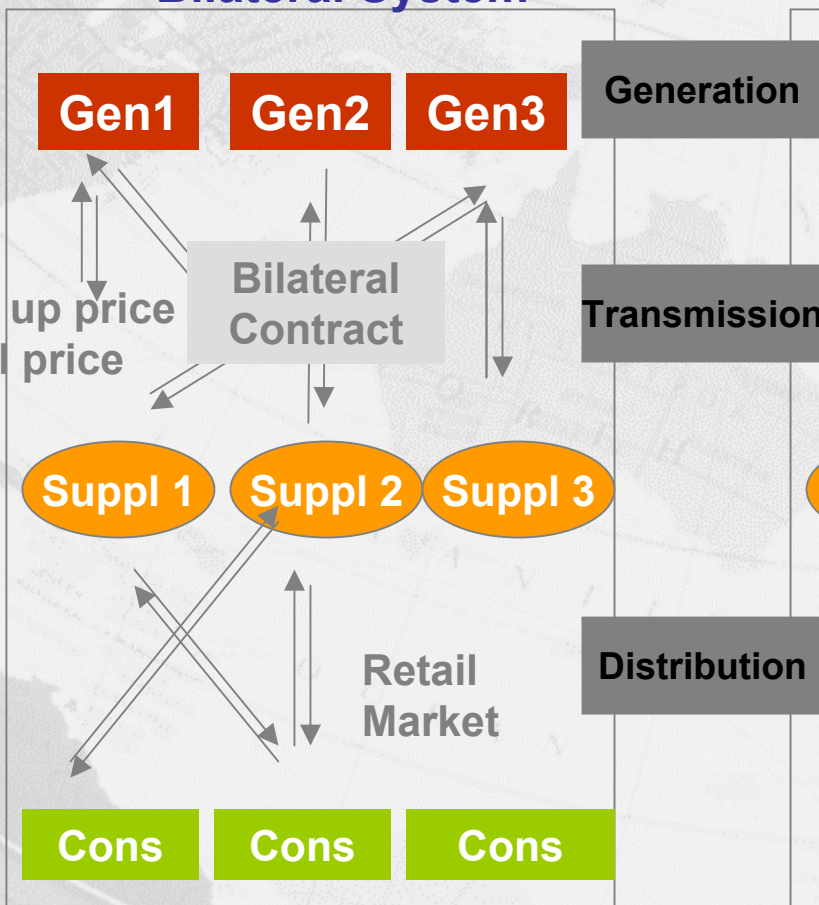


\*Source: SEI report on the new Irish electricity market prepared by Brattle Group/Henwood- June 2004 London

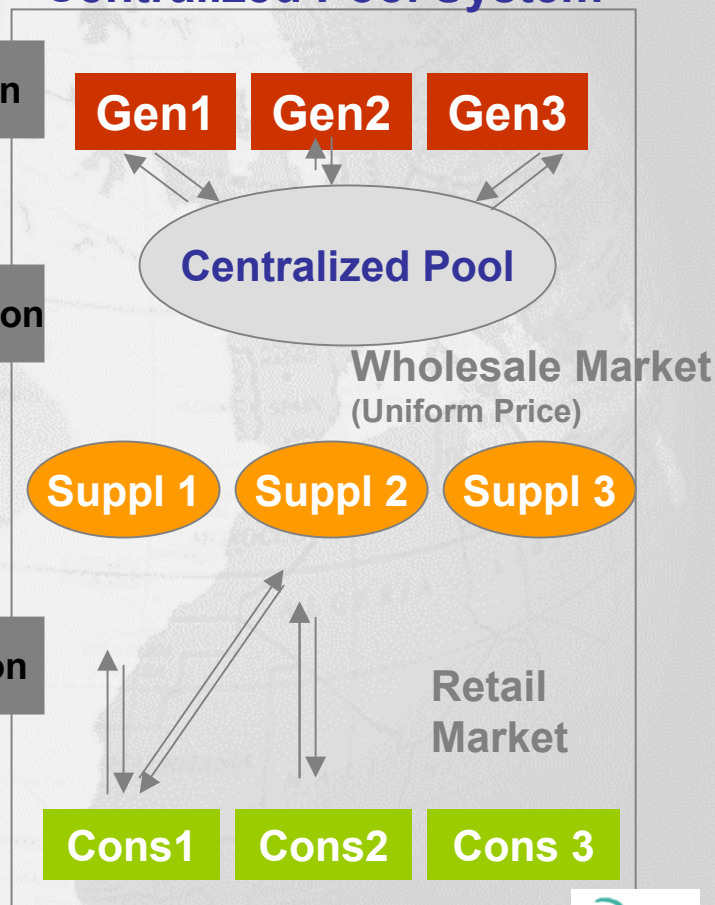
# Liberalized Electricity Market Structure

- Electricity Market Structure
- RE Market Structure & Policy
- RE Market Risks
- ECA's and RE

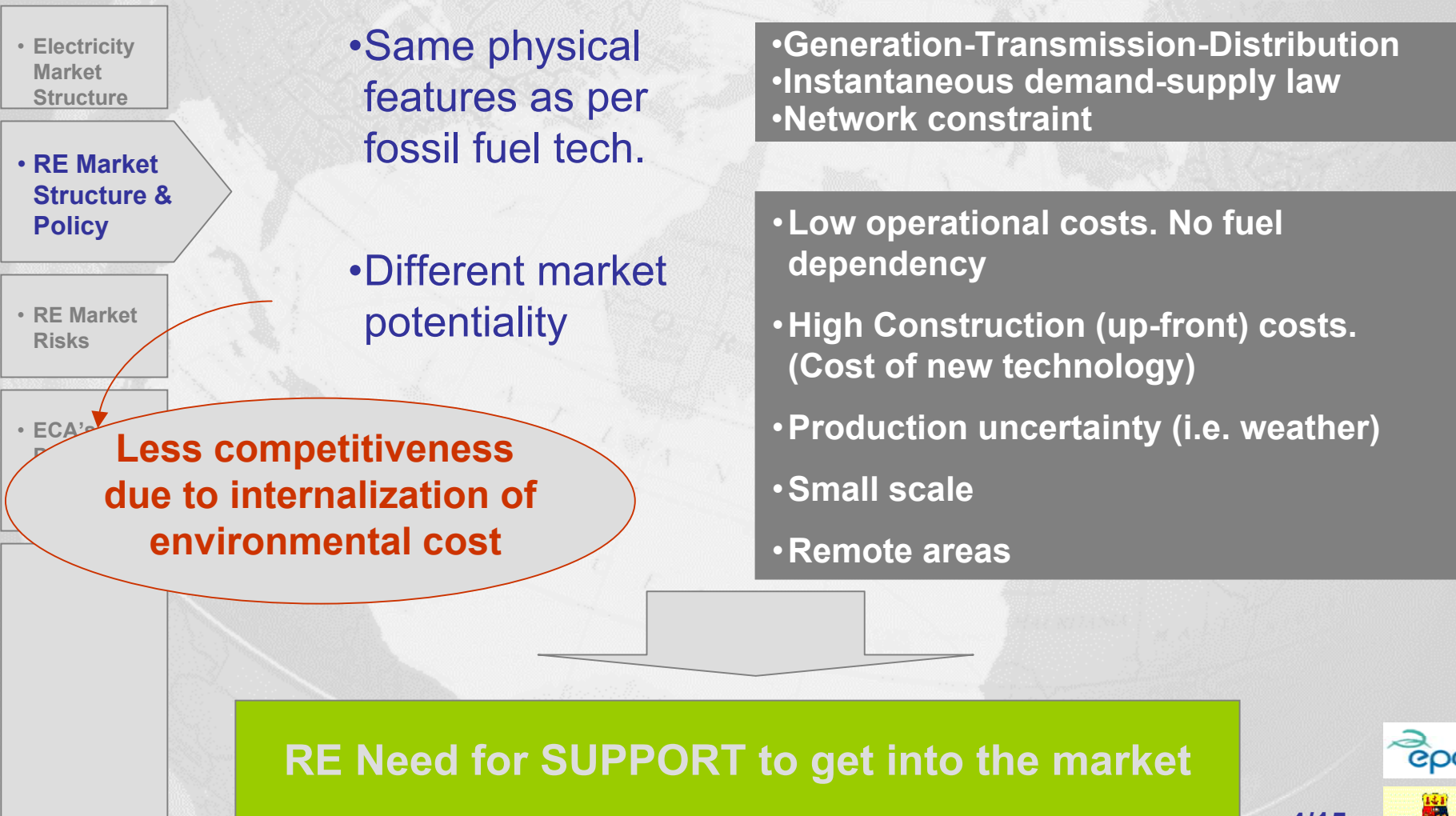
## Bilateral System

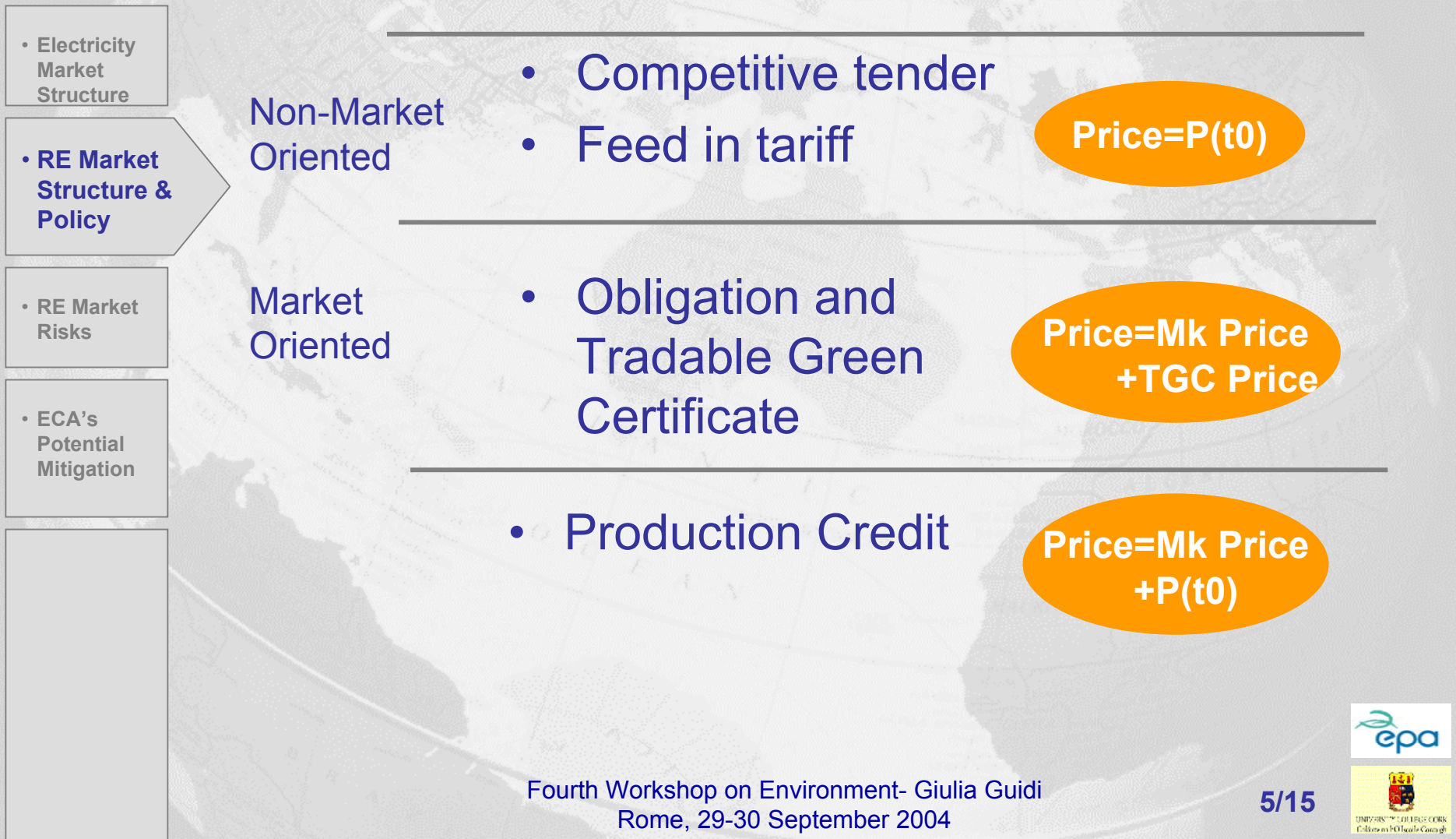


## Centralized Pool System



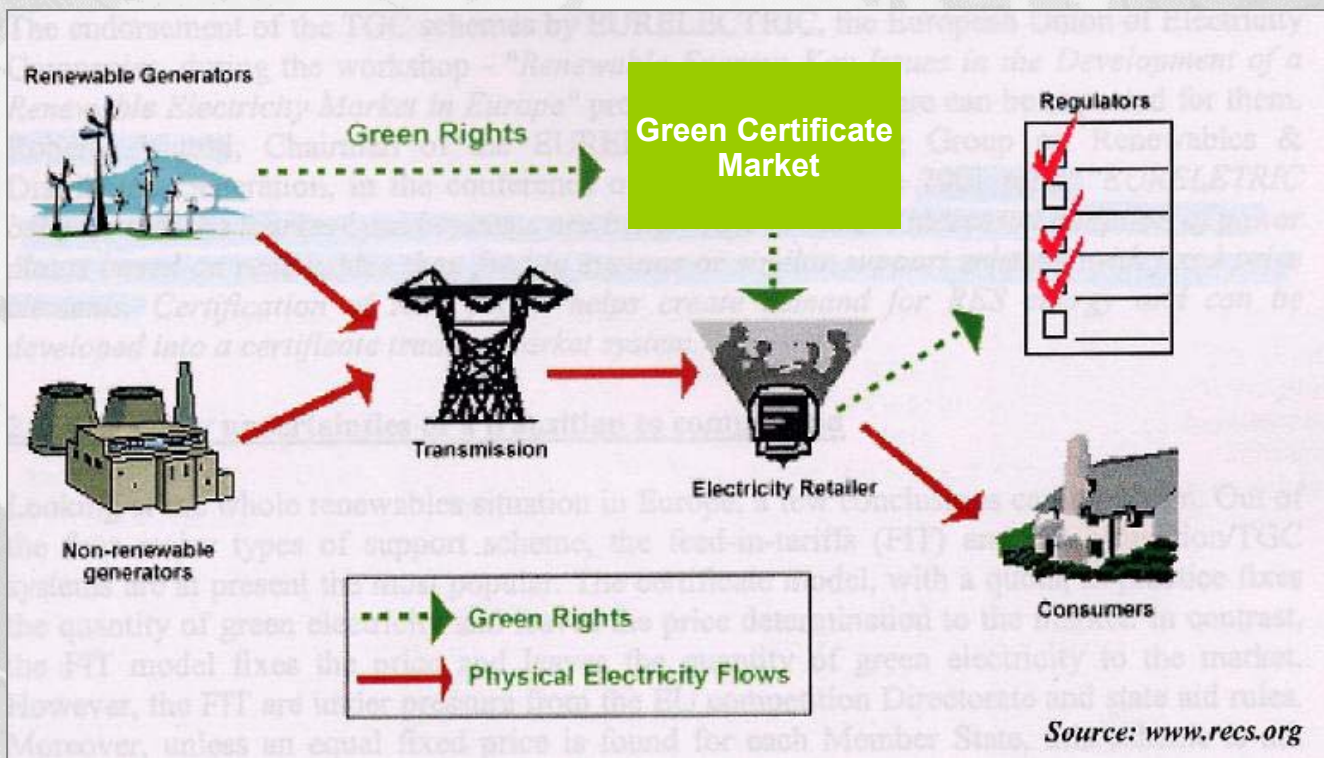
# Renewable Energy (RE) within the Electricity Market





- Electricity Market Structure
- RE Market Structure & Policy
- RE Market Risks
- ECA's and RE

RE participate to the electricity market with different kind of supports:



• Electricity  
Market  
Structure

• RE Market  
Structure &  
Policy

• RE Market  
Risks

• ECA's and  
RE

- Electricity Price Risk
- Technical Risk
- Regulatory Risk
- Policy Risk
- Financial Risk
- Environmental Risk

• Electricity Market Structure

• RE Market Structure & Policy

• RE Market Risks

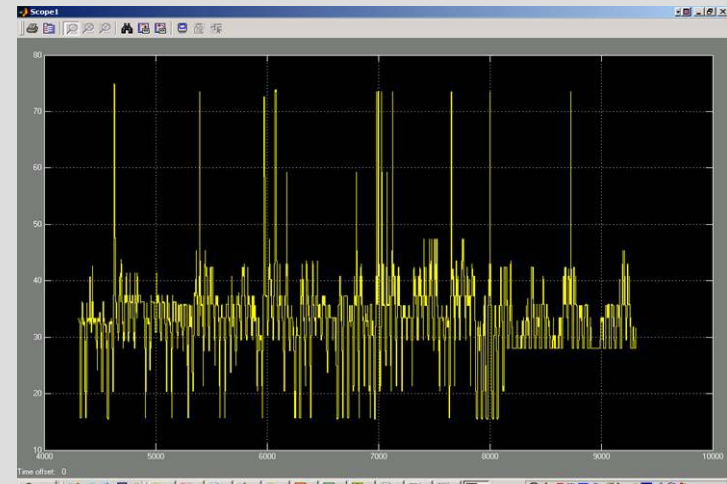
• ECA's and RE

- High Volatility (pool market)  
(oil price volatility, demand variability during the day, transmission constraint)

- Imbalance Risk (top-up and spill price)

- Price set every hour (by law)

**Example: one year for electricity price**



• Electricity Market Structure

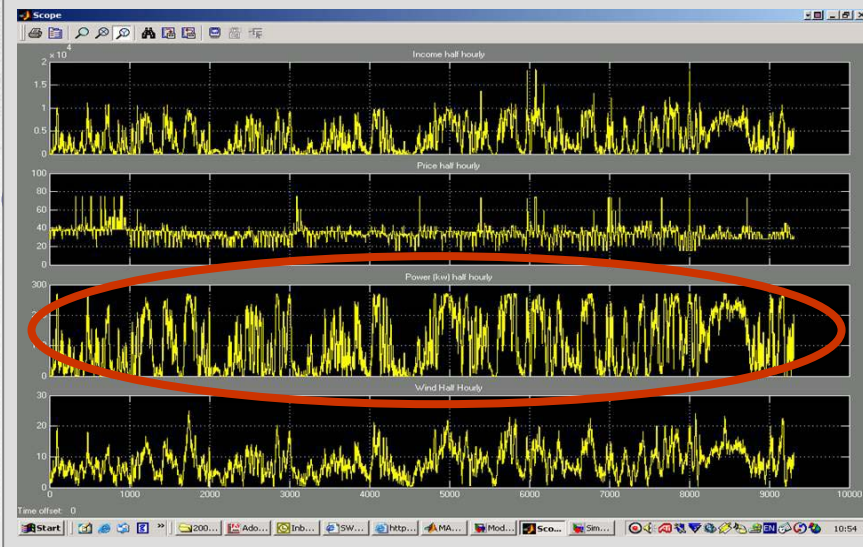
• RE Market Structure & Policy

• RE Market Risks

• ECA's Potential Mitigation

- Intermittency and production uncertainty;
- Fuel supply (on)
- Network costs;
- No information/

**Example: one year production (MWh) for a wind farm (variability)**



## How market is regulated in a specific Country:

• Electricity Market Structure

• RE Market Structure & Policy

• RE Market Risks

• ECA's and RE

regime	structure
Monopoly	
Liberalized market	<ul style="list-style-type: none"> <li>• Bilateral Contract</li> <li>• Central Pool</li> </ul>

	Mechanism		Risks
<ul style="list-style-type: none"> <li>• Electricity Market Structure</li> </ul>	Non-Marked oriented	Feed in tariff	Contractual Risk: PPA for 15 years
<ul style="list-style-type: none"> <li>• RE Market Structure &amp; Policy</li> </ul>			
<ul style="list-style-type: none"> <li>• RE Market Risks</li> </ul>	Marked oriented	Obligation and Certificate	Price market risks and TGC price risk (TGCvolatility)
<ul style="list-style-type: none"> <li>• ECA's and RE</li> </ul>			

• Electricity  
Market  
Structure

• RE Market  
Structure &  
Policy

• RE Market  
Risks

• ECA's and  
RE

- High up-front cost (cost of technology)
- Low return rate return (10-15% instead of 20-30%).

- Electricity Market Structure
- RE Market Structure & Policy
- RE market risks
- ECAs and RE

Strengths (RE)	Weakness (RE)
<ul style="list-style-type: none"> <li>• No fuel dependency</li> <li>• Local resources deployment</li> <li>• Environmental protection</li> </ul>	<ul style="list-style-type: none"> <li>• Production uncertainty</li> <li>• Electricity price volatility</li> <li>• G. Certificate Price Volatility</li> </ul>
Opportunities (ECA)	Threats (ECA)
<ul style="list-style-type: none"> <li>• Developing market (“don’t be the last” strategy)</li> <li>• Support RE national producer (ECAs main objective)</li> </ul>	<ul style="list-style-type: none"> <li>• Needs for a PPA (long term stability)</li> <li>• Price risk (Electricity and TGC)</li> </ul>

• Electricity  
Market  
Structure

• RE Market  
Structure &  
Policy

• RE market  
risks

• ECA's and  
RE

• conclusion

- ECAs' main objective: support national RE exporters
- RE externalities cost cannot be undertaken by undeveloped countries government. If exporter works in the undeveloped countries, financial supports (to mitigate risks) are needed.  
(Bonn conference outcome: longer repayment term, more local content, discount premium)
- ECA opportunities in exploring an EMERGENT market. High growth potentiality, fuel independency
- Information with Medium-Small RE producer is needed

## Useful Links

- [www.greenprices.com](http://www.greenprices.com)
- [www.recs.org](http://www.recs.org)
- <http://europa.eu.int/comm/energy/en/altener2.htm> (altener II)
- [http://europa.eu.int/comm/energy\\_transport/atlas/htmlu/hpodelec.html](http://europa.eu.int/comm/energy_transport/atlas/htmlu/hpodelec.html)
- [www.cer.ie](http://www.cer.ie)
- [www.mercatoelettrico.com](http://www.mercatoelettrico.com)
- [www.ucc.ie/serg/brian.html#Publications](http://www.ucc.ie/serg/brian.html#Publications)

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