RAP Energy solutions for a changing world

Resource Adequacy & Cross-Border Capacity Remuneration Schemes: Options & Alternatives

Introduction
30 May 2017

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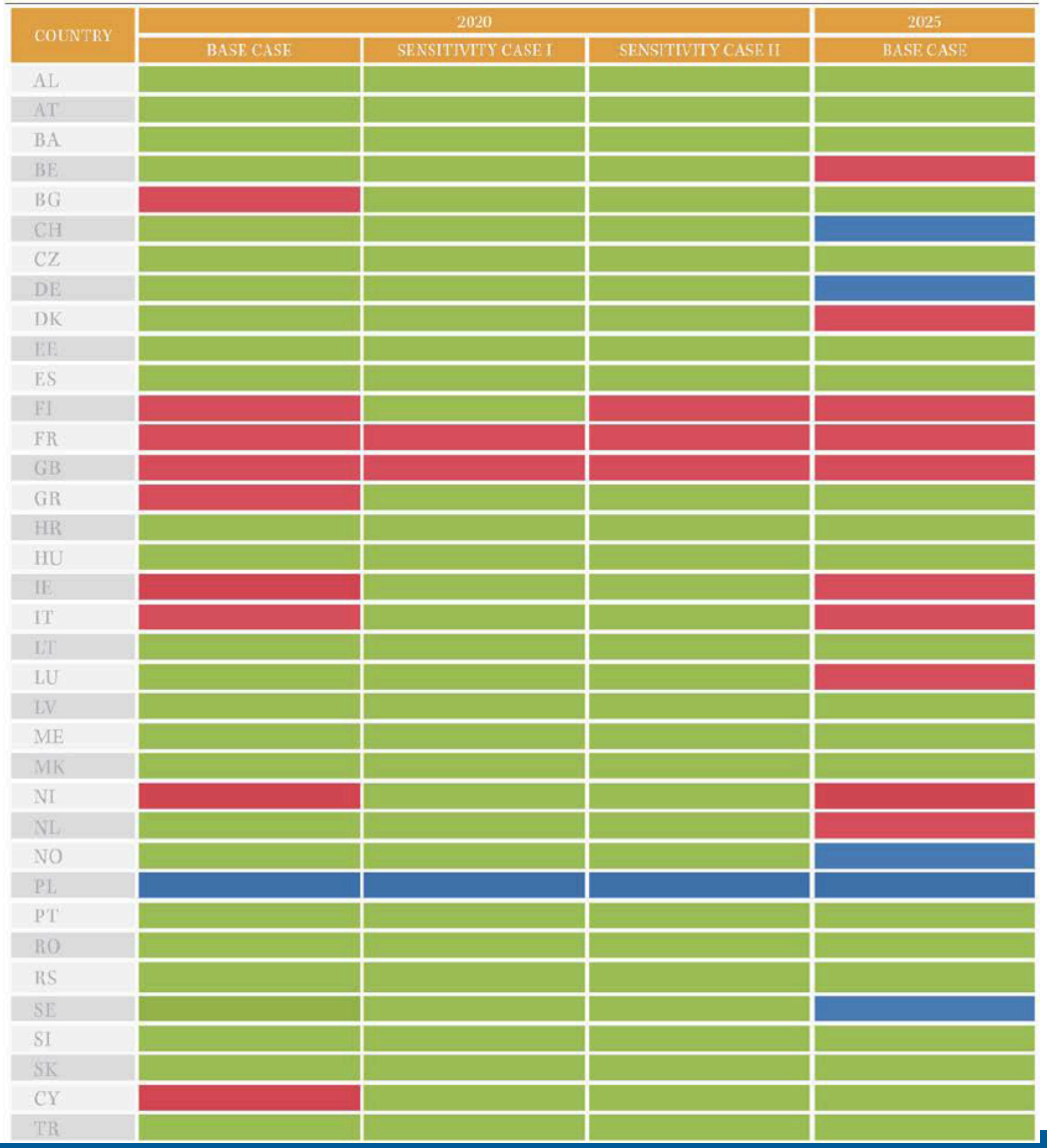
Context – adequacy assessed

LoLE < 1 hour

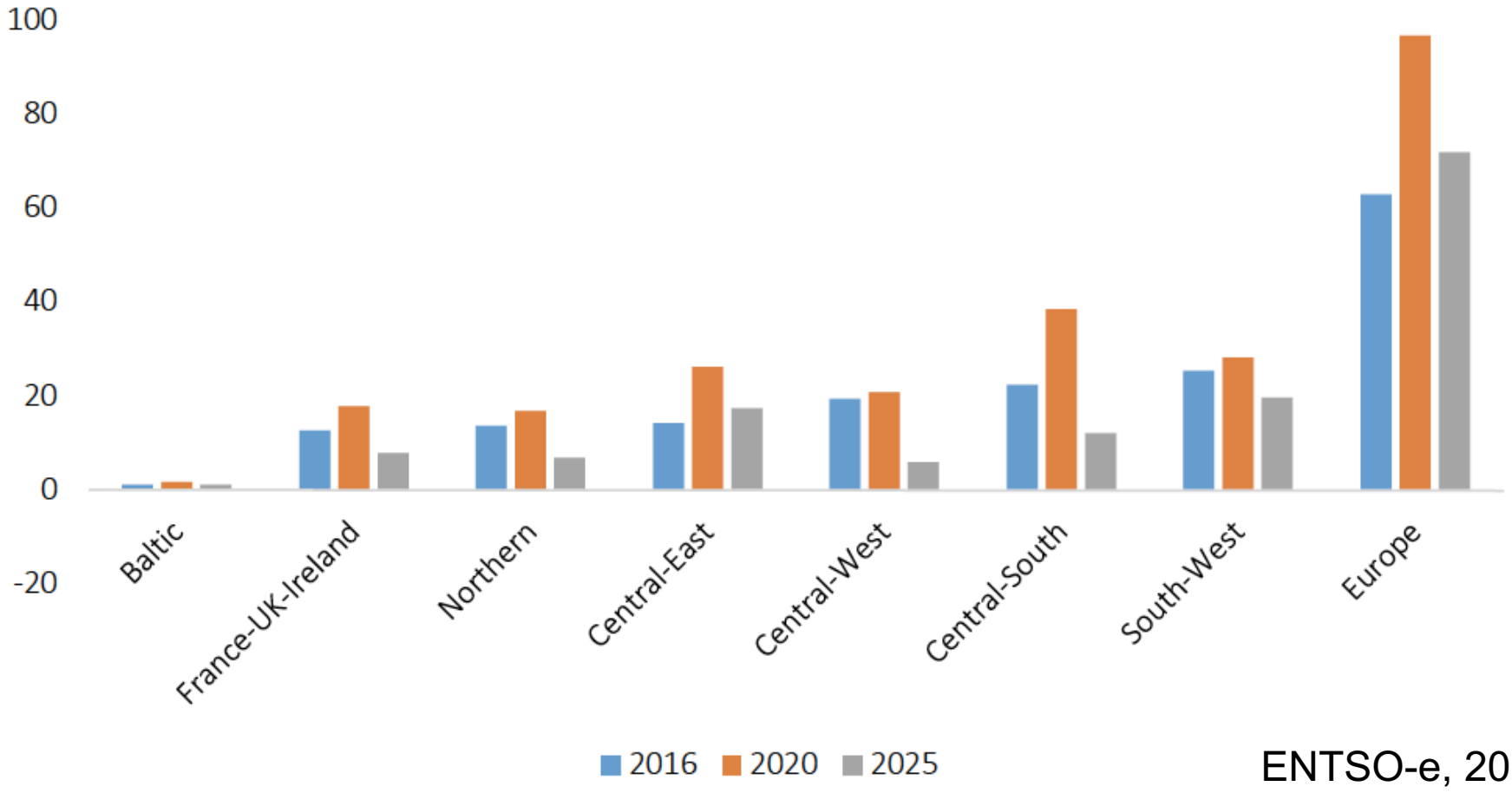
LoLE > 1 hour (conservative assumptions)

LoLE > 1 hour



ENTSO-e, 2016

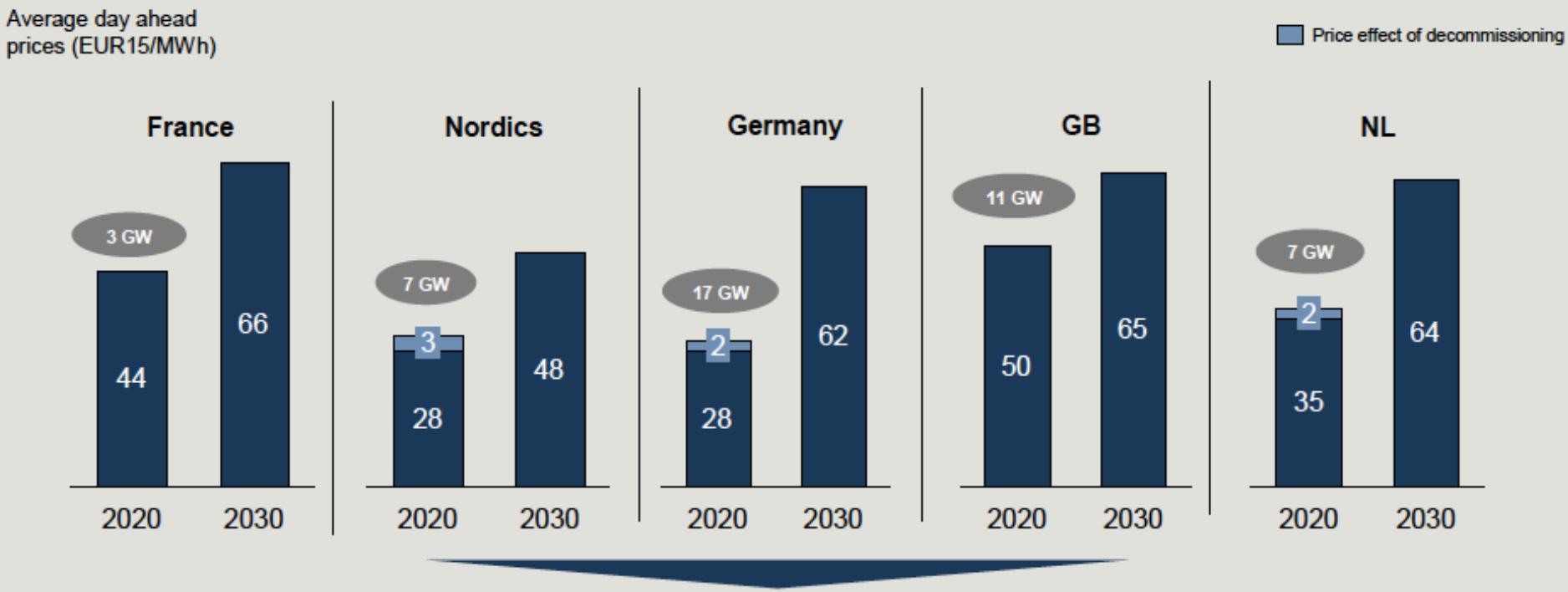
Context – capacity surplus



ENTSO-e, 2015

Reliable capacity margin by region (with DR potential)

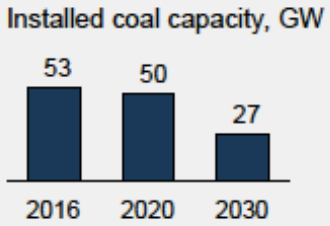
Price effect of capacity rationalization



Coal in Germany

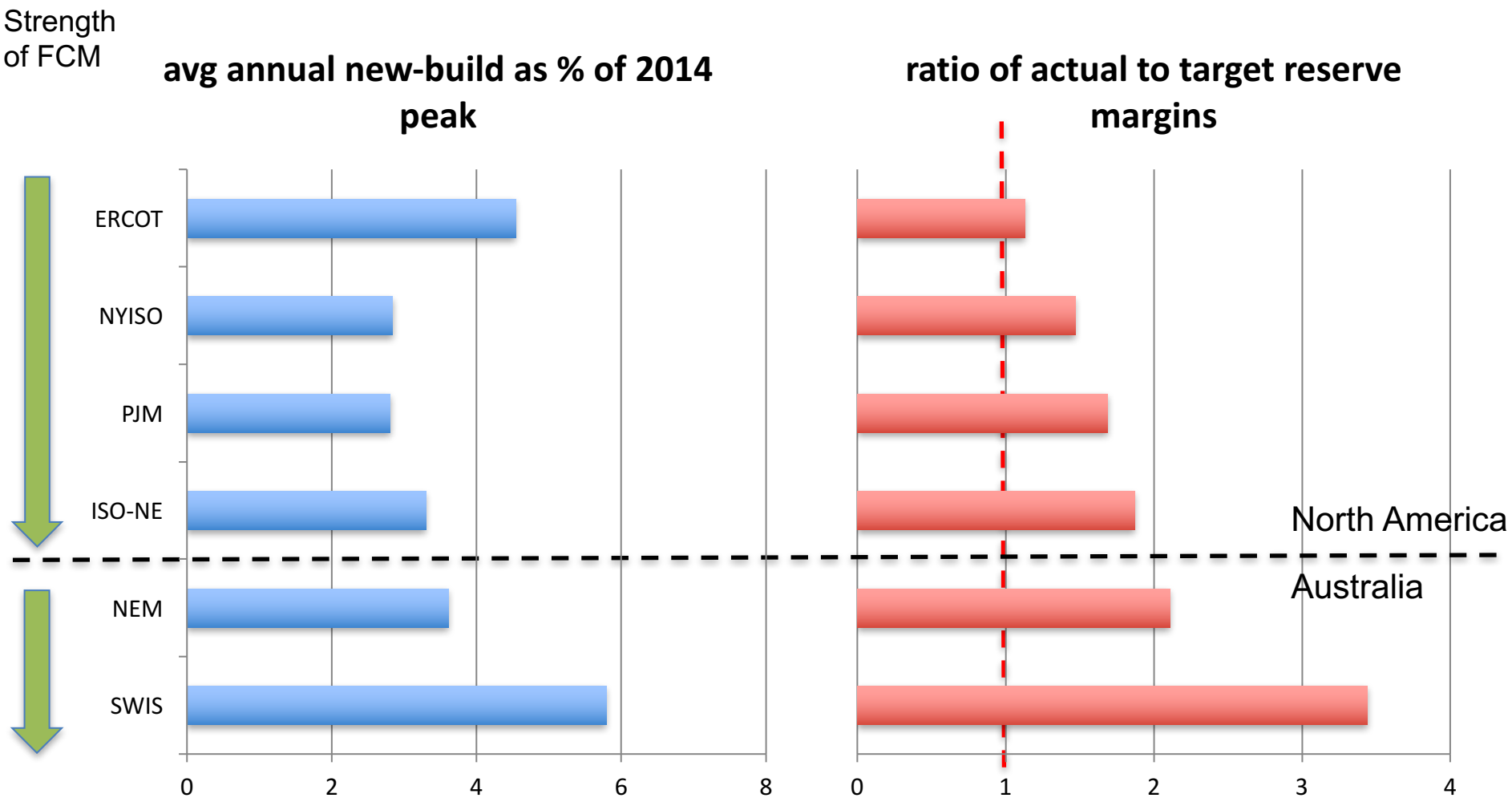
- Mainly gas decommissioned towards 2020 due to low CO2 price => limited electricity price impact
- Mainly coal decommissioned towards 2030 => doubling of electricity price

➢ Fast decommissioning of coal, through CO2 price or other measures is key to electricity price



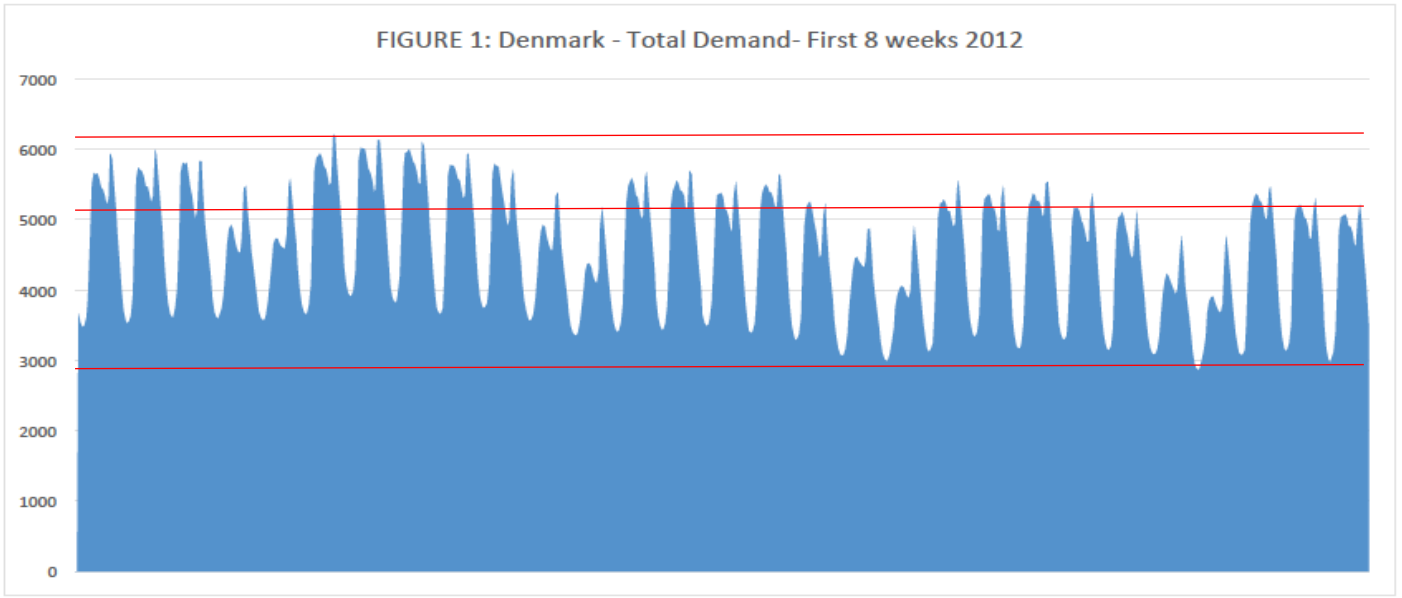
EA Energy Analyses, for DONG (2016)

Capacity markets experience



What *kind* matters - but not to a CRM

Yesterday

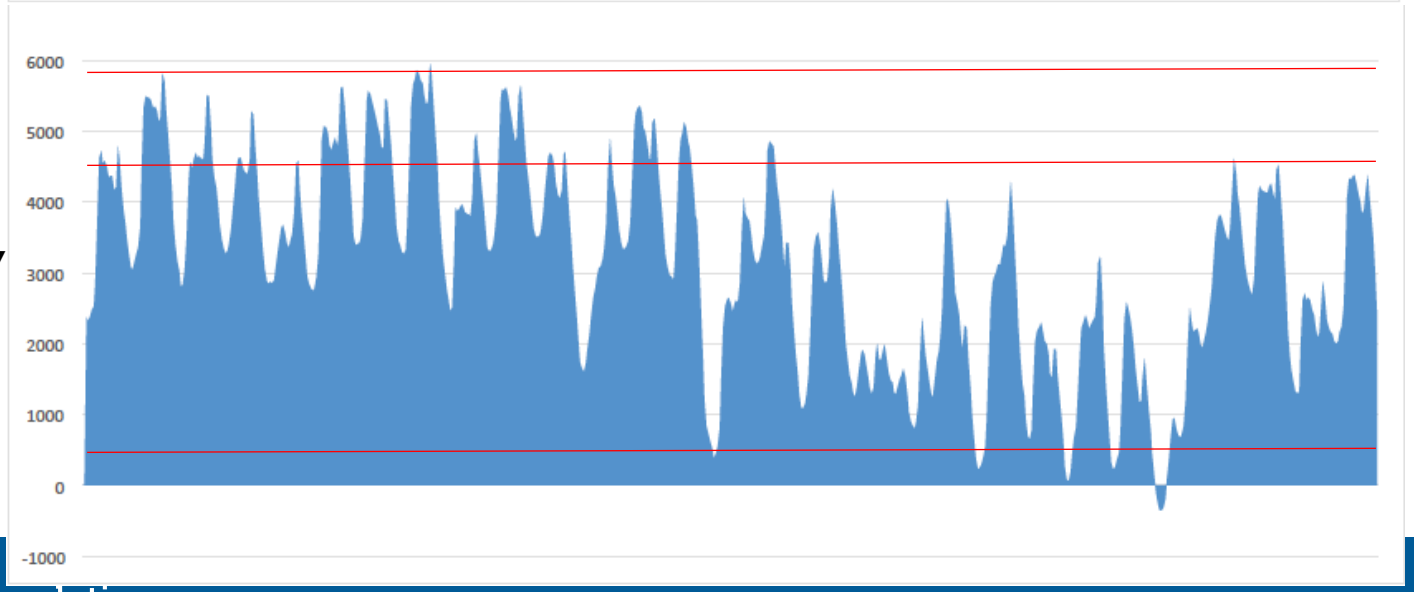


Peak

Mid-merit

Baseload

Tomorrow

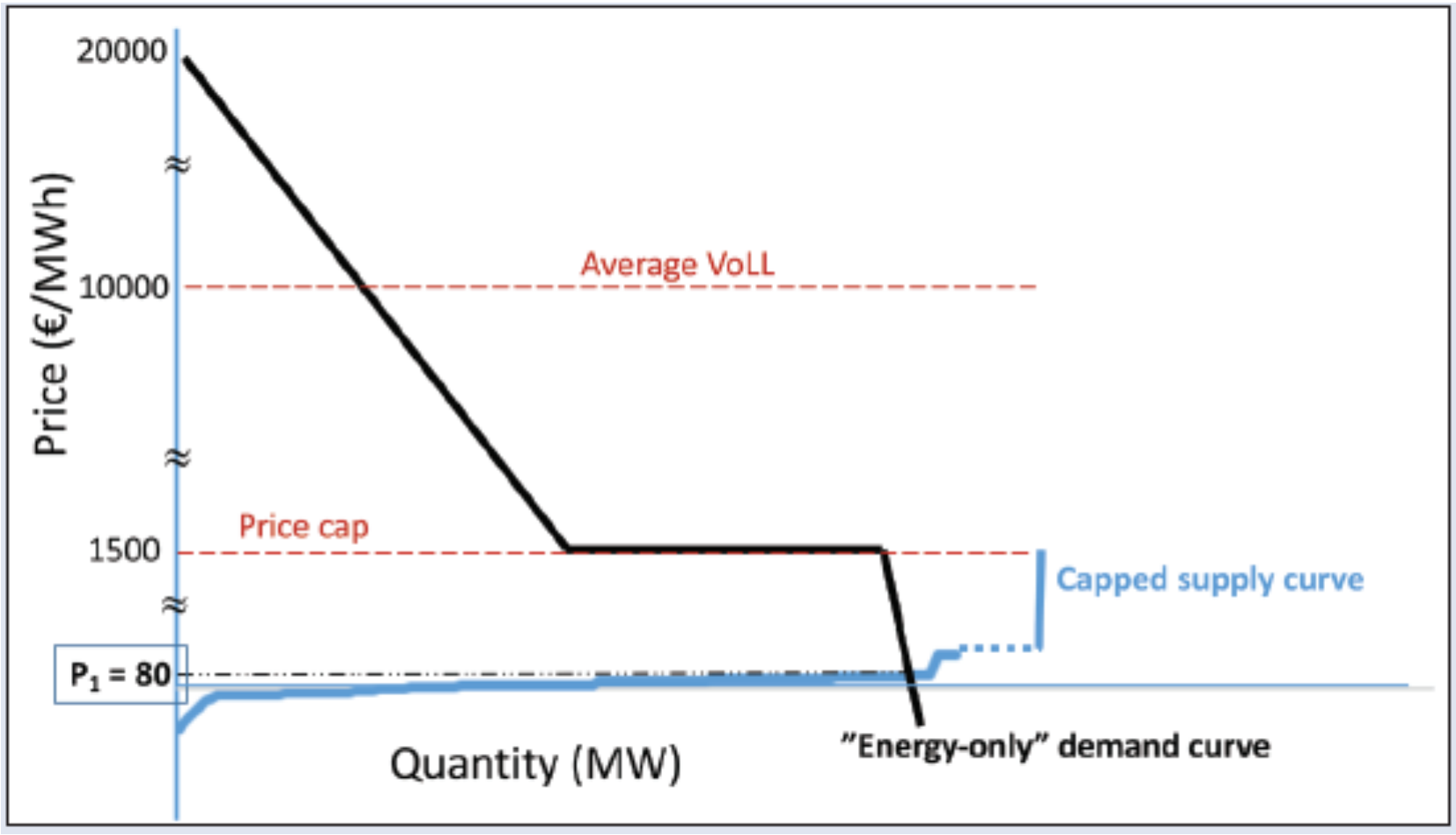


Peak

Mid-merit

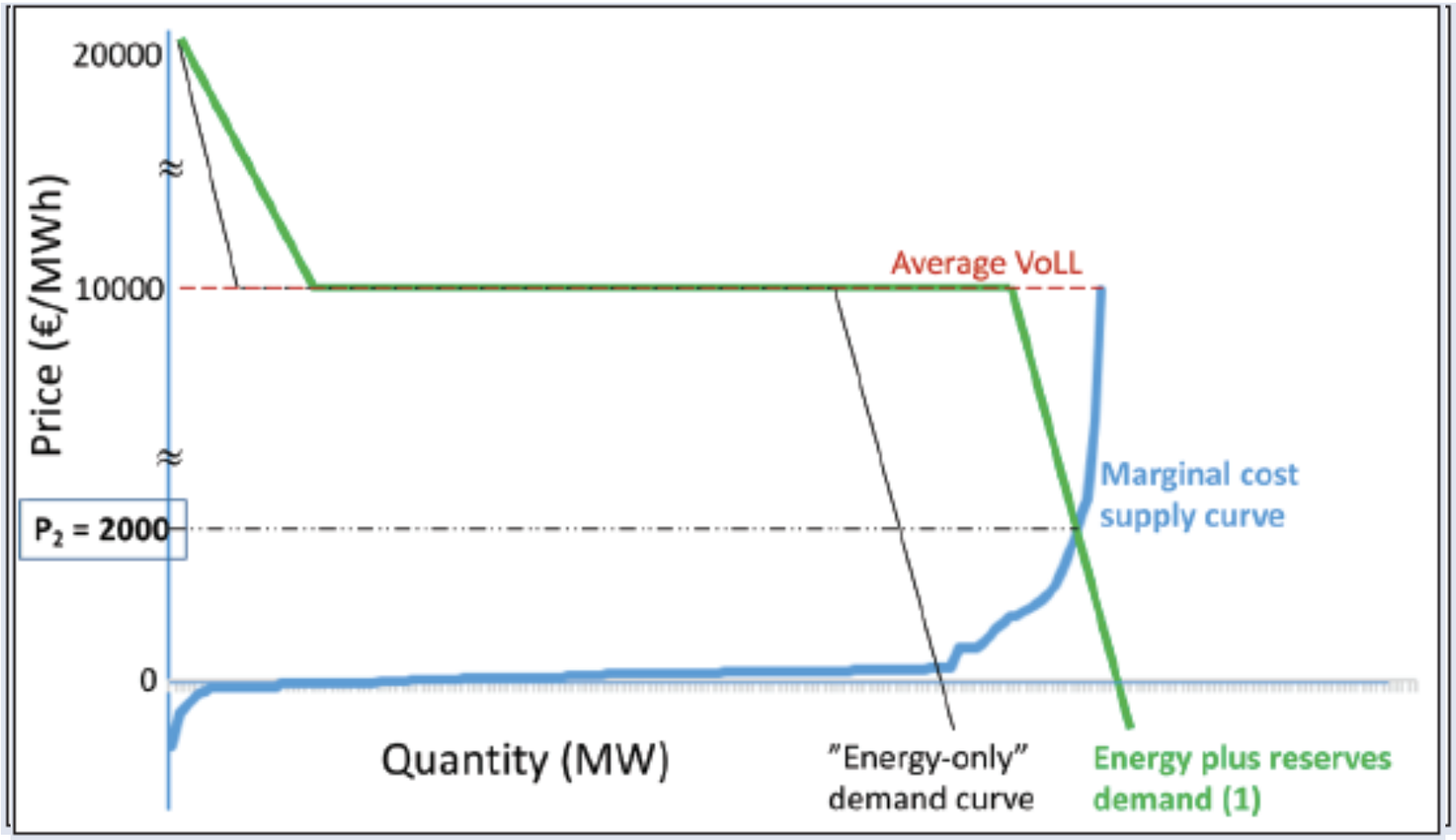
Baseload

Energy market price formation



Source: Hogan, M. "Hitting the Mark on Missing Money: ensuring reliability at least cost to consumers," The Regulatory Assistance Project (2016)

Energy market price formation



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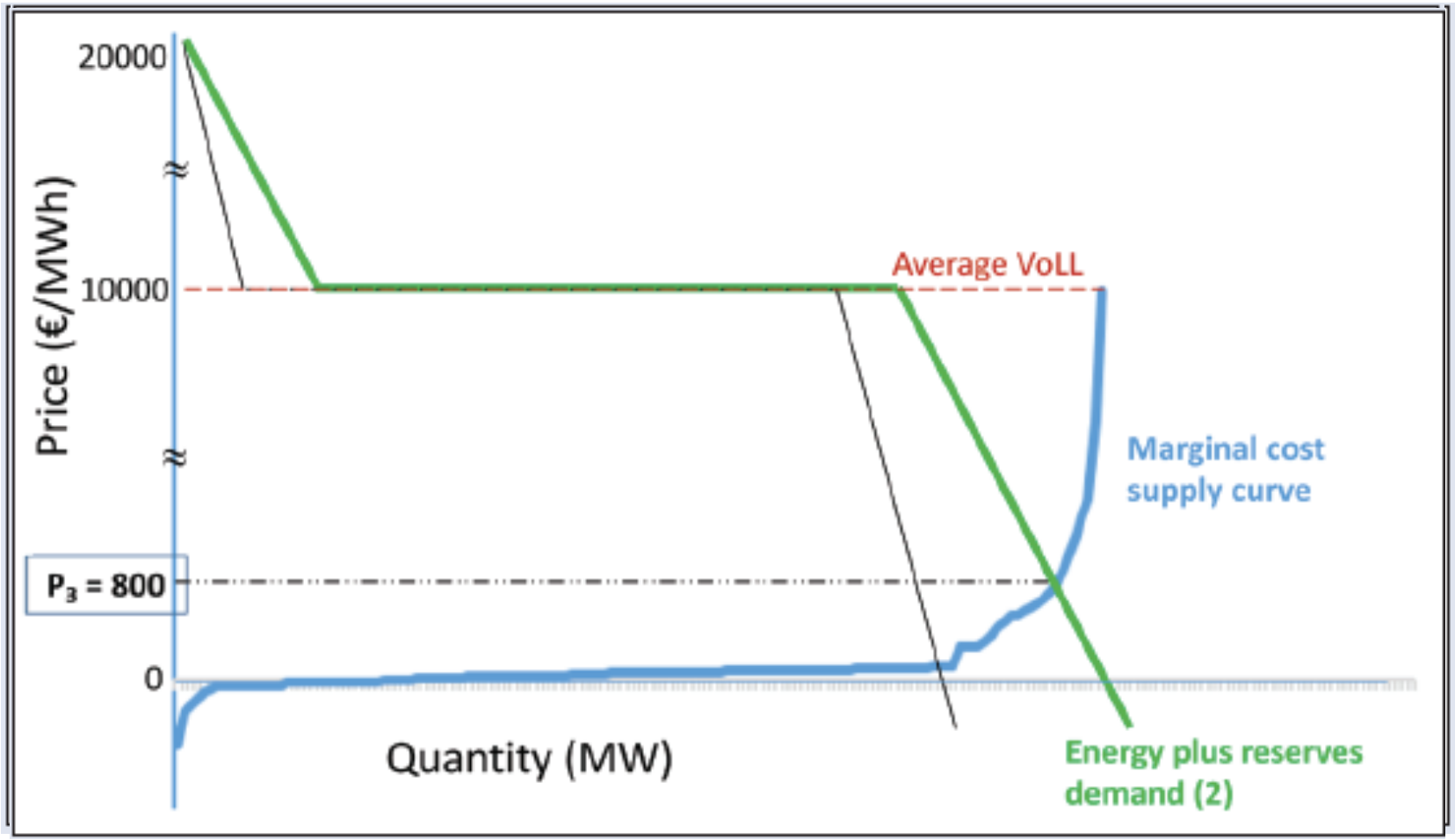
Energy market price formation



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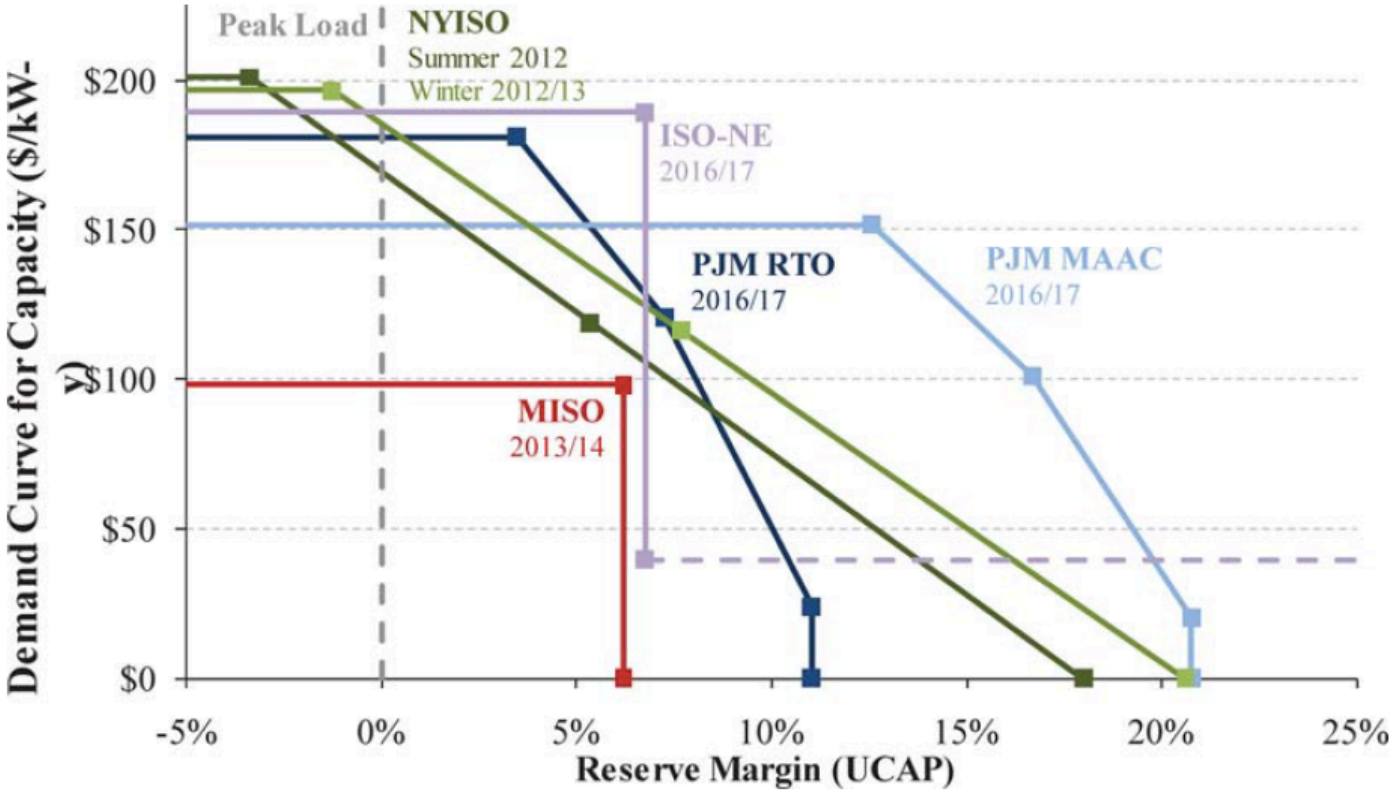
Administrative RA mechanisms



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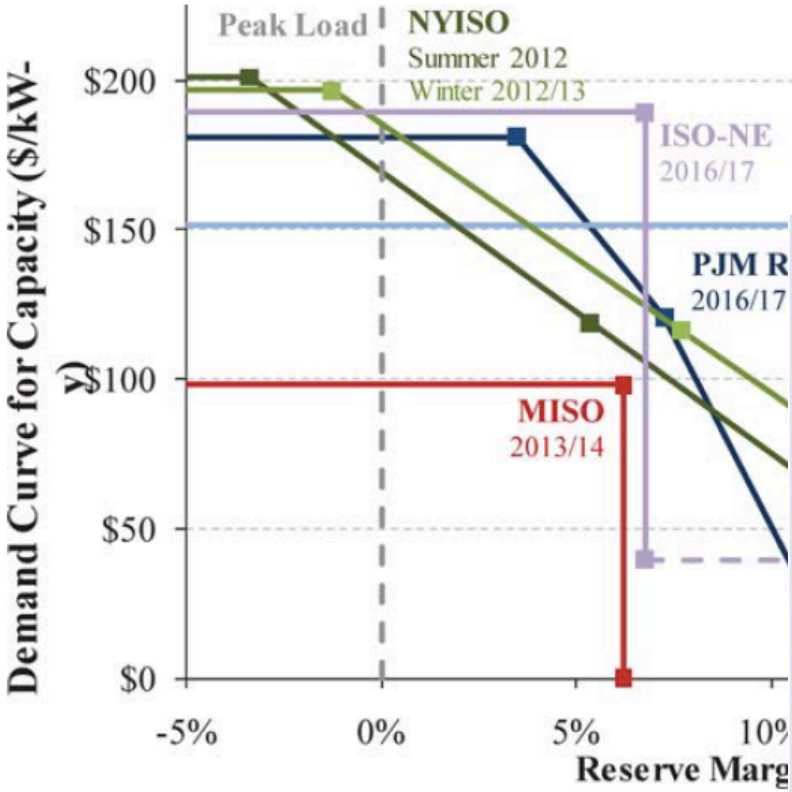

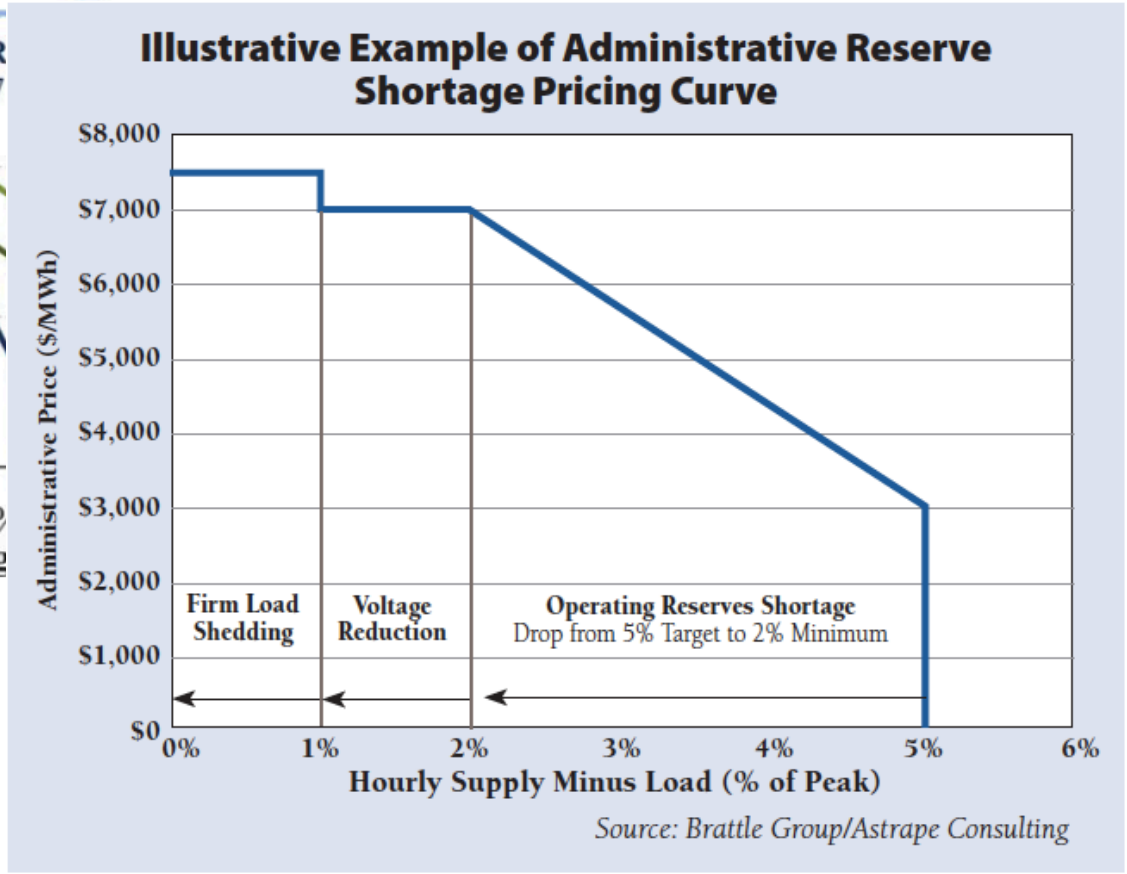

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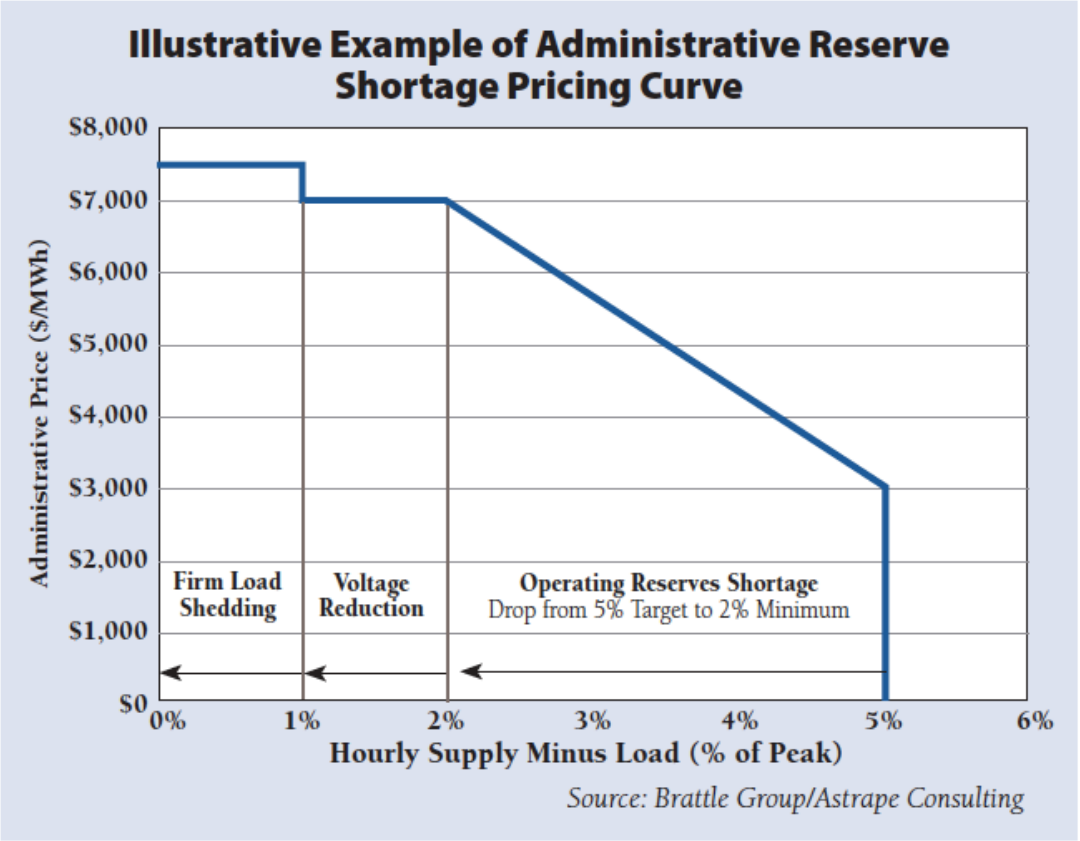
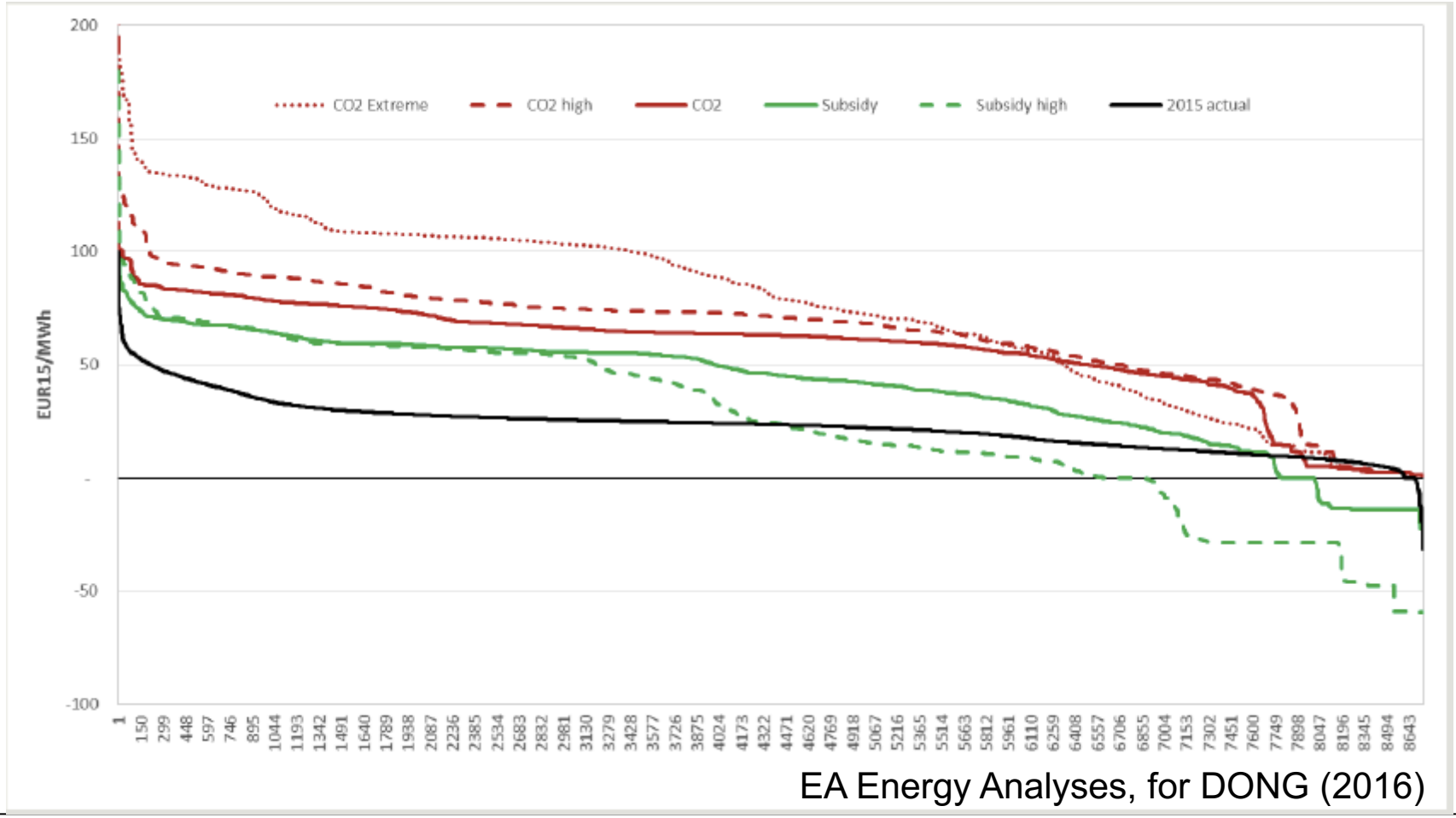


…plus (perhaps) a transitional strategic reserve

Energy prices in high-RES scenario



EA Energy Analyses, for DONG (2016)

Higher and *more volatile*…no price collapse

For more information…

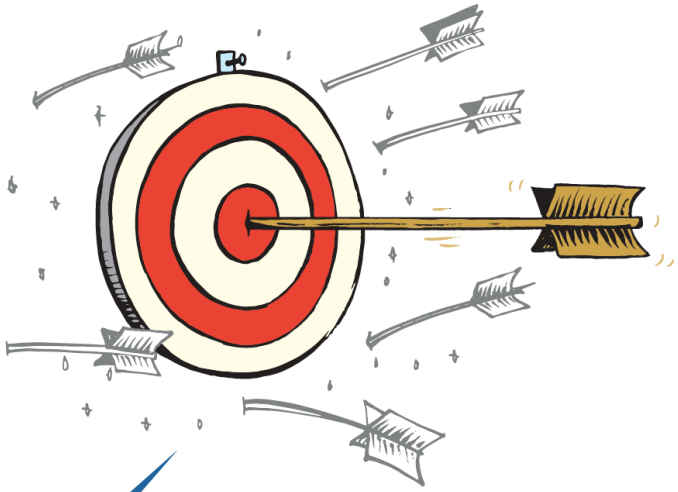
RAP® Energy solutions for a changing world

Hitting the Mark on Missing Money:

How to Ensure Reliability at Least Cost to Consumers

Author

Michael Hogan



About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power sector. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

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