



DECENTRALISED RELIABILITY OPTIONS

Securing European electricity markets

Florence Forum, 5 June 2014

Stephen Woodhouse, Director

ENERGY MARKETS ARE BEING CHALLENGED

Increasing levels of weather variable generation across Europe give rise to both price and volume risk for thermal capacity



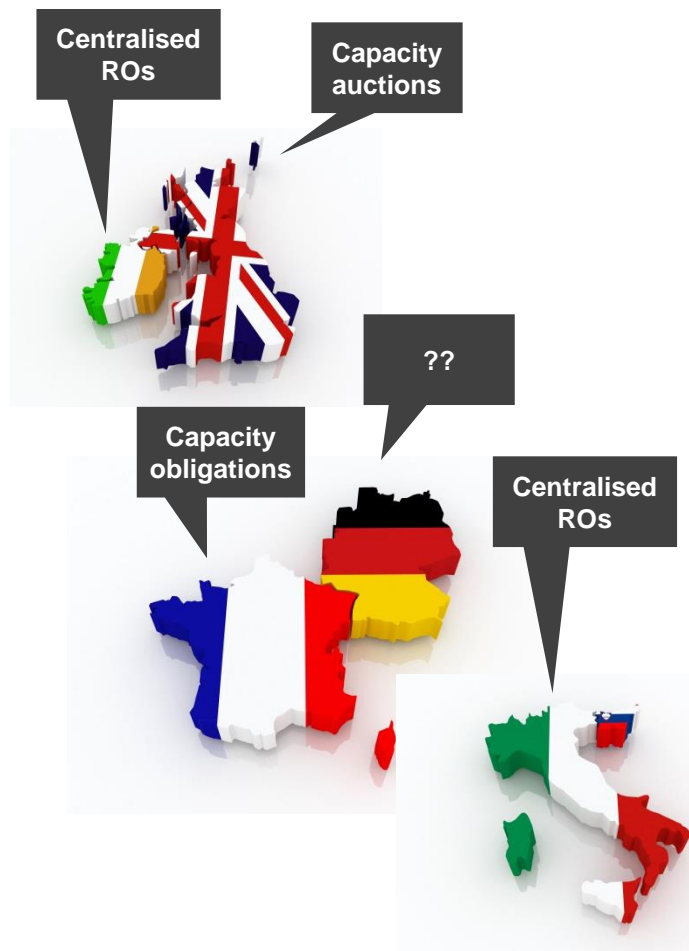
- Thermal plants can no longer assume near-baseload operation, and will face volume risks and greater reliance on scarcity pricing in the future
- Risk of brown outs and price spikes are often unacceptable from political and regulatory perspectives (even if economically sound)
- Market interventions to protect consumers can result in 'missing money'

Is infrequent scarcity pricing a credible basis for investment?

Do traded contracts allow both price and volume risk to be hedged?

ARE NATIONAL SOLUTIONS THE ANSWER?

The response is the development of nationally based CRMs which can distort their markets and are threatening the coherence of the Internal Market for Electricity



- National CRMs are being introduced, each different in design, and with no arrangements yet in place for cross-border participation
- Energy markets are integrating, but capacity markets appear to be diverging
- Uncoordinated CRMs risk distorting spot electricity prices, and may harm demand side response, cross-border trading and investment decisions

Will national CRMs undermine the goal of the Internal Market for Electricity?

If CRMs damp scarcity energy prices, will this lead to inefficiency?

A COORDINATED APPROACH TO CRMs COULD BE BENEFICIAL

The EU should ideally find a blueprint for a CRM to allow national governments to protect reliability without distorting trade



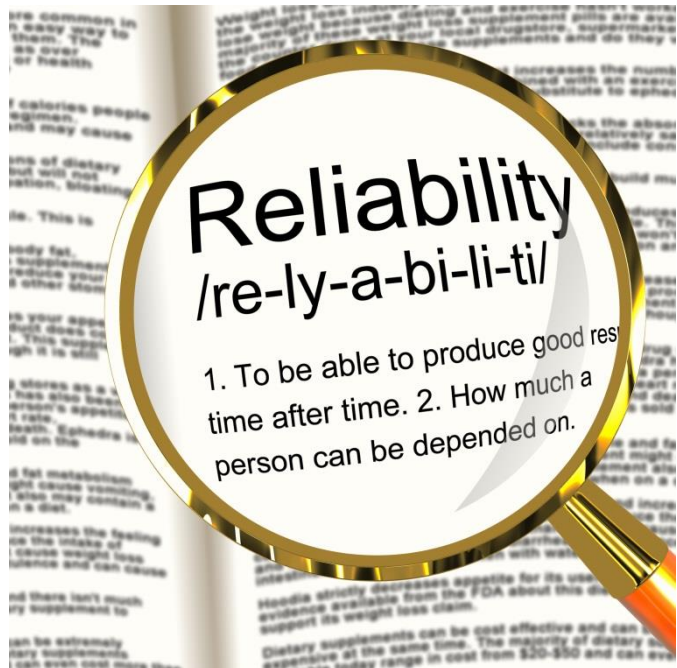
- A CRM should:
 - be adaptable enough to meet national needs
 - not cause distortions between markets
 - not require any country to adopt a CRM
 - limit the impact of future policy risk
- CRMs should not stand in the way of creating 'smarter' electricity markets with a more active role from the demand side

If a common CRM blueprint were adopted, what characteristics would it need?

Could it be applied in some countries and not others without distortions?

RELIABILITY OPTIONS CAN BE A SOLUTION

Reliability Options deliver security of supply, protect consumers and can help avoid energy price distortions



- Reliability Options are a **hybrid** between a physical commitment and a commercial option:
 - the physical commitment delivers security of supply and a supplementary revenue stream to deliver 'missing money'
 - the commercial option protects customers from scarcity prices and allows capacity providers to hedge price volatility
- 'Missing money' is reduced both directly but also indirectly
- Customers are protected from price spikes, meaning that regulators can lift act to price distortions to reveal price volatility, unlocking the potential for:
 - demand-side response
 - interconnection
 - flexible capacity

Can Reliability Options be adapted to meet the needs of EU markets, with bilateral trading, high levels of renewables and market coupling?

WHY OPERATE ON A DECENTRALISED BASIS?

Decentralised Reliability Options are consistent with Europe's bilateral markets, and allow value of different types of capacity to be revealed

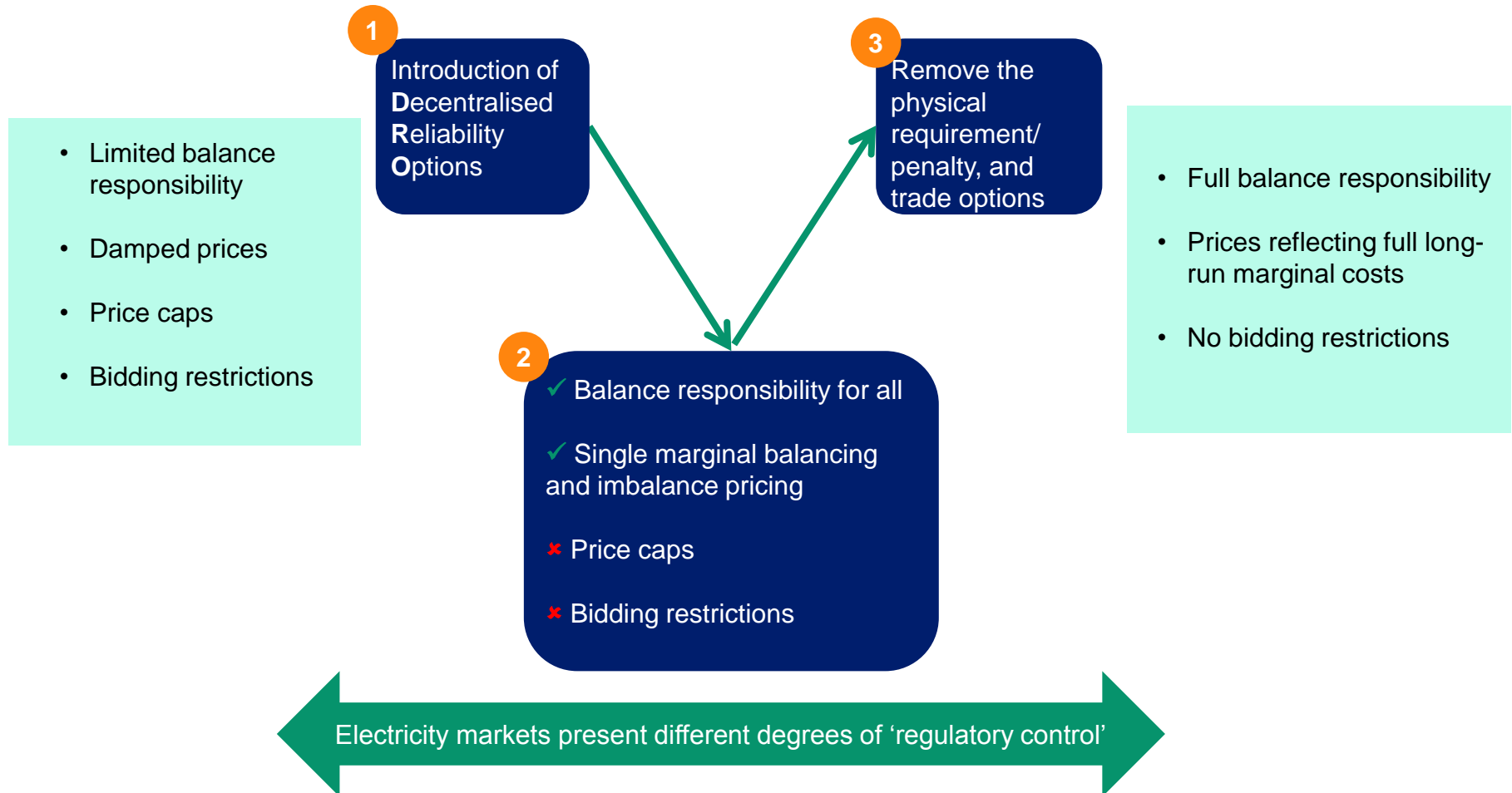


- A central agency for each country may tend to have incentives to procure 'too much' capacity:
 - security of supply is more assured, but potentially at the expense of efficiency
 - efficiency gains could be realised from a more decentralised approach
- A decentralised approach has other attractions:
 - value of different types of capacity can be revealed
 - demand side may be included implicitly or explicitly
 - policy risk is reduced and market decisions are paramount
 - ultimately, the central aspects of the scheme might be removed, if the energy and options market is delivering
- Decentralised Reliability Options match the reality of EU markets with bilateral trading across a range of timeframes

Concerns relate to contract duration and liquidity, and these need to be examined in feasibility analysis

POTENTIAL PATHWAY FOR 'TO BE' MARKET ARRANGEMENTS

Decentralised Reliability Options could help deliver the vision of integrated, well-functioning electricity markets



DECENTRALISED RELIABILITY OPTIONS

Decentralised Reliability Options promote the efficient operation of the Internal Market for Electricity and deliver capacity effectively

Deliver security of supply



Protect consumers



Provide appropriate hedging contracts



Allow value for flexibility to be rewarded



Meet cross border trading needs and EU requirements



Pöyry has outlined a credible design for a CRM that meets national needs and changing system requirements, meets EC requirements and has the potential to limit future policy risk.

These ideas should be further discussed, developed and disseminated as a potential component of the Single Energy Market.



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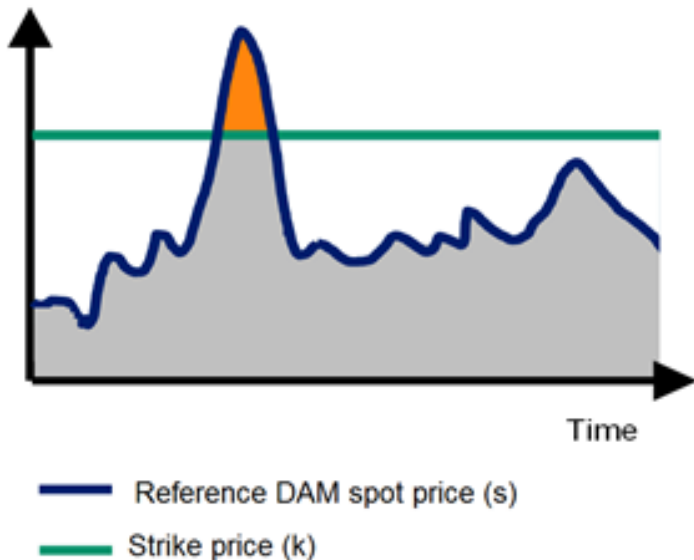
Contact:

Stephen Woodhouse, stephen.woodhouse@poyry.com

Phone: +44 7970 572444

RELIABILITY OPTIONS – HOW DO THEY WORK?

Capacity providers give up peak prices in exchange for an upfront fee



- Reliability options form a contract between capacity providers and (ultimately) customers
- Sellers of reliability options benefit from an upfront payment
- Buyers benefit from security of supply and reduced exposure to price spikes
- Each time the reference price rises above the contract strike price, the seller pays the buyer for the difference
- If the seller is unavailable at a time of system stress, they pay an administered penalty
- Reliability options (in their existing form) do not place physical obligations on energy delivery, or incentivise flexibility

Reliability Options are proposed for Ireland and Italy; can they be implemented elsewhere in Europe?

MECHANICS OF DECENTRALISED RELIABILITY OPTIONS

