

WP2 Expert Workshop

Background of the Energy-Only Market Problem

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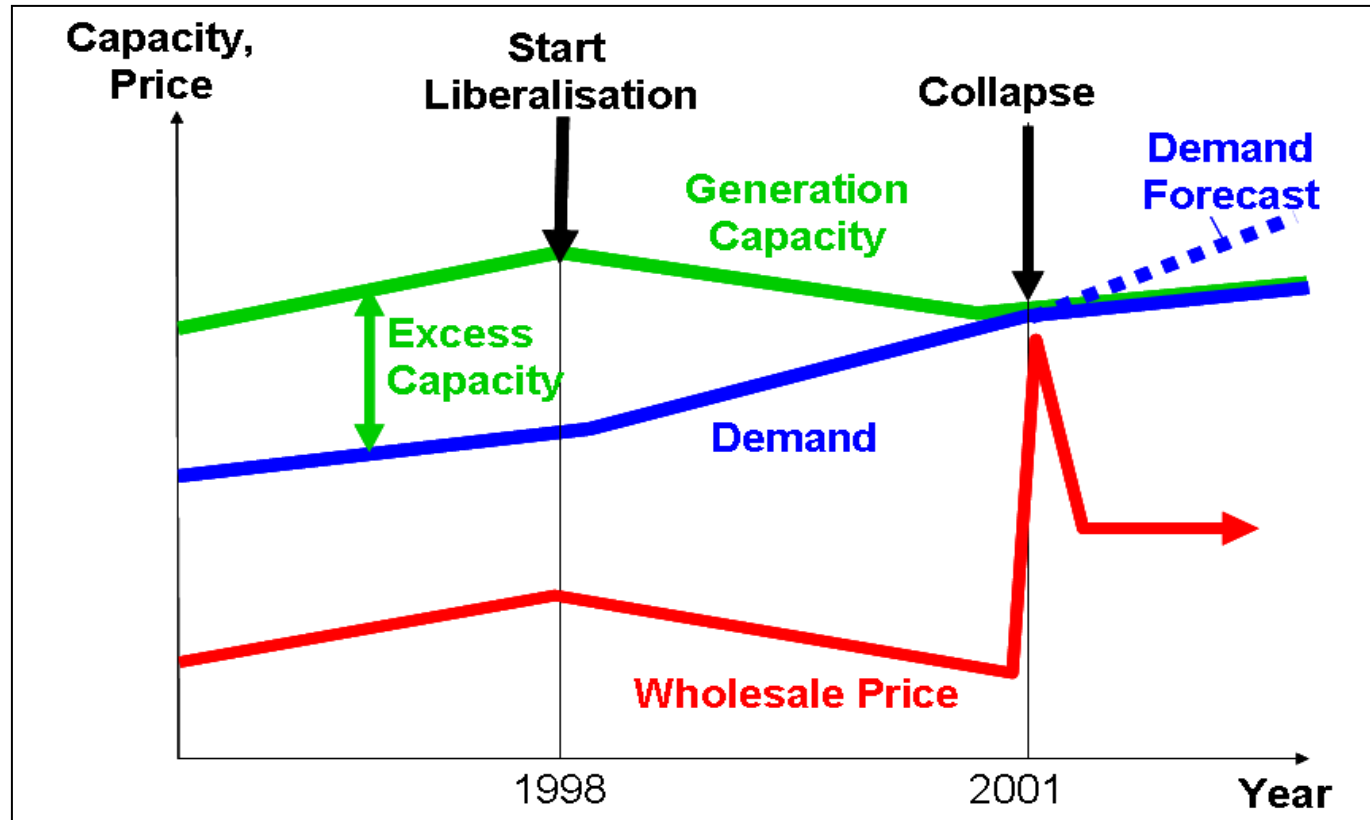
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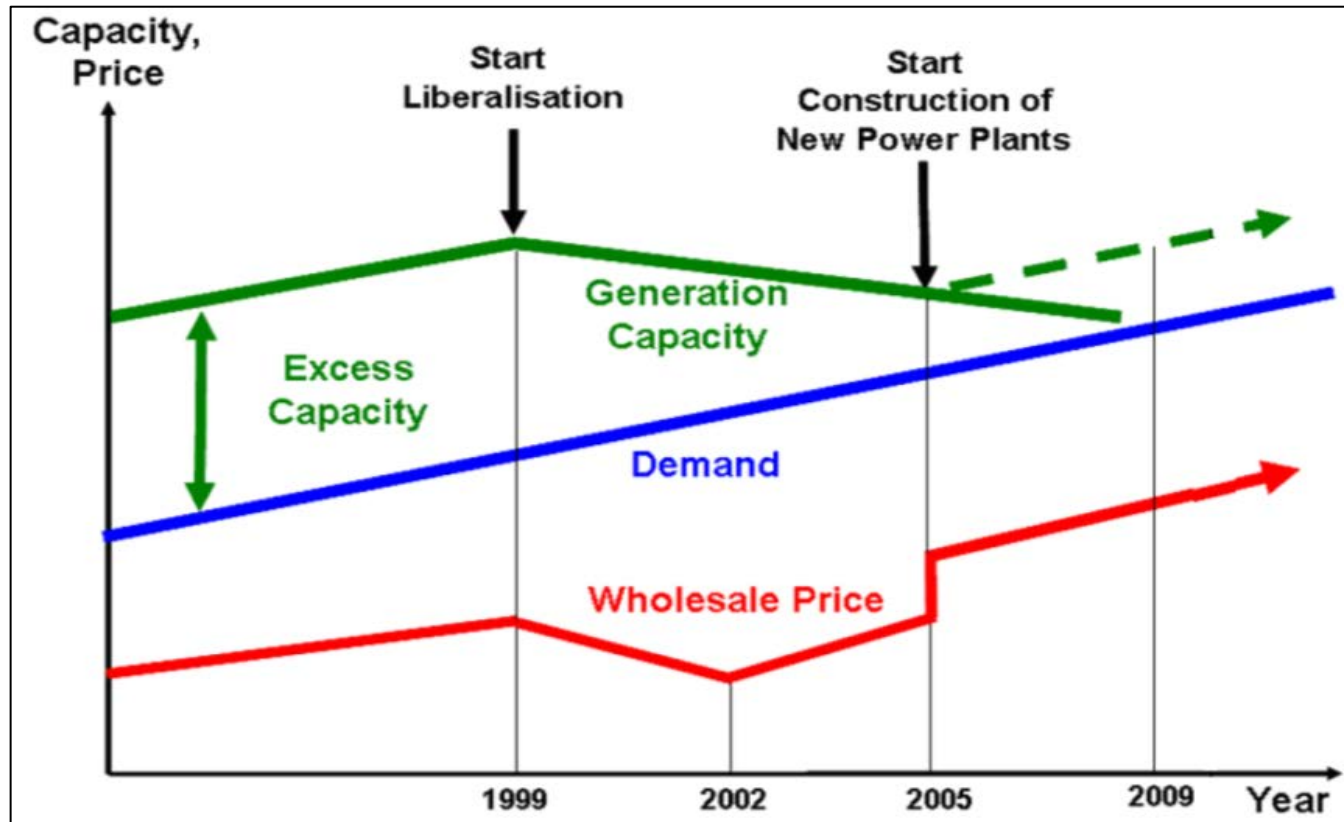
Overview

1. Motivation: California Collapse 2001
2. European Electricity Market 1999-2014
3. Development of RES-E Generation in Europe
4. Existing Challenges in Case of Low Electricity Prices
5. Examples: Age Structure of Power Plants and Challenges ahead in CWE-Region and Iberian Peninsular (2030 Assessment)
6. Conclusions

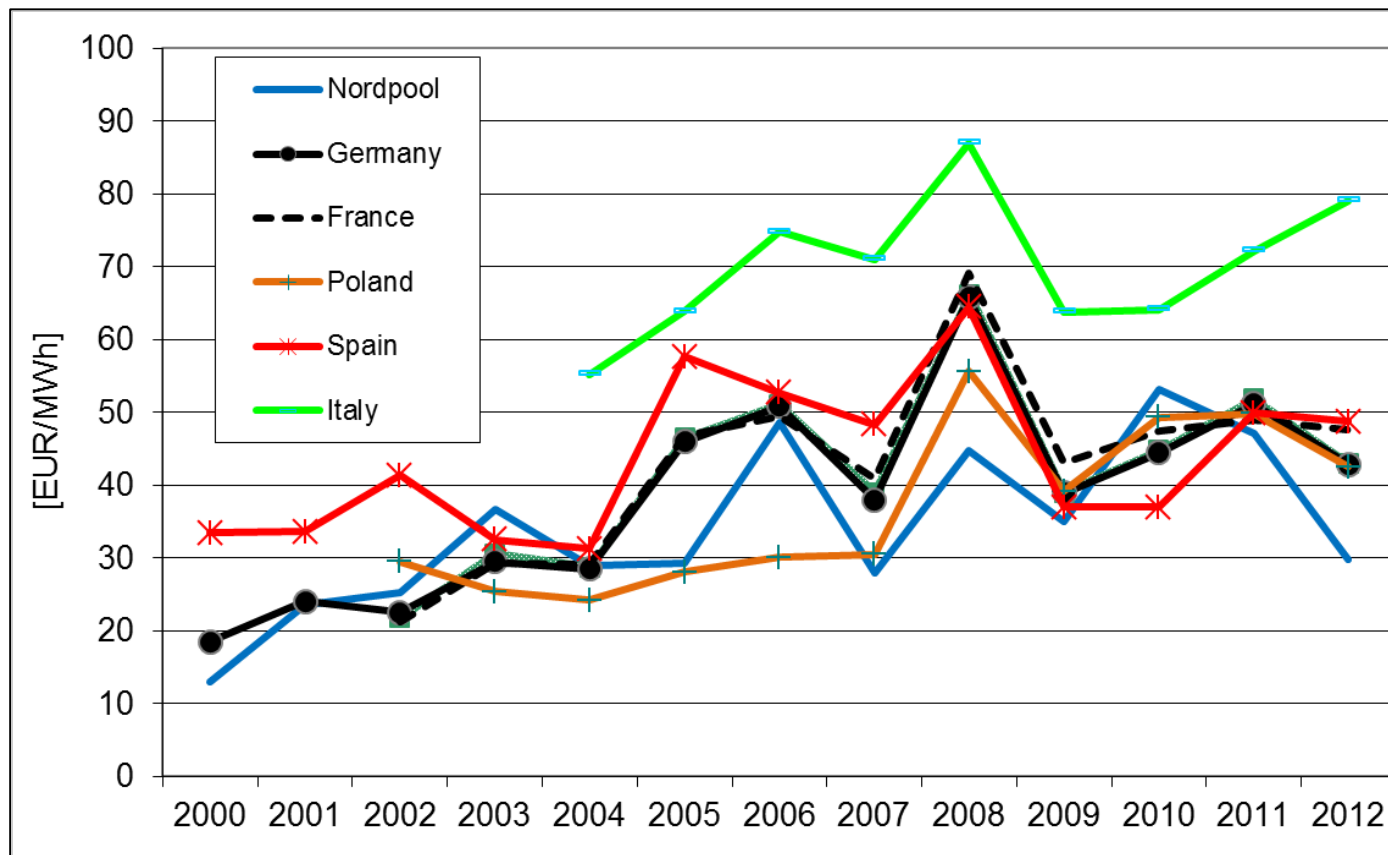
Motivation: Californian Collapse in 2001



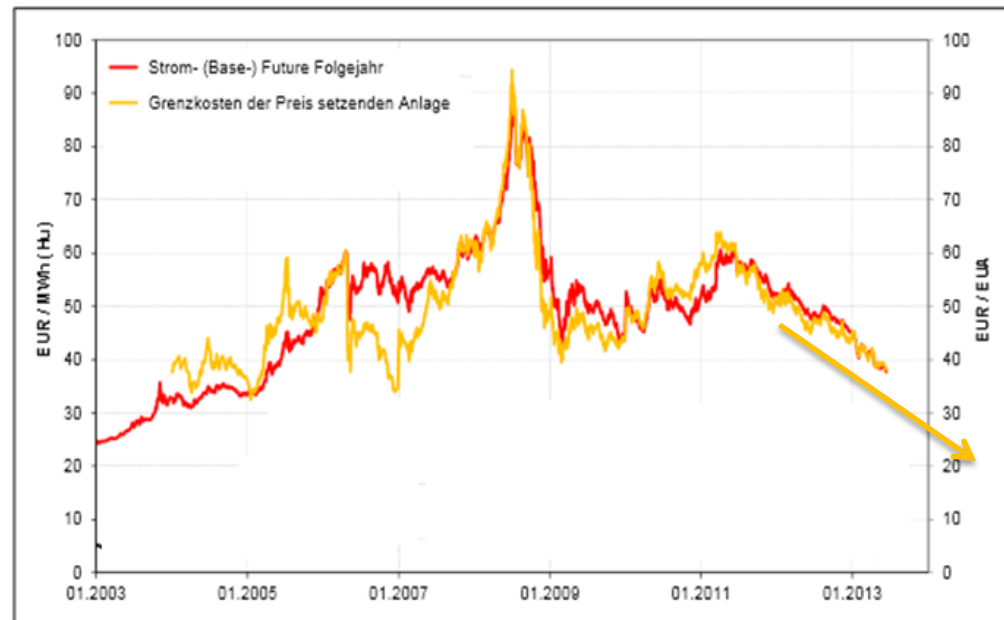
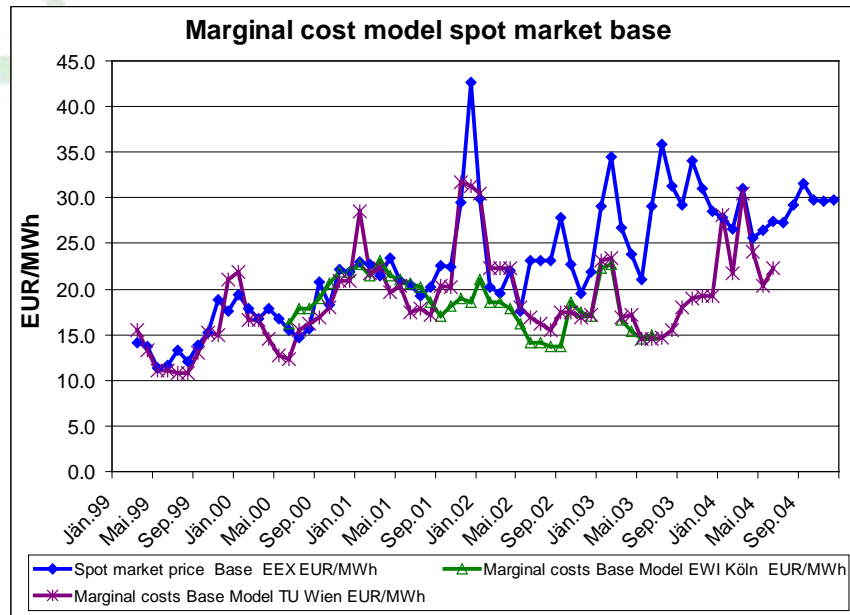
Europe: Excess Generation Capacities in 1999



Development of Wholesale Market Places in Europe

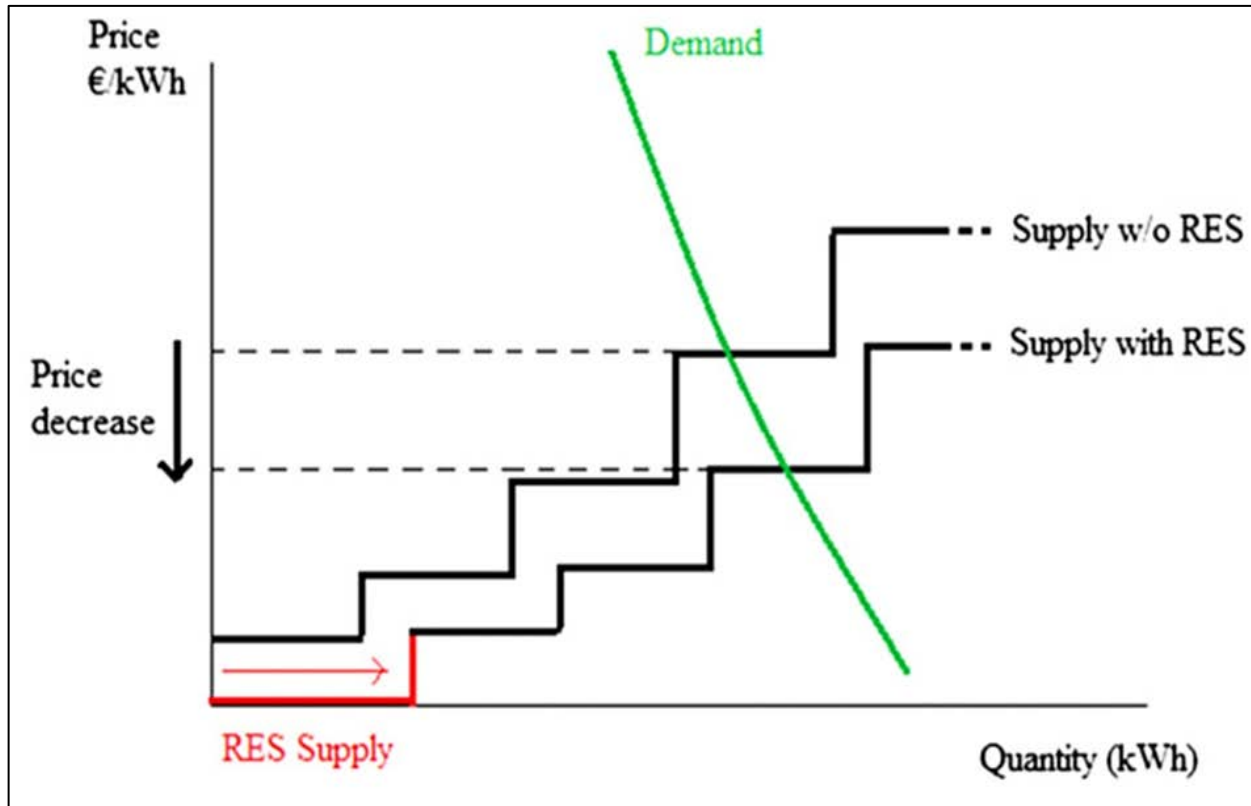


EEX Wholesale Market Price 1999-2013

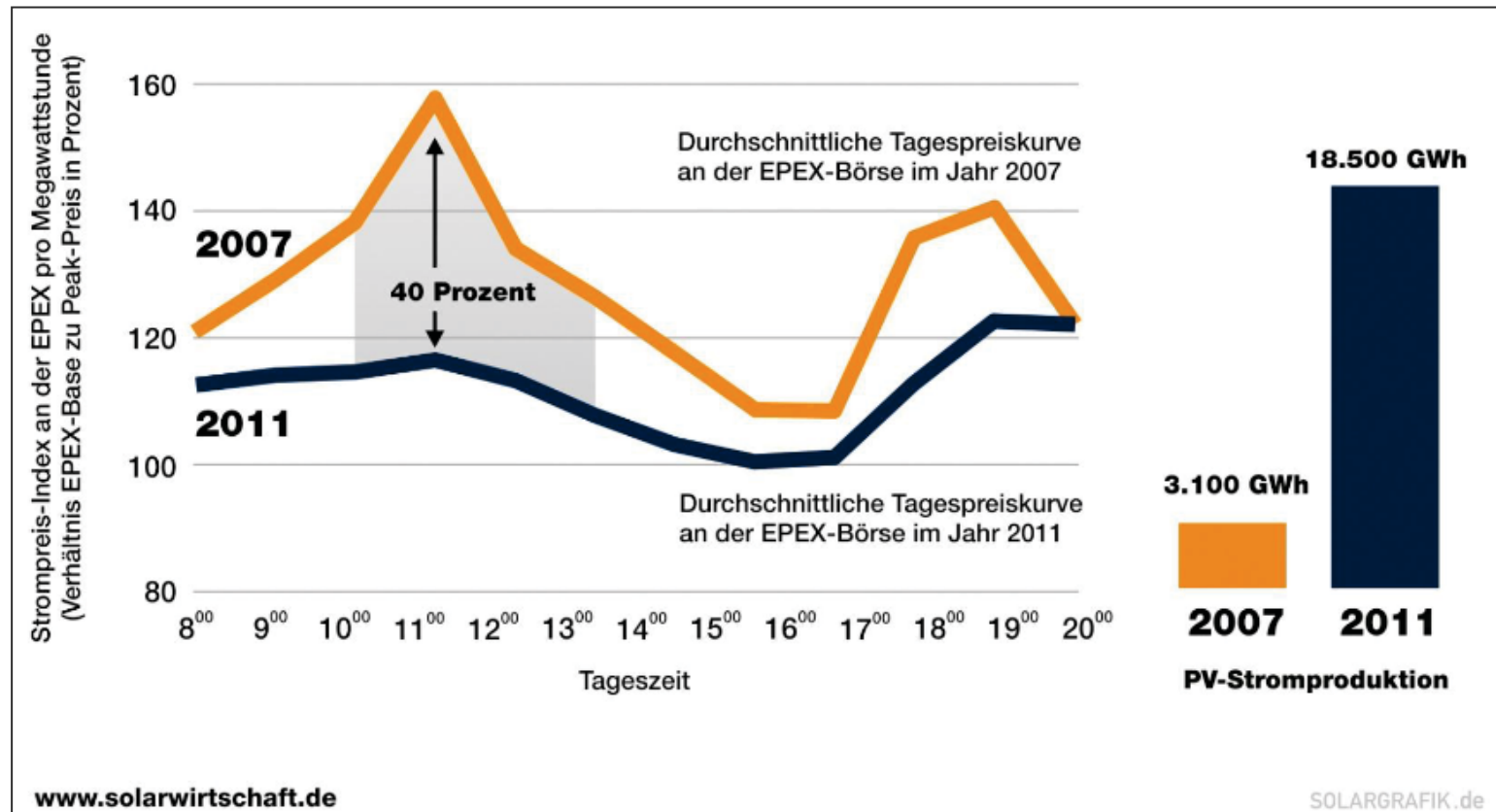


Quellen: EEX, McCloskey, Energate, EvoMarkets, Berechnungen des Öko-Instituts.

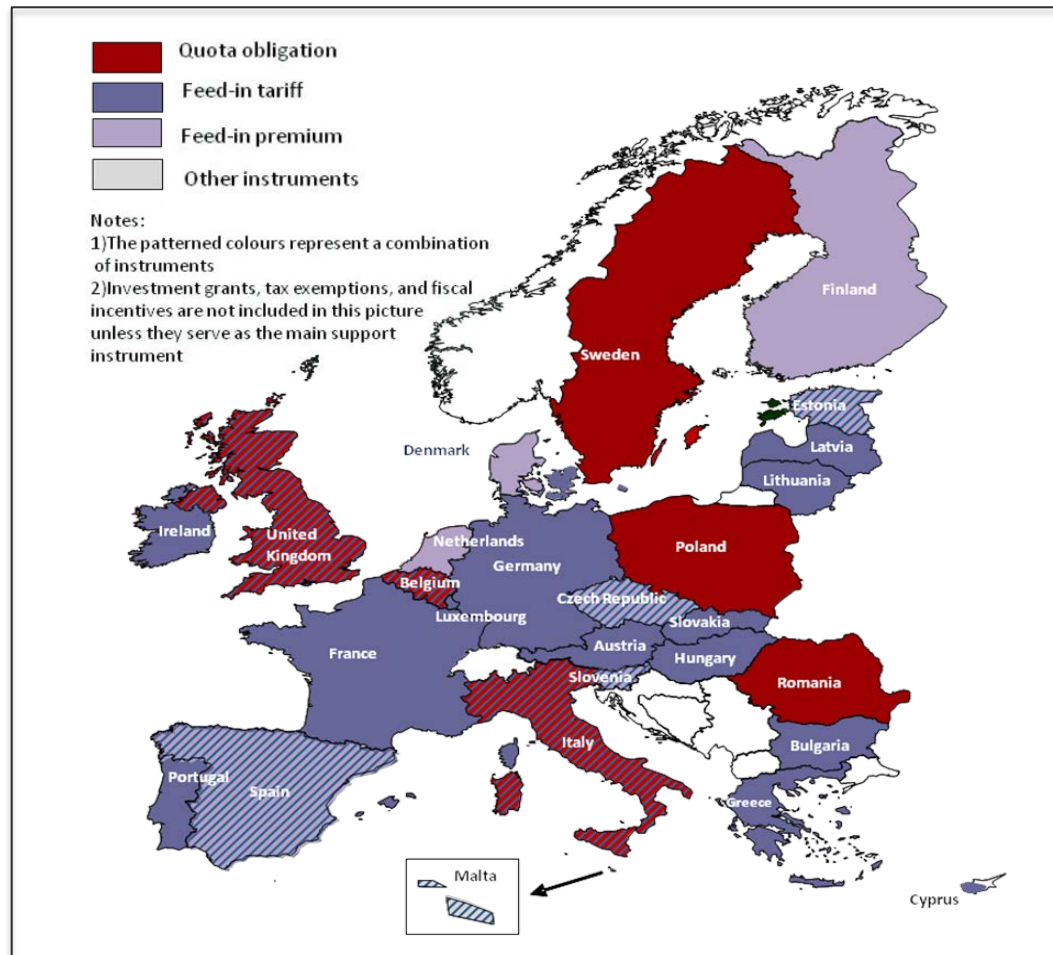
„Merit-Order Effect“ of Wind&PV Generation



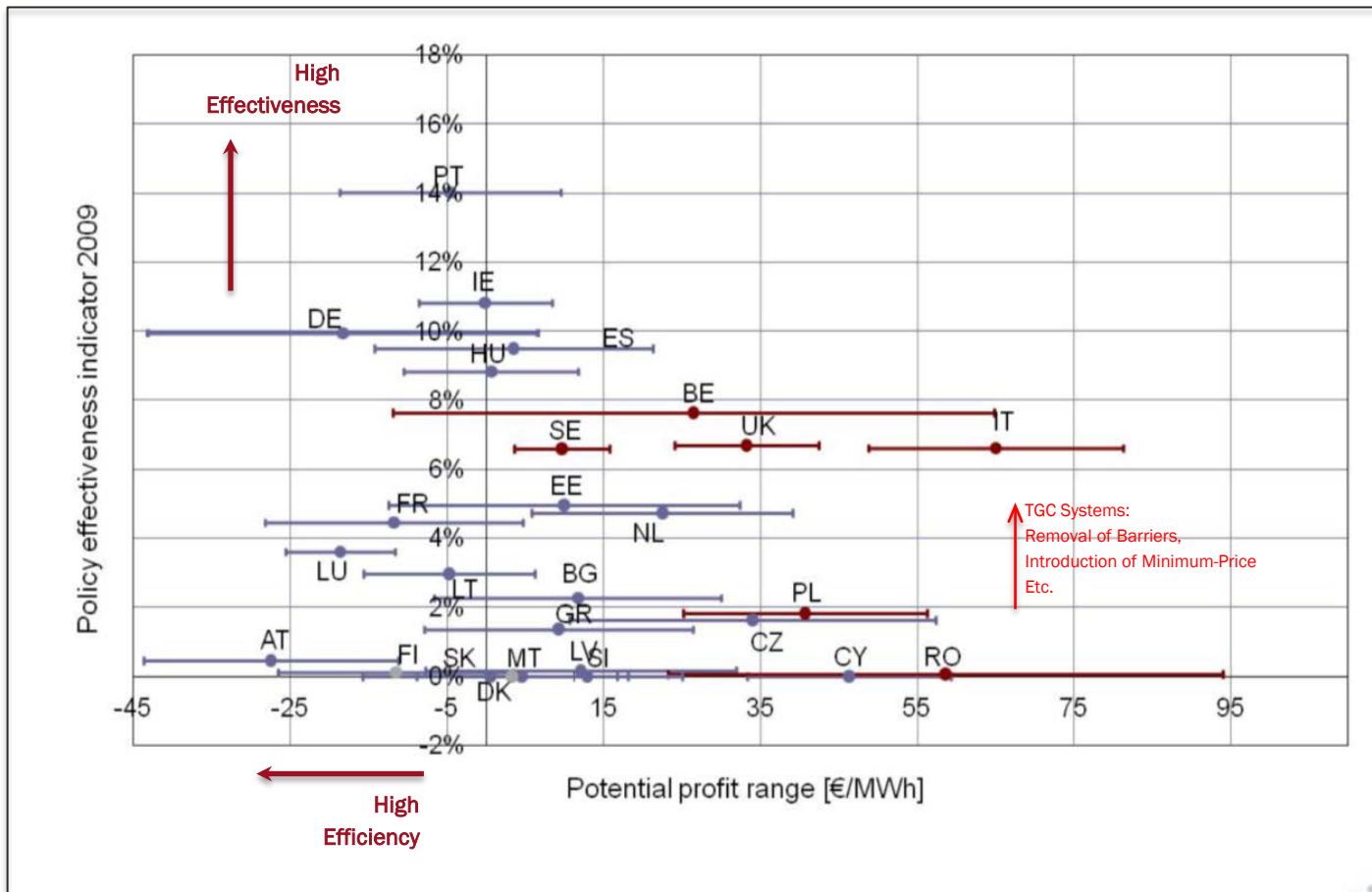
PV-Germany: 40% Peak Price Reduction at Noon



Renewable Support Instruments in Europe in 2012

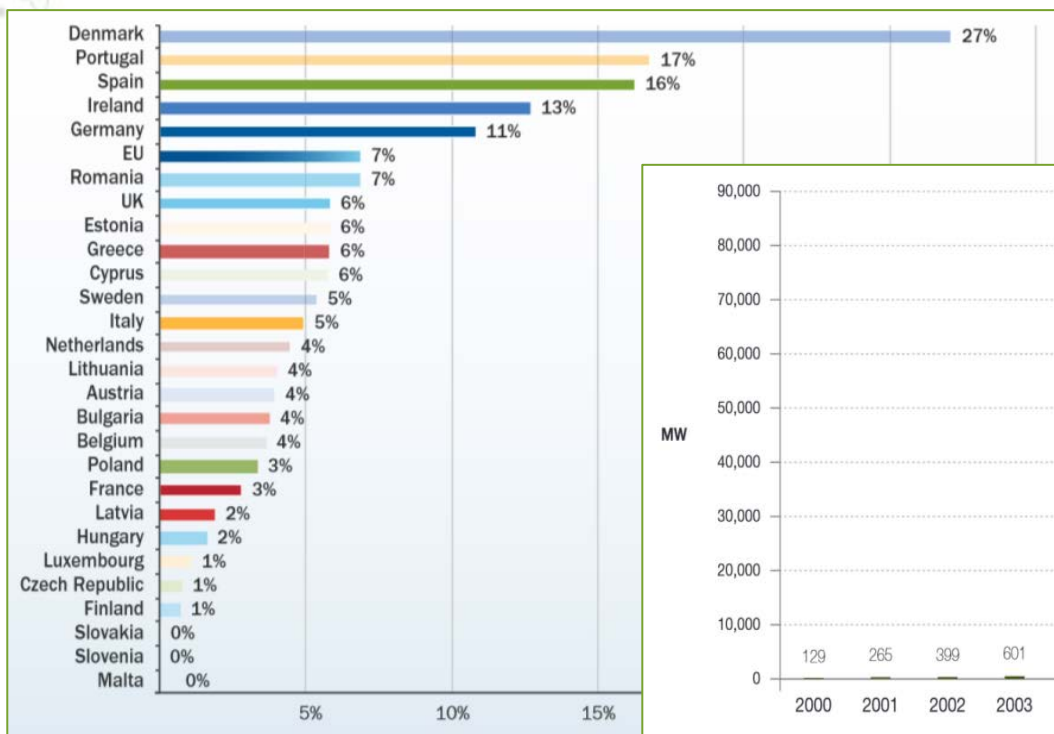


RES-E Instruments: Effectiveness & Efficiency

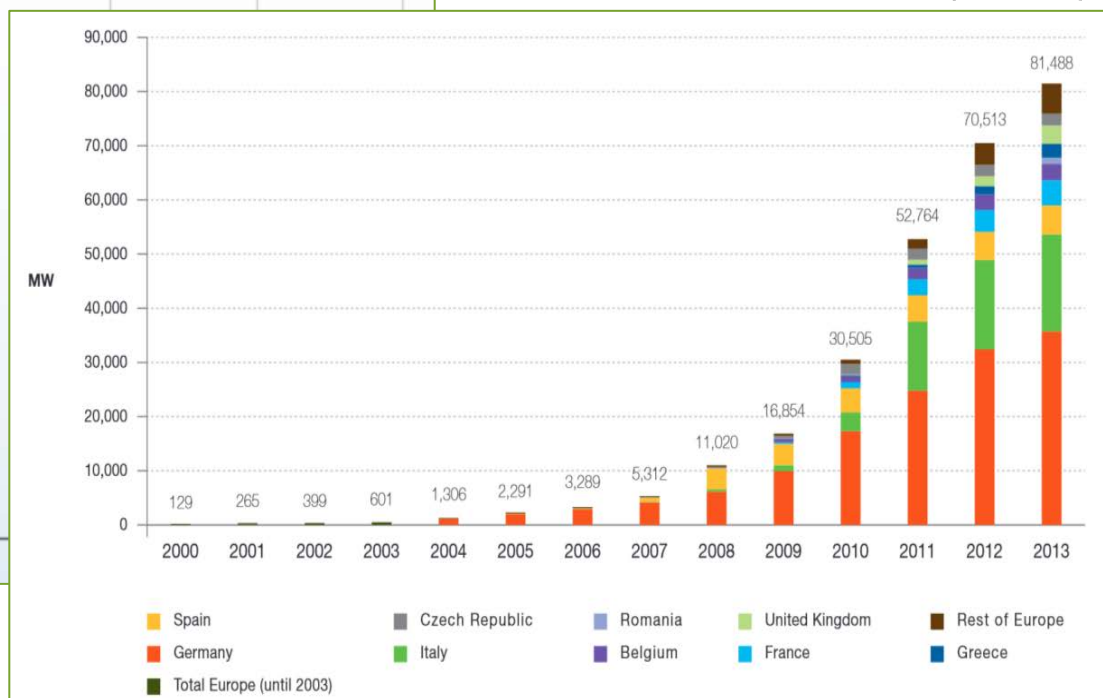


Wind&PV Deployment in EU-Member States

Wind (2013)



PV (2013)

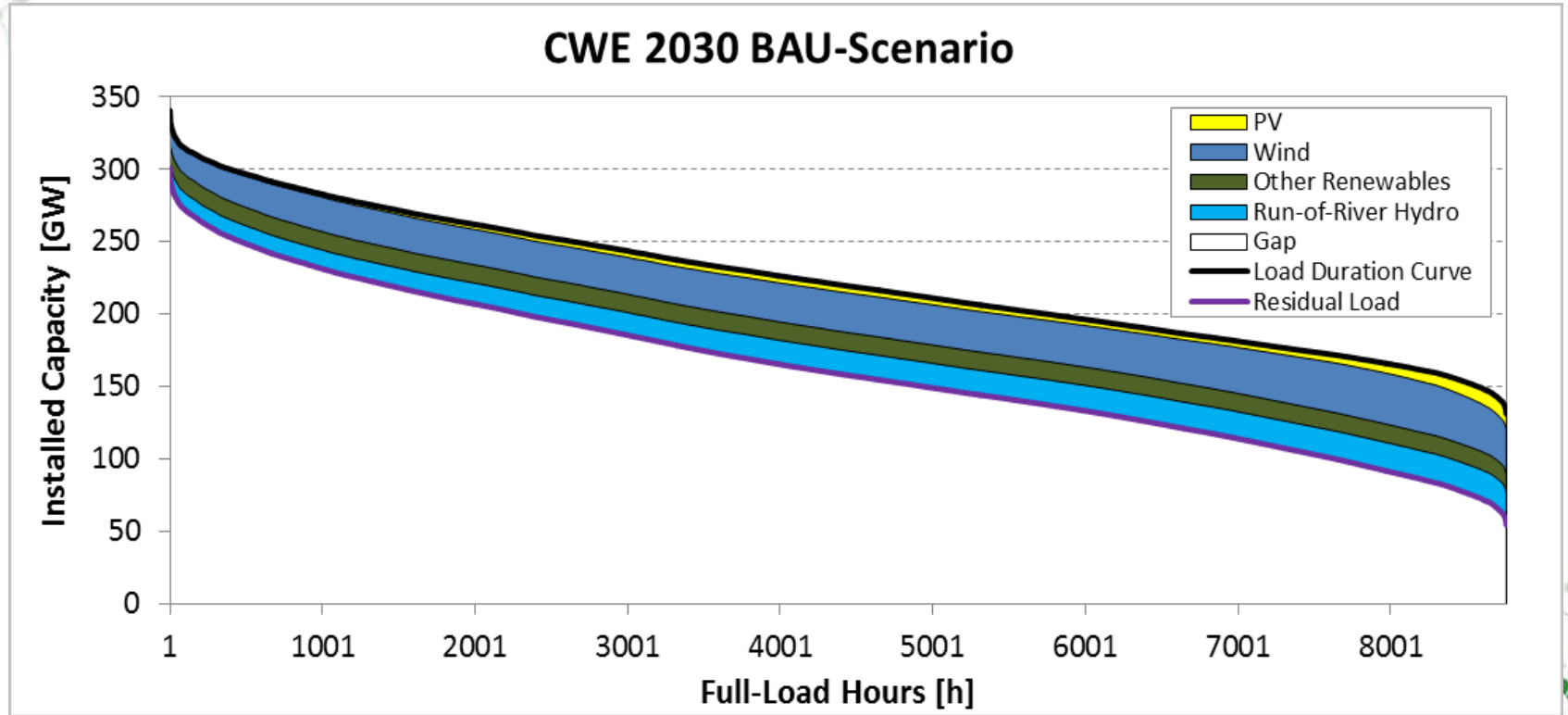




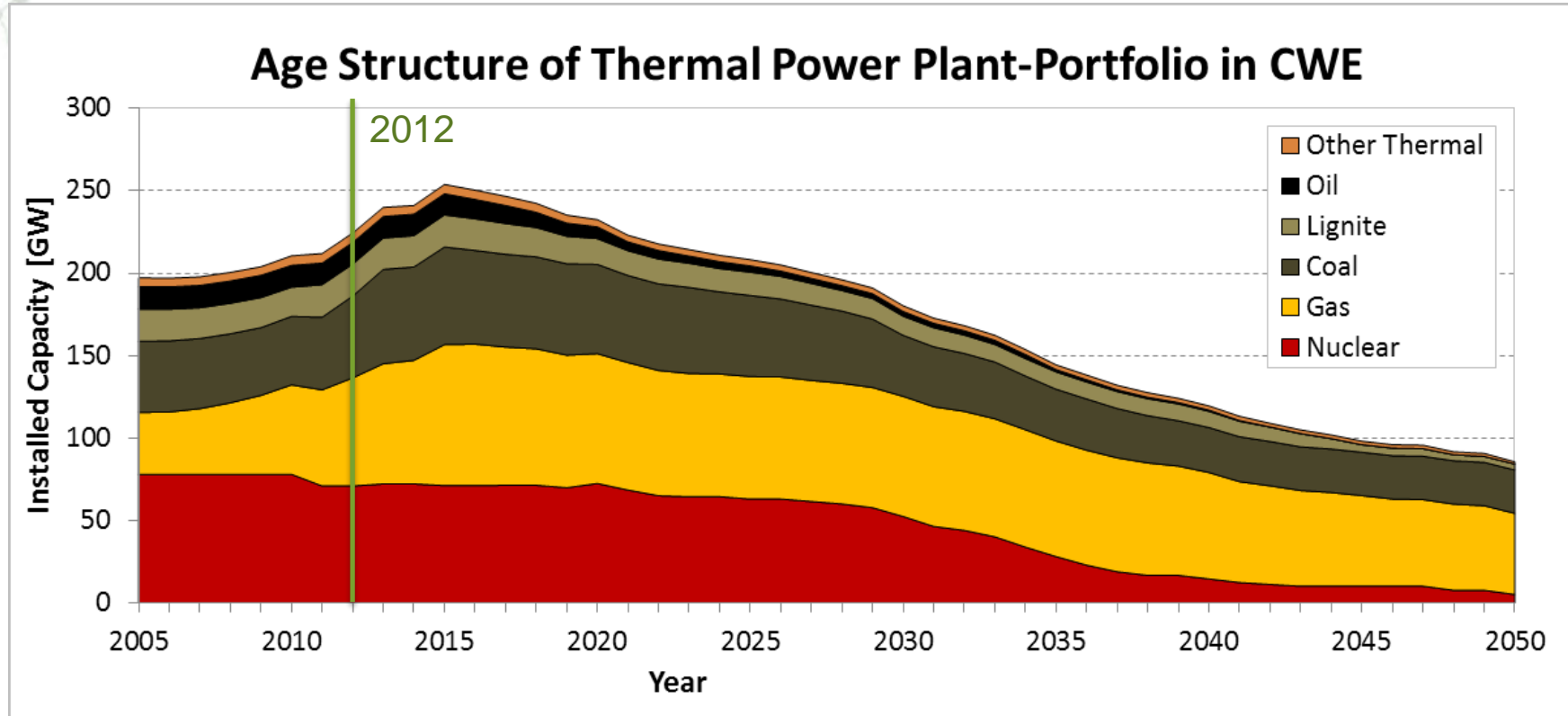
Challenges in Case of Low Electricity Prices and Low Price Spreads between Base&Peak

- No investments in new generation capacities
- Profitability problems due to reduced full load hours and/or high primary fuel prices (e.g. gas-fired CCGTs)
- Interdependences and profitability problems for Combined Heat&Power generation (heat profile as constraint; no extension of CHP capacities)
- Profitability problems of energy storage (low price spread between base/peak)
- No incentives for demand response (no price elasticity observable; no incentives to shift/save; no scarce good)
- Etc. Etc.

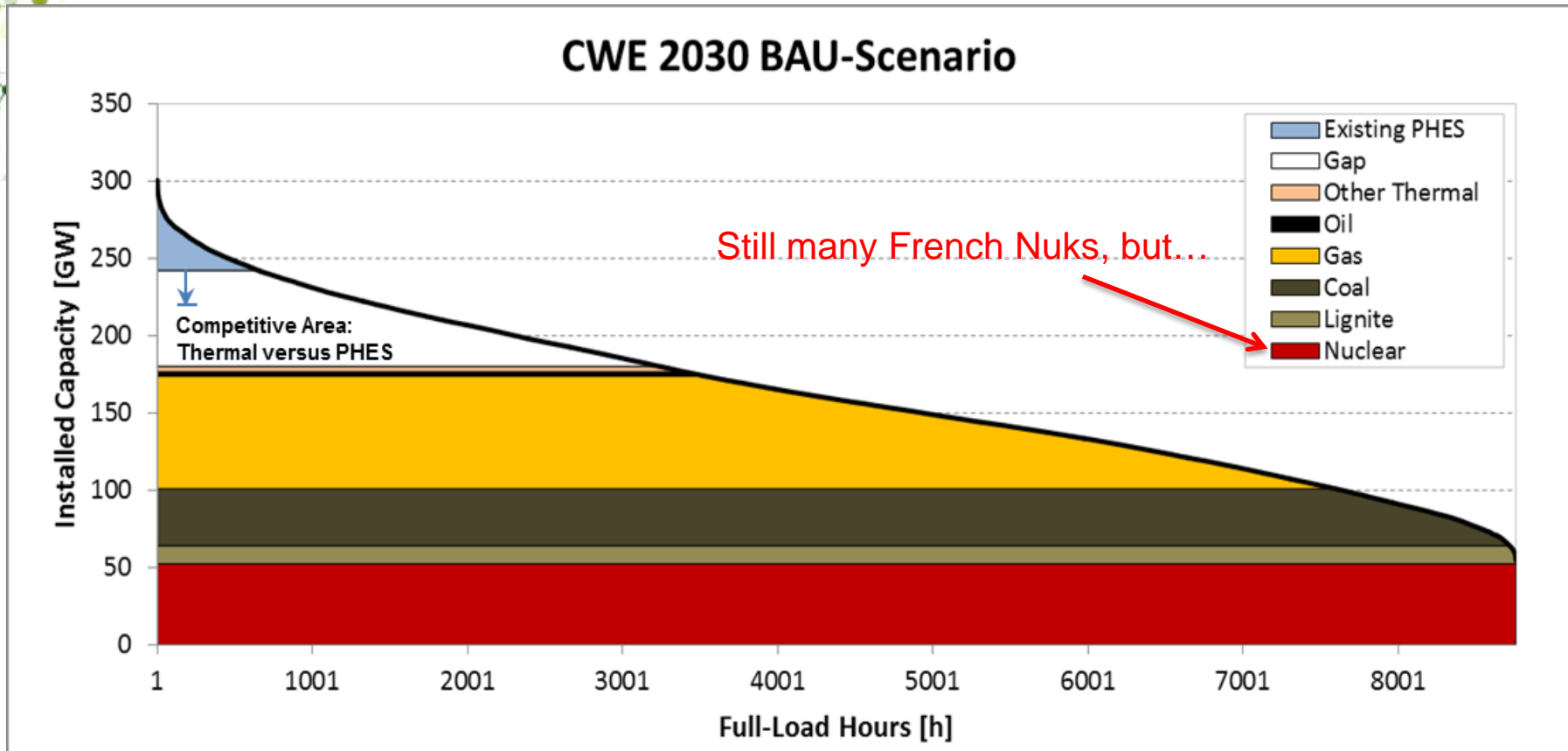
CWE-Region: Residual Load Curve in 2030



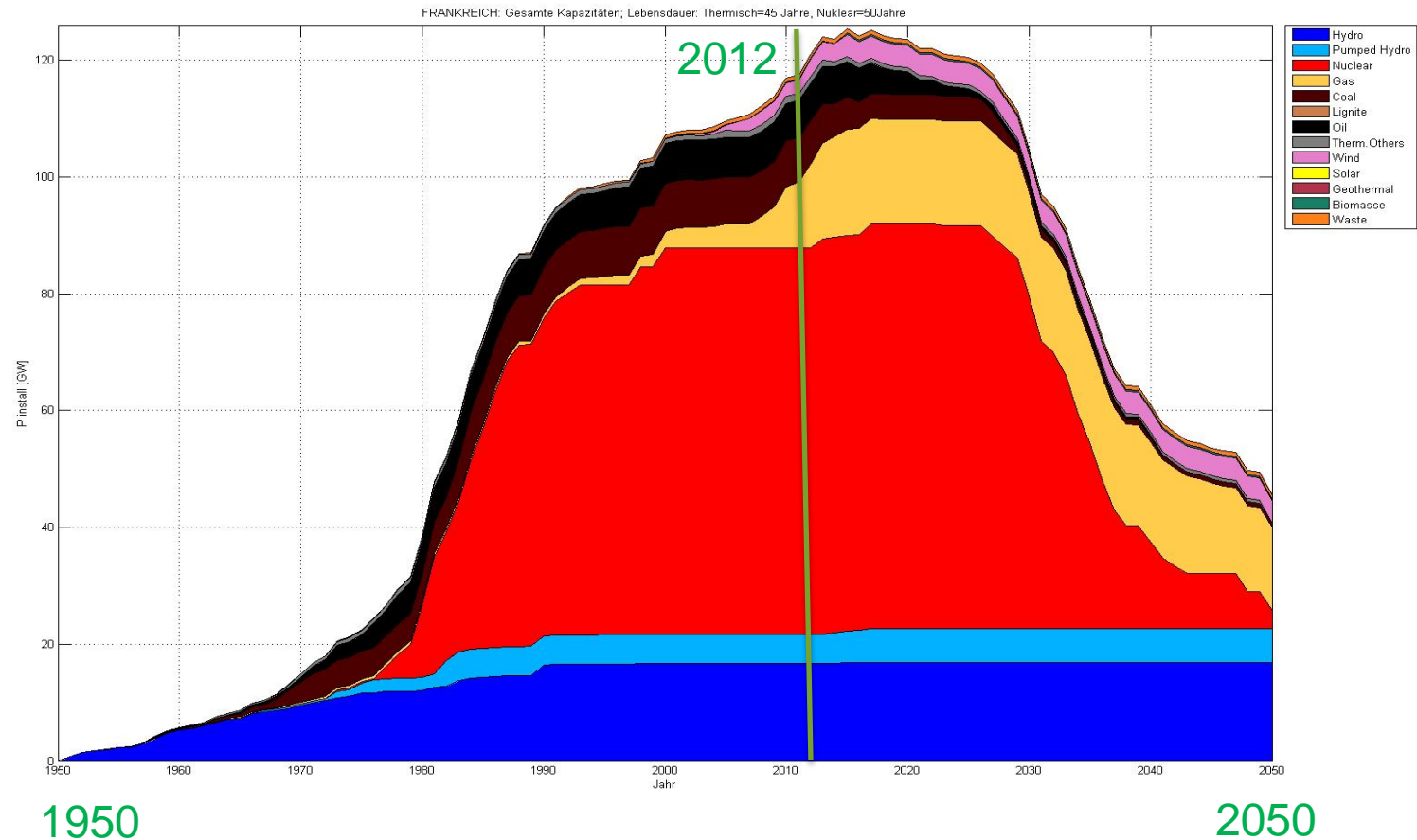
CWE-Region: Age of Thermal Power Plants (2012)



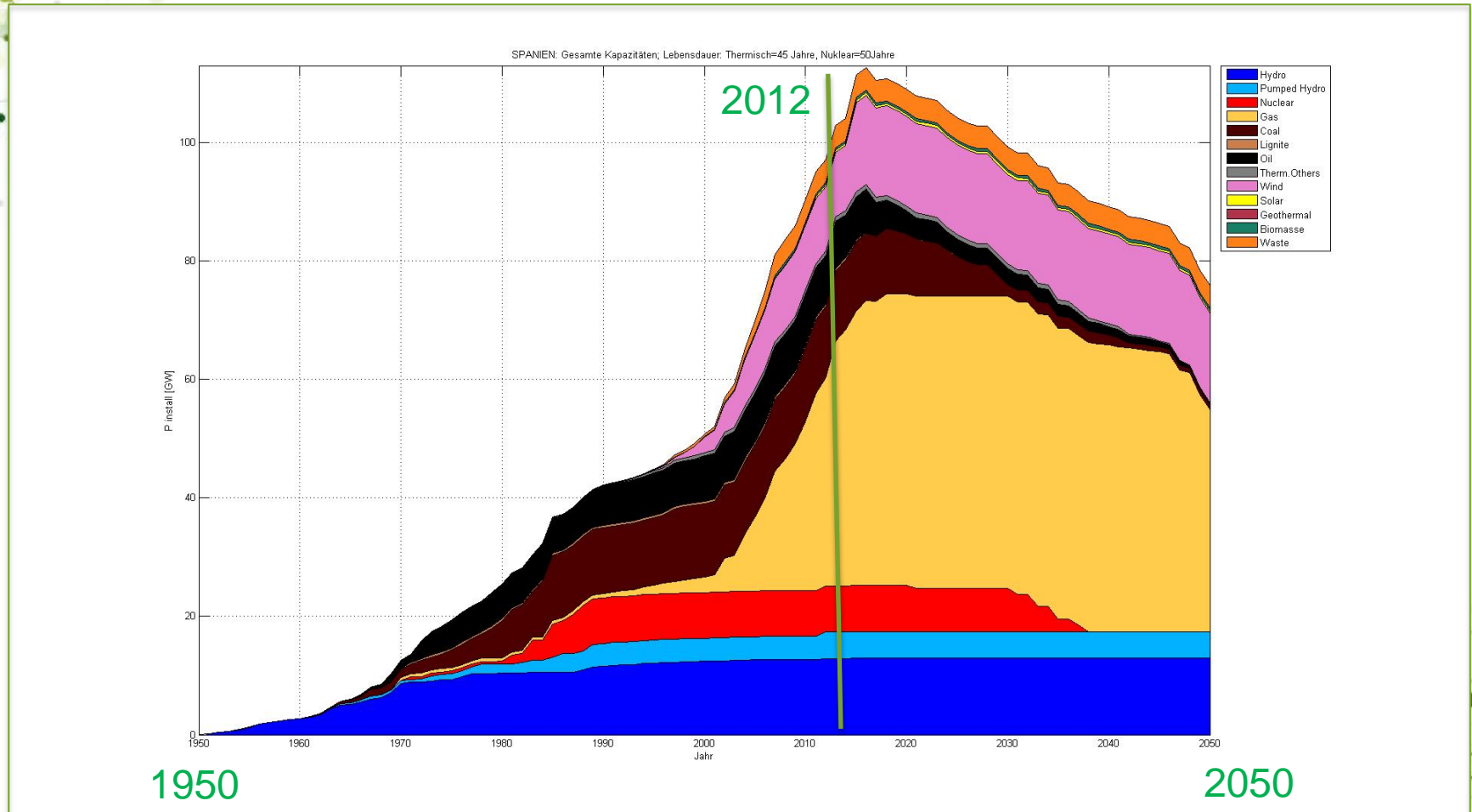
CWE-Region: Thermal Plants vs. Residual Load in 2030



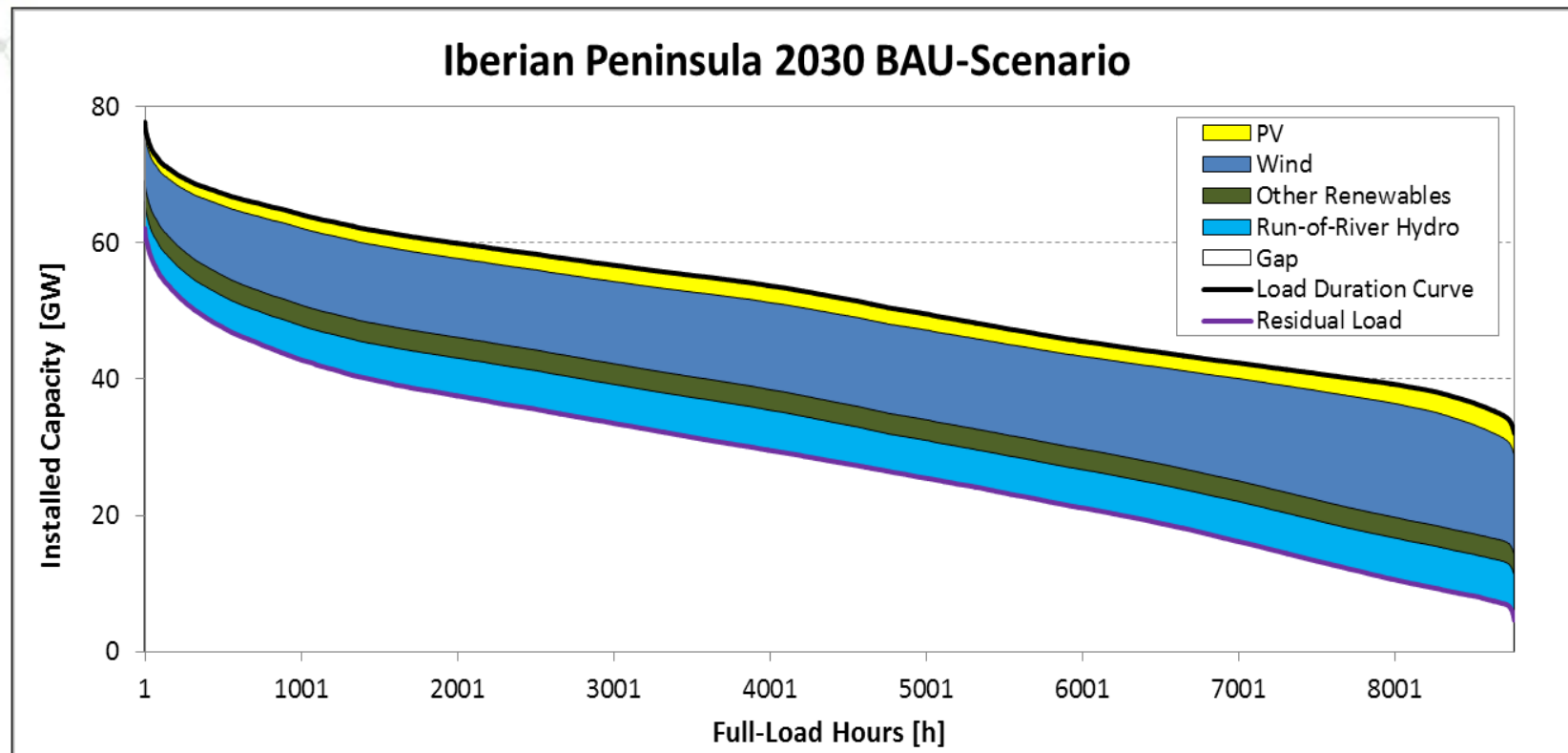
Age Structure of French Power Plants (2012 Snapshot)



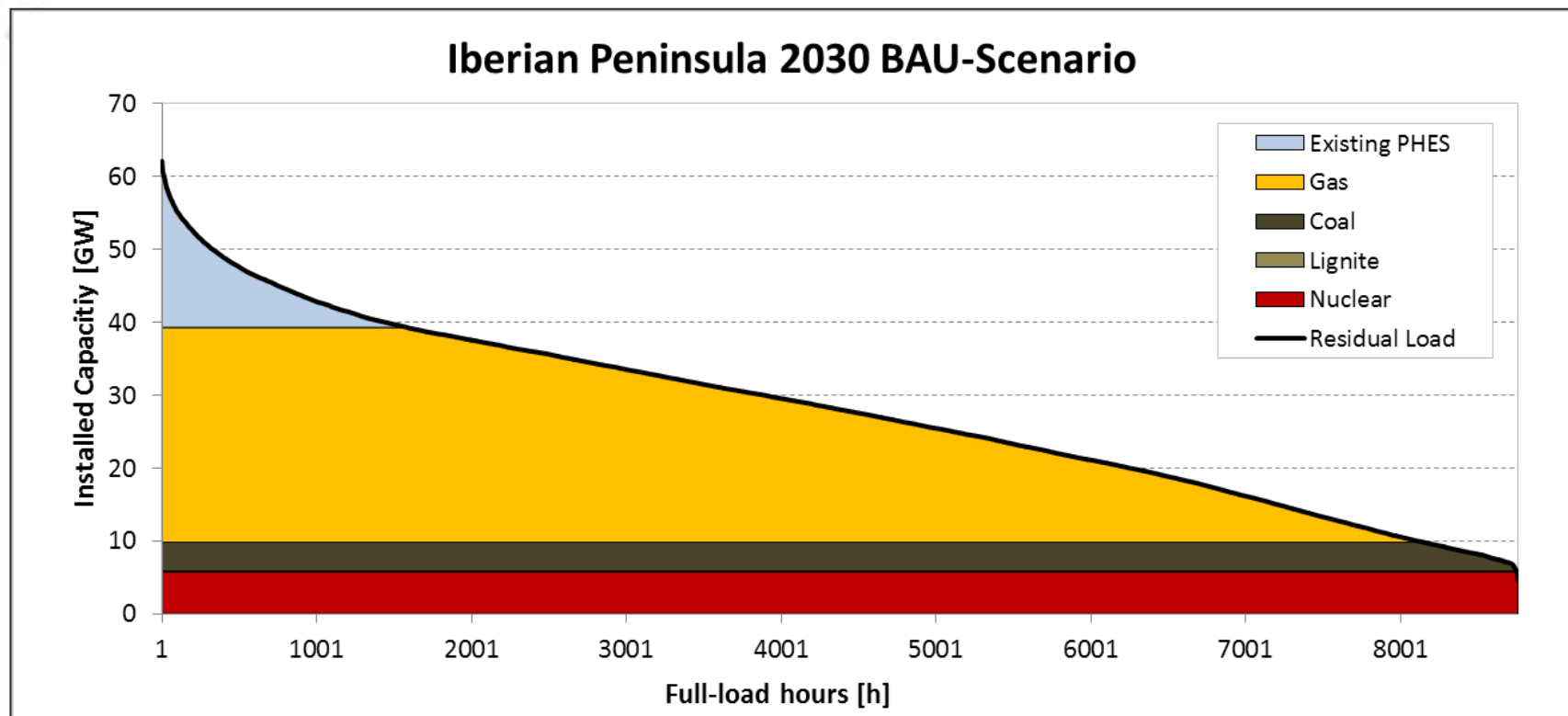
Age Structure of Spanish Power Plants (2012 Snapshot)



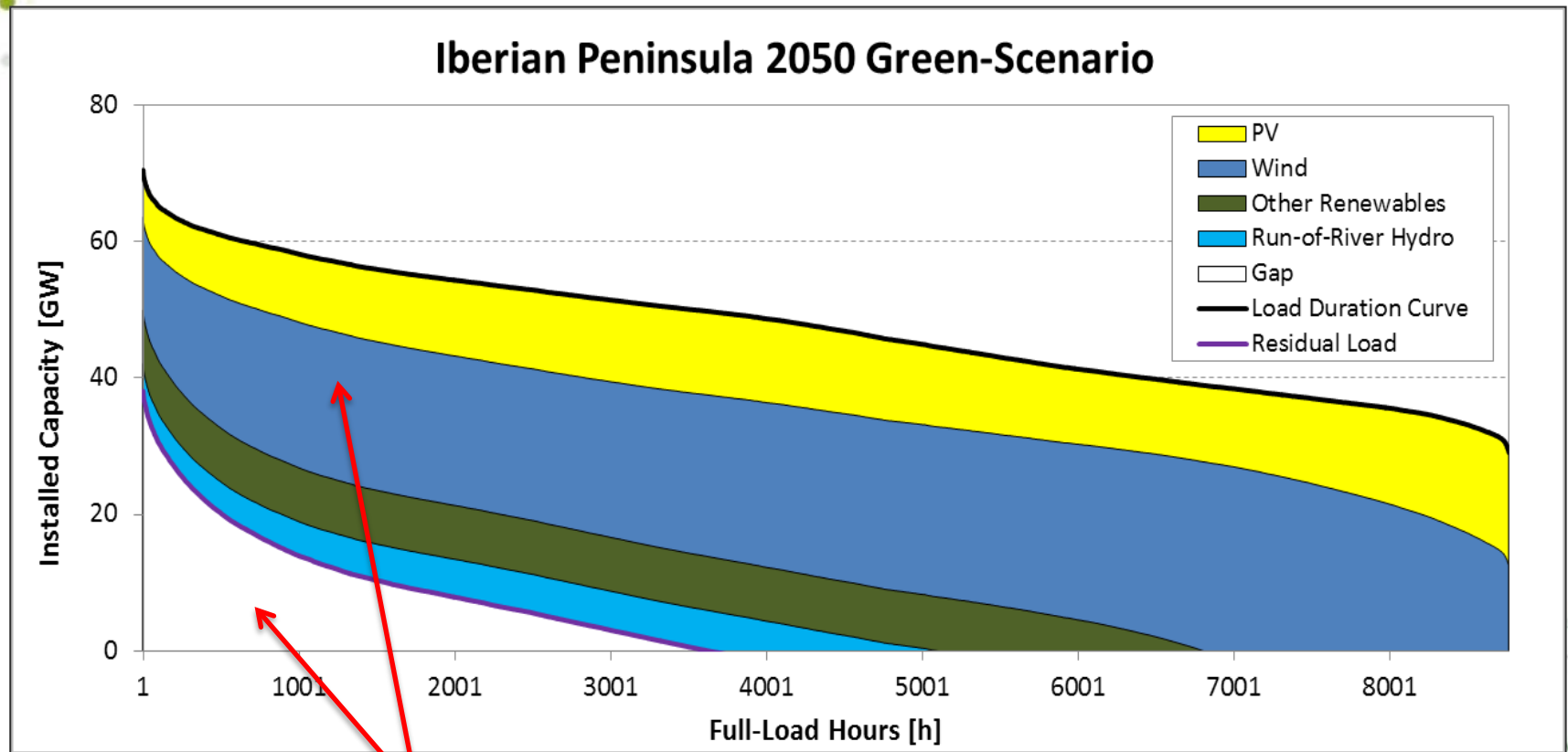
Iberian Peninsula: Residual Load Curve in 2030



Iberian Peninsula: Thermal Plants vs. Residual Load in 2030



Iberian Peninsula (Green Scenario: Residual Load Curve in 2050)



„Missing Billions of Euros Problem“



This is, why Market4RES is very important....

- ...Capacity remuneration mechanisms
- ...Integration of Energy storage, Demand Response
- ...Amendments of several electricity market segments
 - > Long-term
 - > Day ahead / intra-day
 - > Very short-term
- ...Start with the diagnosis of the Target Model
- ...Etc.
- ...Etc.

COORDINATOR



PARTNERS



CONTACT

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Results, event calendar and all related news can be found on: **www.market4RES.eu**



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Thank you!