

# Session 2: Adapting liberalised power markets - minor tweak or major overhaul?

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Renewables in the Mainstream  
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# Introduction

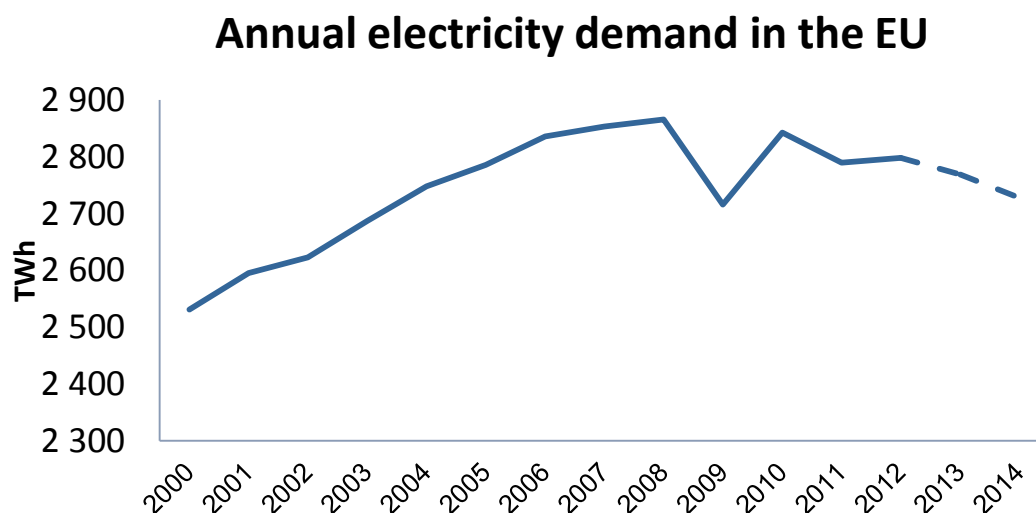
- Renewables are now in the mainstream
- They depress power market prices and are accused to distort markets
- Mitigating risks of renewables investments is needed to attract finance and keep the cost of capital low

## Coevolution:

- Adaptation of power markets to renewables
- Adaptation of renewables to power markets

# Centralised and distributed future: it is not either/or\*

- Erosion of utility's revenues
- Consumers want to enjoy the same level of reliability
  - Very few consumers to go "off-grid"



**Conventional generators and networks are critical for reliable power supply**

\* Mauricio Gutierrez, COO of NRG Energy, Quoted by EEnergy Informer



# Building upon 20 years of power market design

## Achievements (to date)

- Market coupling (EU)
- Balancing markets (EU)
- Locational marginal pricing
- Large RTOs/ISOs (US)
- Shorter dispatch interval

## Regional integration

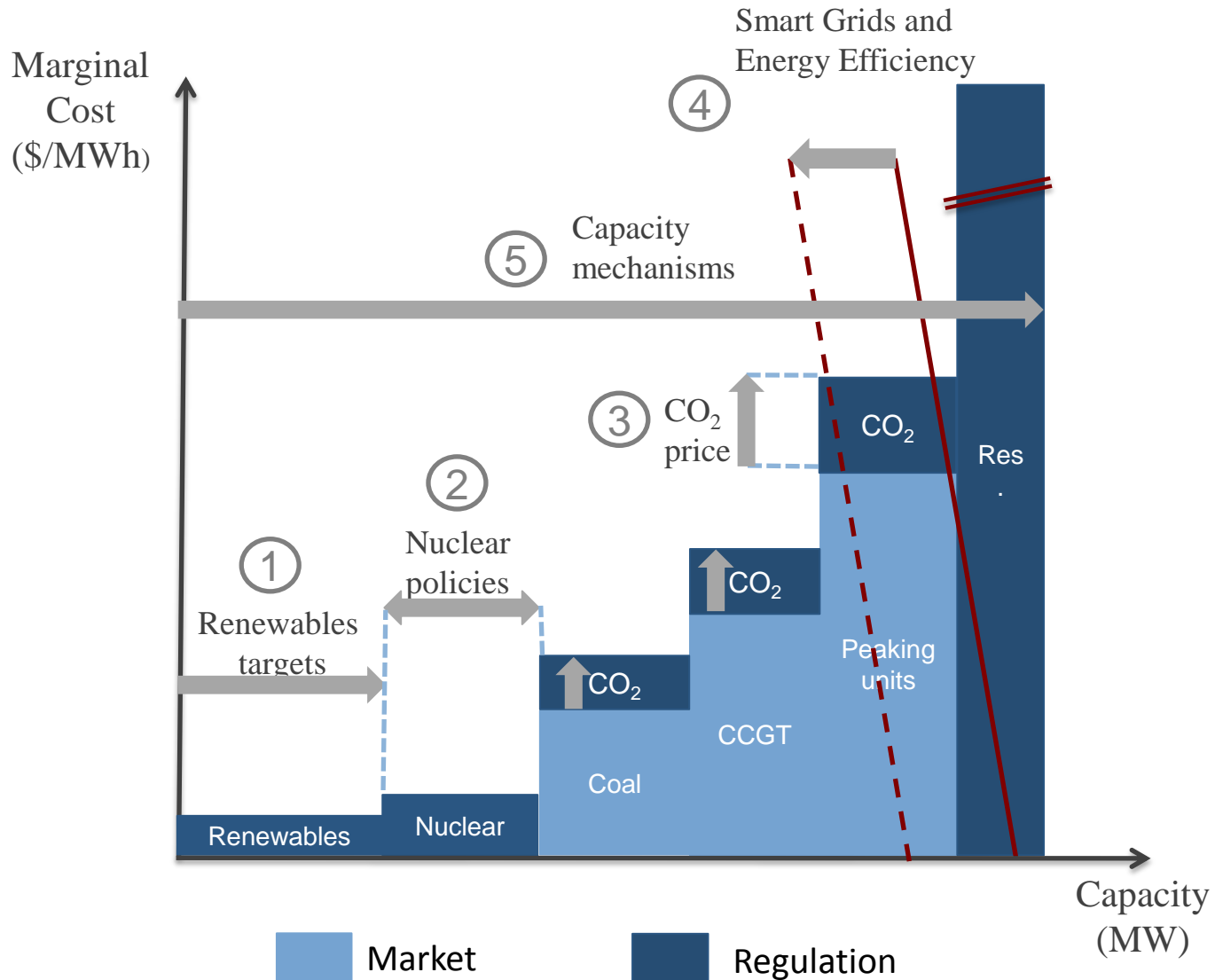
- Balancing and intra day network codes (EU)
- Regional capacity markets (EU)
- Expansion of RTOs

## Distributed resources

- NY: Reforming the Energy Vision: Distributed System Platform Provider
- CEER – DSO as neutral market facilitator

**Market arrangements are being developed to efficiently integrate variable renewables and other resources on both the local and continental scale.**

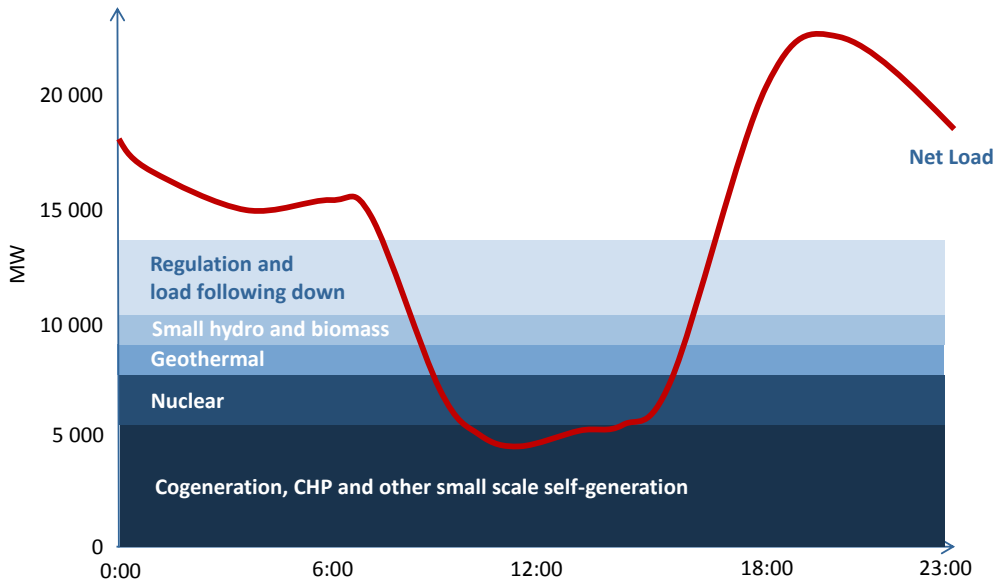
# Impact of policy interventions on power markets



# Integration of VRE into electricity markets

## Over-generation

California ISO, Long-Term Procurement Proceeding Scenario,  
 24 March 2024



## Objectives of VRE integration

- Improve plant availability
- Minimise cost of operations
  - Curtailment
- Maximise VRE market value
  - Declining value factor

Source: CAISO

**Market design must be adapted to integrate weather-dependent renewables efficiently while ensuring system security**

# What is to be done?

## Basic package / no regret

### Improved climate and low carbon Policies

- Improve certainty of CO2 price
- Control VRE deployment
- Integrate renewables into markets

### Enhanced energy markets

- Improve flexibility and scarcity price formation
- Continue regional integration
- Integrate distributed resources
- Enable demand Response

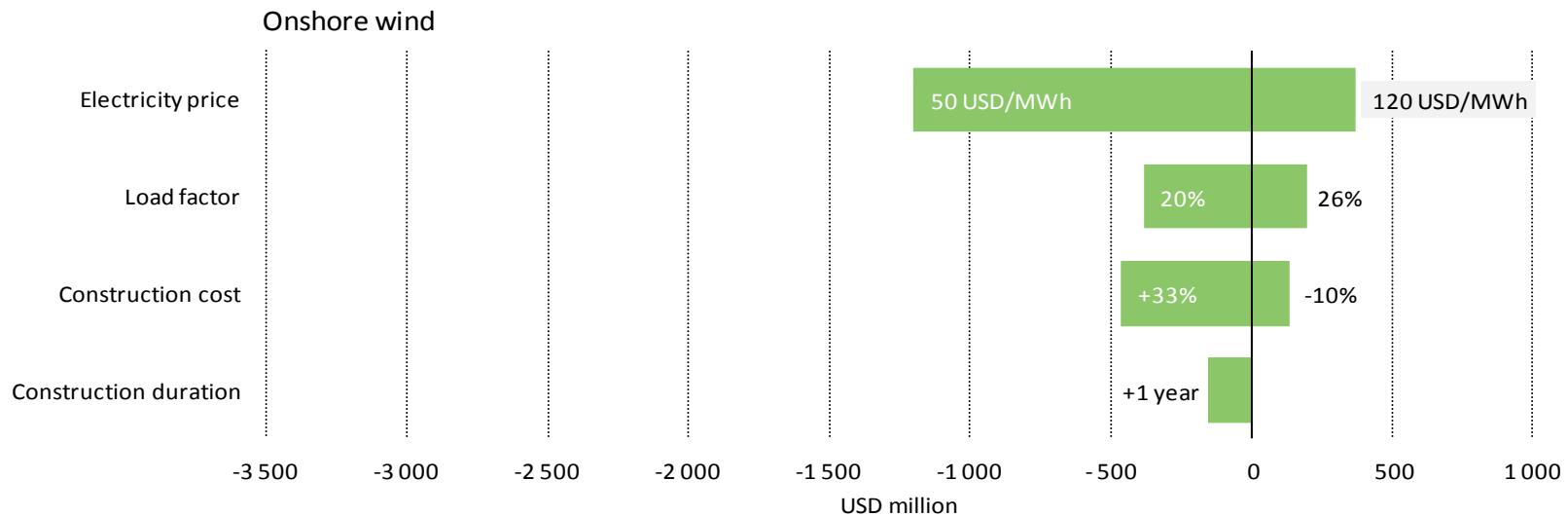
## Safety-net

### Capacity market (optional)

- Meet high electricity security standards
- Integrate capacity markets across borders

# Towards market-based renewables investments?

**WIND: sensitivity analysis of the NPV of capacity (illustrative)**



## The infrastructure financing puzzle:

- financing capital-intensive investment
- in a context of long-term price uncertainty (gas and CO<sub>2</sub>)
- at a low cost of capital to keep the energy transition affordable



# 3 pathways for attract investments during the energy transition

## Market

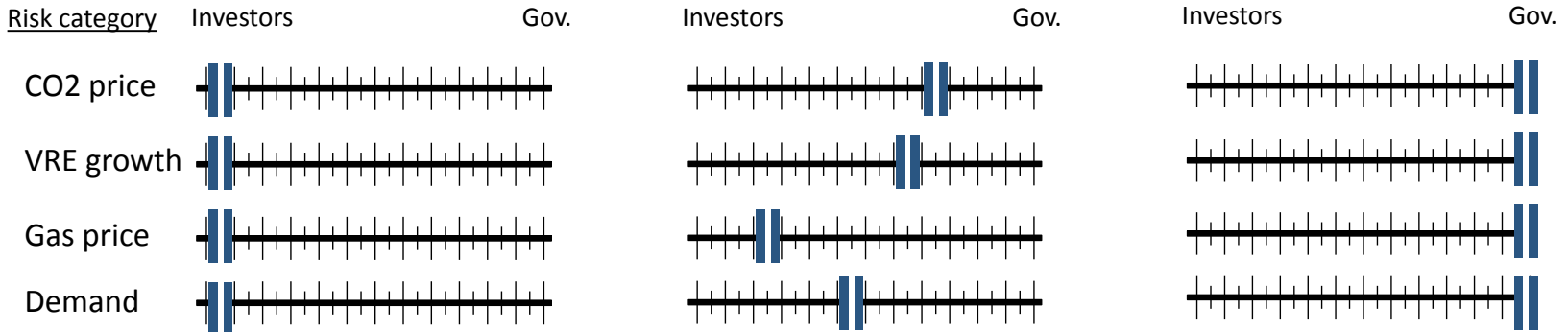
Energy-only market  
+ carbon price

## Risk Mitigation

Low-carbon support  
and risk mitigation policies

## Plant regulation

Long-term regulated contracts  
(FiT or CfD)



## Key points

- **Markets for electric energy remain critical to integrate renewables efficiently at local and continental levels**
- **The resulting market signals are unlikely to trigger renewable investment at the scale needed**
- **Risk mitigation for investors does not require shifting all the risks away from investors onto governments**

**Thank you**

**<http://www.iea.org/topics/electricity/>**