



Réseau de transport d'électricité

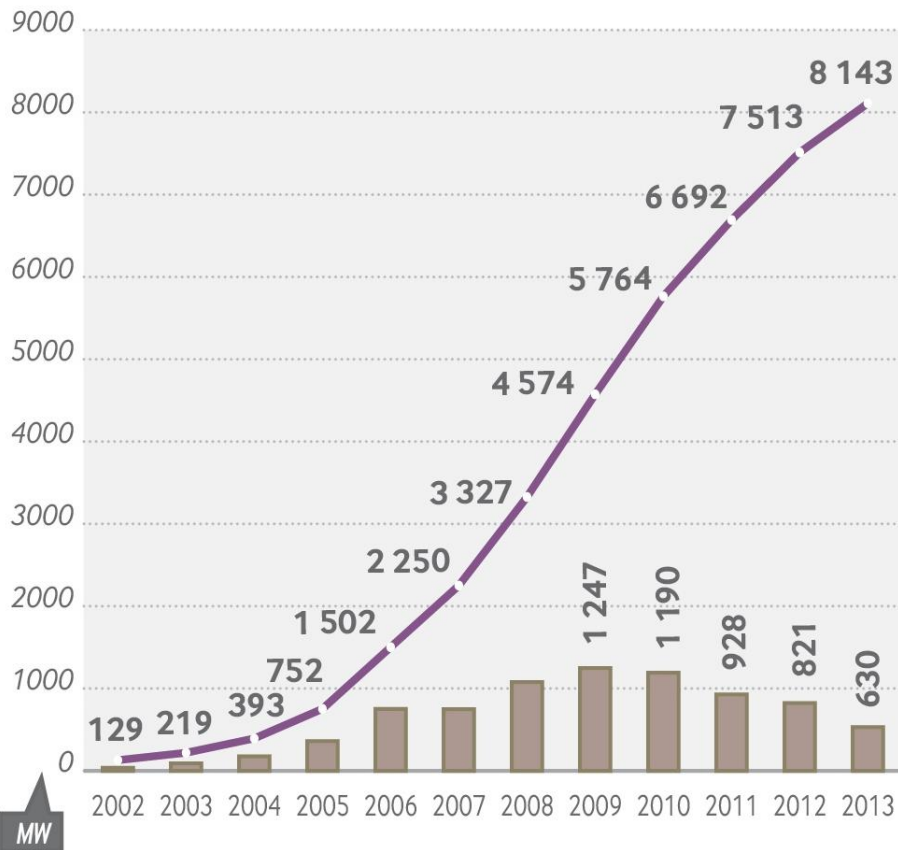
**IEA ELECTRICITY SECURITY ADVISORY PANEL**  
*Markets for secure, efficient and low carbon  
power*

**Market design and renewables**

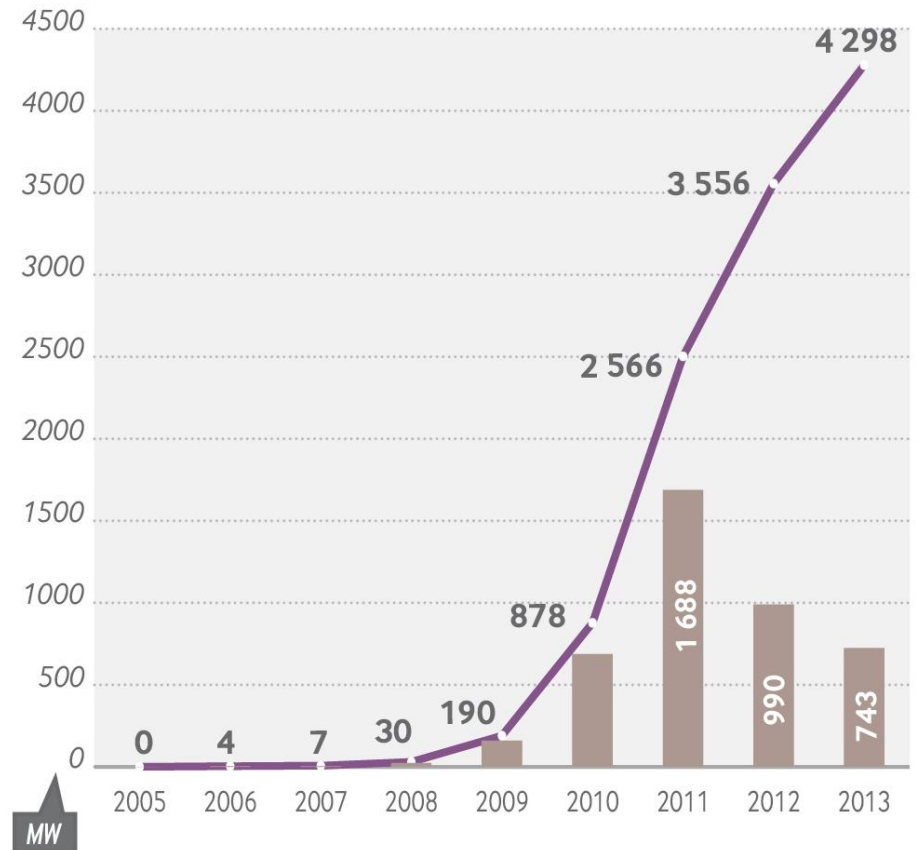
**Dominique Maillard**  
CEO of RTE

# Context: Development of renewable energy sources (RES)

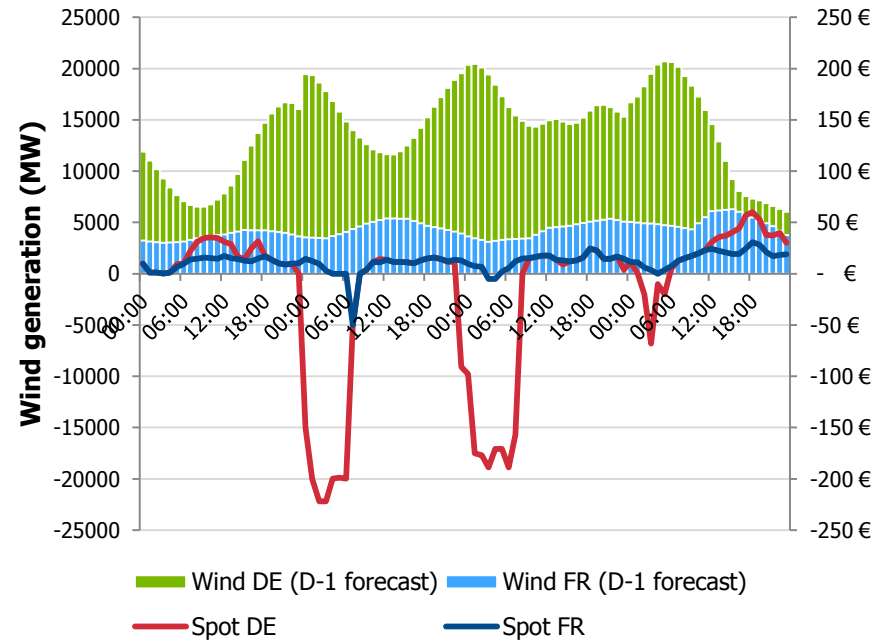
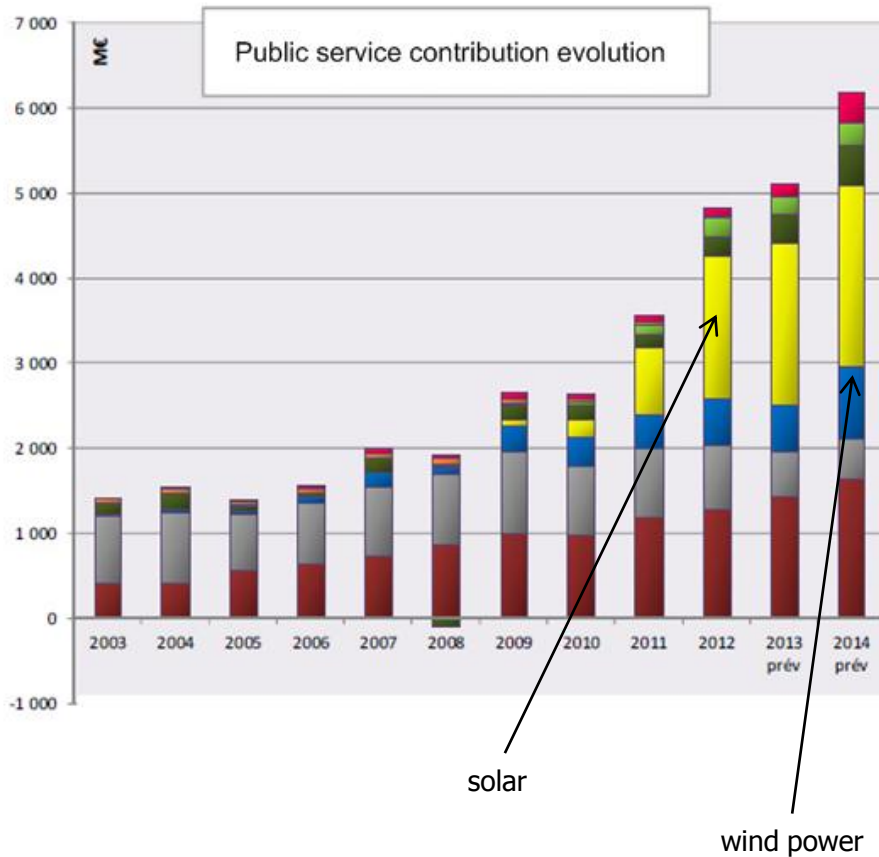
## Wind Generation



## Solar Generation



# Issue: Decreasing, distorted prices



Spot price and day-ahead wind forecasts in Germany and France (December 24th to 27th, 2012)

## Principle:

To reconcile market and physics of power system

RES producers must be responsible for their imbalance

Set RES on equal footing with other generators in terms of regulatory obligations:

- Production measurability and controllability (at least at substation level)
- Obligation to send day-ahead production forecasts to system operators
- Obligation or incentive to offer flexibility services for balancing and ancillary services for frequency and voltage

Benefits : avoid hidden costs, free new flexibilities

→ Option : give additional incentive for prevision quality

# Proposal: Support mechanism

## Provide security for investments

Reducing the risk for investors reduces the cost of support

**✗** Premium fixed ex-ante for the entire life of the asset

## Avoid energy market distortions

Fatal production should be curtailed when  $p < 0$   
Maintenance operation placed during low energy prices

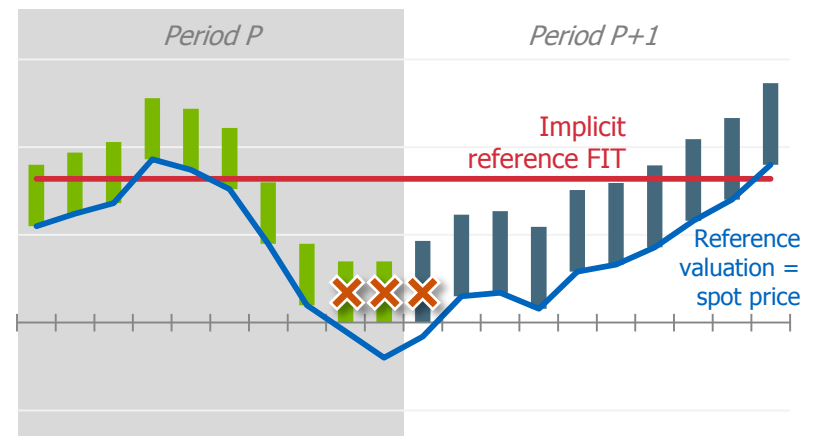
**✗** Feed-in-tariffs (FIT)

## Avoid investment decision distortions

Installations should fit the appropriate capacity / production ratio

**✗** Remuneration for the capacity instead of energy

**✓** Premium yearly adjusted in order to stabilize global revenue (market+premium) in the LT (cf. contract for difference CFD)



# Governance: create the conditions for aggregators to enter the market

