



# EOM capability and impact assessment of capacity mechanisms

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Dr. Matthias Janssen, Frontier Economics

# Starting point: Two related studies for the BMWi...

## Energy-only-market (EOM) capability

**Assessing the performance of Germany's EOM regarding generation adequacy in the electricity sector**



**FORMAET**  
Services GmbH

## Impact Assessment of capacity reliability mechanisms (CRM)

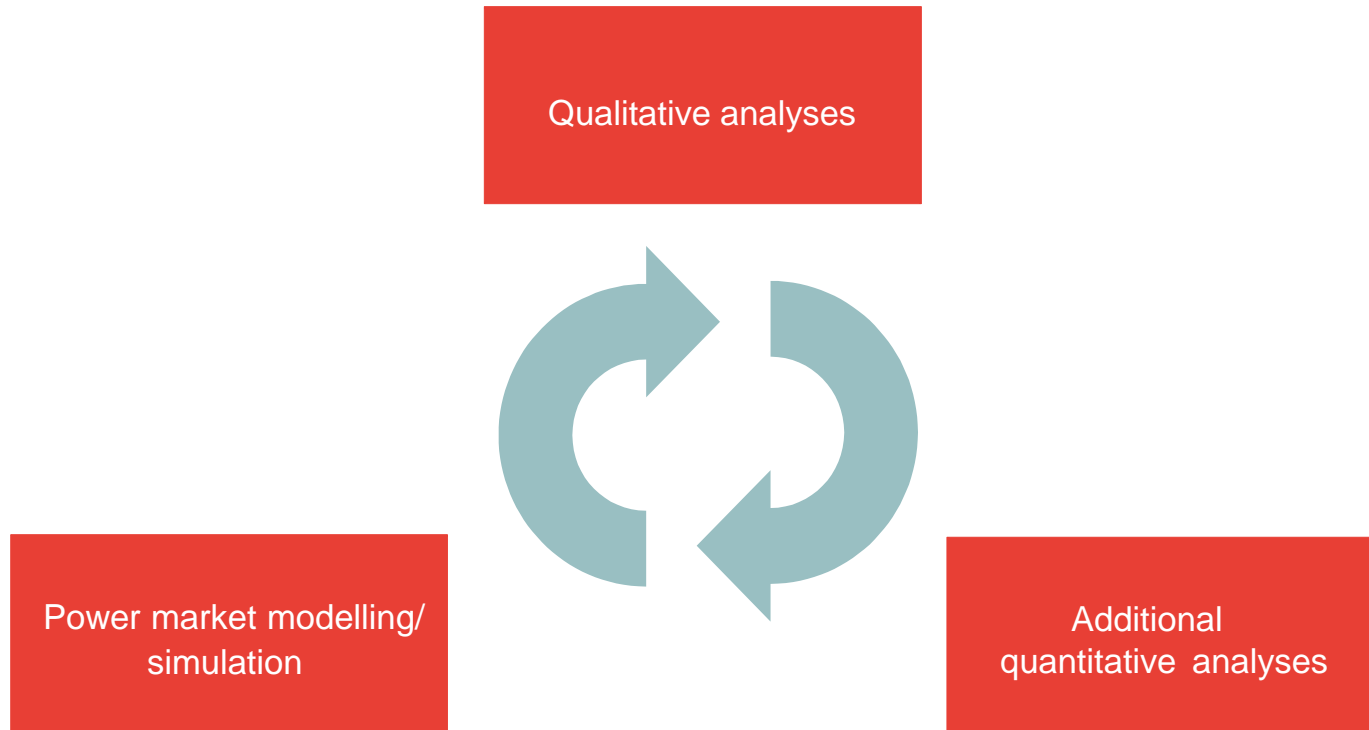
**Comparative assessment of impacts of four different CRM in order to evaluate the (relative) advantages and disadvantages of the mechanisms**



**consentec**

... with strong interdependencies

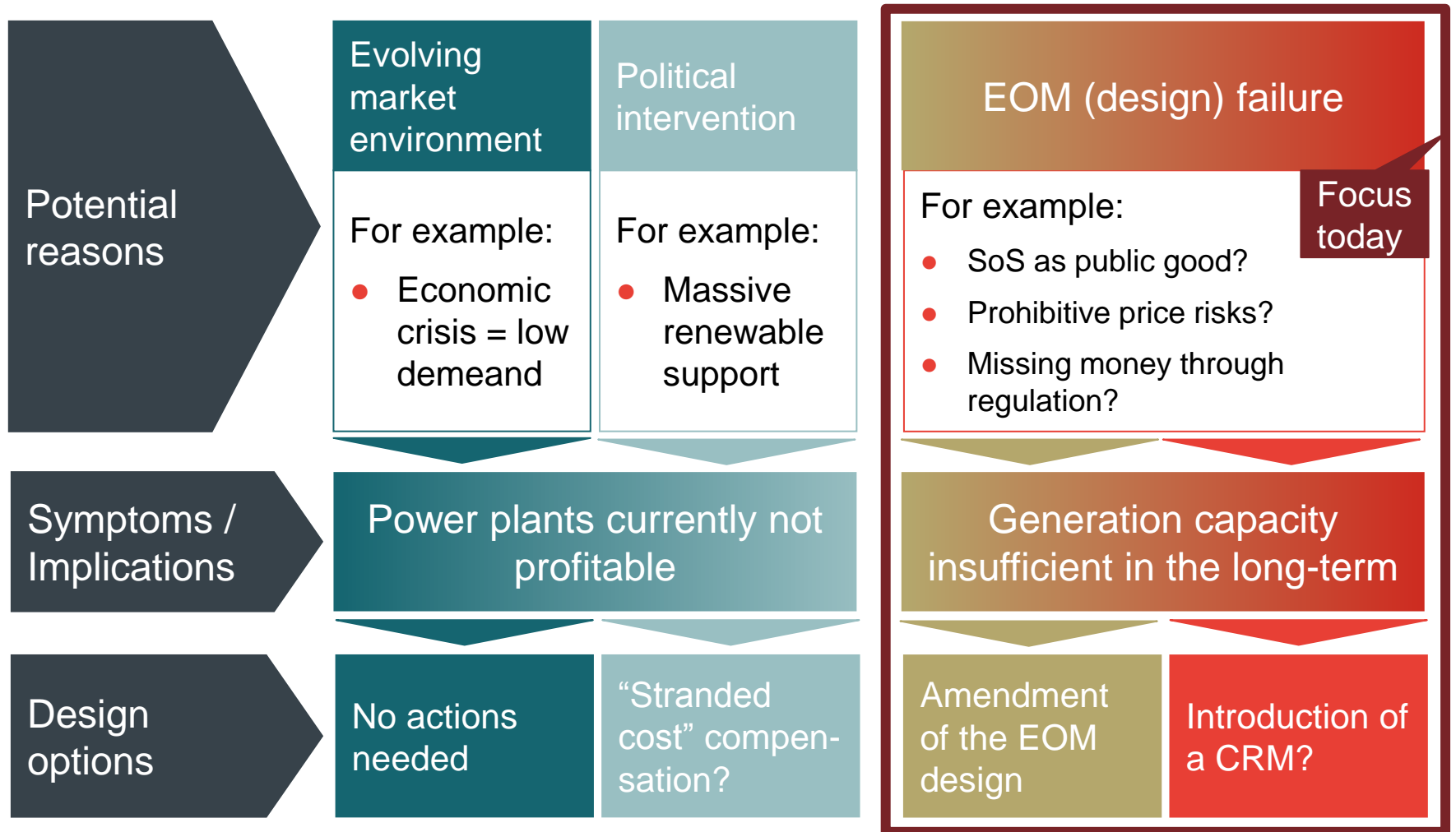
# Assessment is based on...



... qualitative and quantitative analyses

- EOM capability
- CRM impact assessment
- Summary

# Problem definition is essential: Market design...

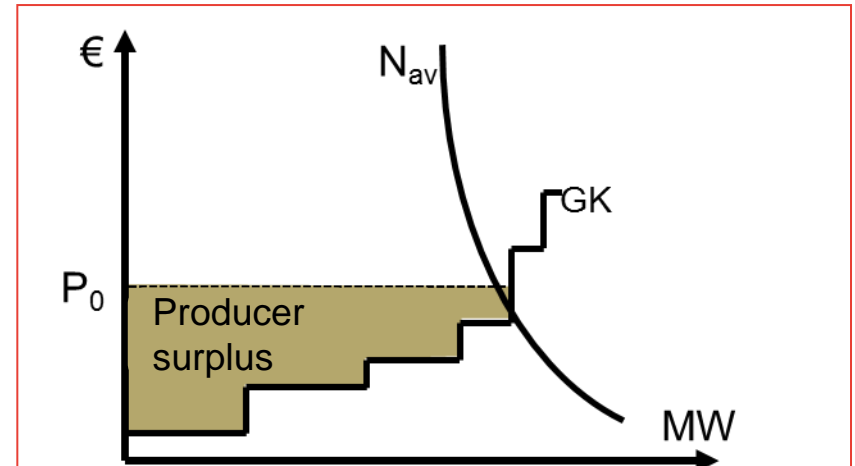


... needs to appropriately address relevant problems

# Starting point for generation adequacy debate: Peak Load Pricing in competitive energy-only markets...

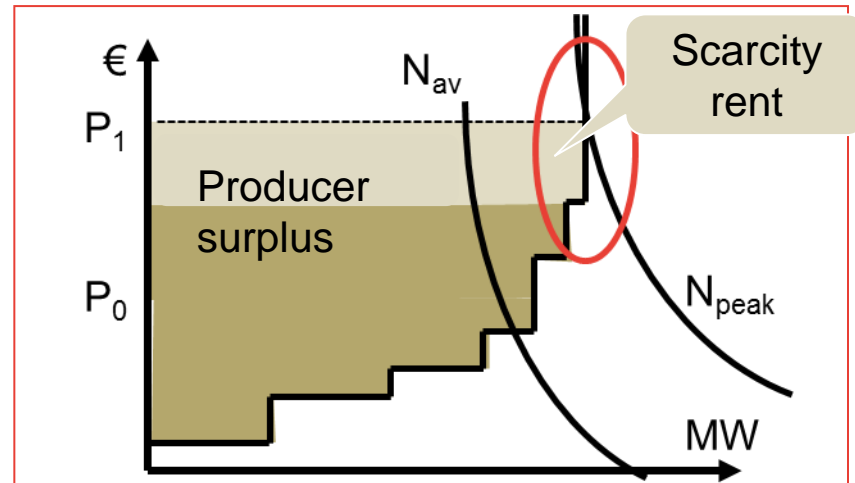
## Pricing in normal situations

- Suppliers bid marginal costs (“Merit Order”)
- All accepted suppliers get “uniform price”
- Infra-marginal suppliers earn producer surplus



## Scarcity rents

- At **peak load prices** need to exceed the marginal costs of the most expensive power plant
- Scarcity rent for all suppliers

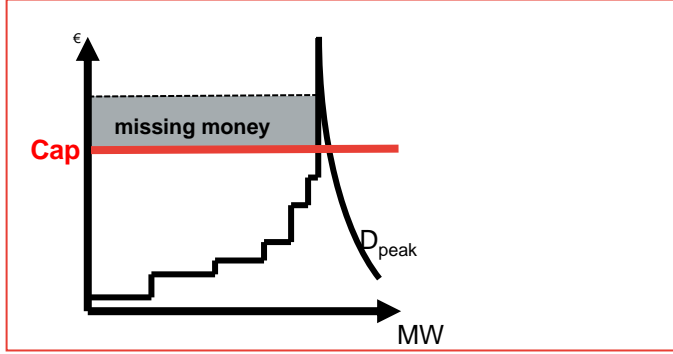


... leads to optimal plant park

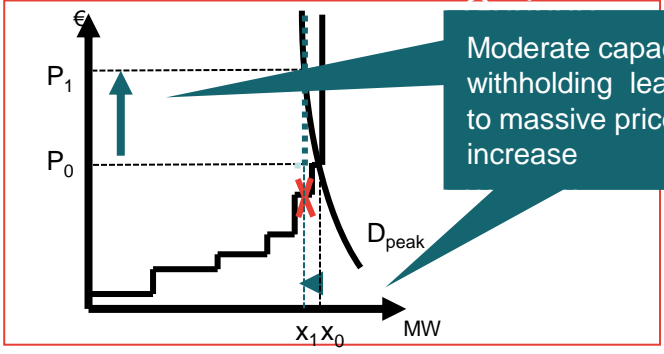
# Potential imperfections in the EOM ...

Possible market distortions

## Missing money by regulatory intervention in EOM?



## Abuse of market power in EOM



Assessment

- No regulatory price cap in GER
- Potential distortion of imbalance prices

- No market power abuse today
- German power market contestable

Reforms

- Adjust imbalance settlement (e.g. marginal pricing)

- Remove entry barriers e.g. for demand flexibility (grid tariff structure)

... are irrelevant or can be tackled by reforms within an EOM

# Summary of EOM capability

Capacity price elements in EOM

- In theory, an ideal EOM can guarantee for generation adequacy without “explicit” capacity payments

Possible market distortions



Assessment

- Potential market (design) failures are either not relevant in the German/European context or can be mitigated by reforms

Potential market reforms (selection)

- Improving balancing rules (e.g. marginal pricing)
- Facilitating market entry for **demand flexibility**
- **Stable political framework** (e.g. RES and CHP)
- Explicit **commitment** to accept scarcity prices

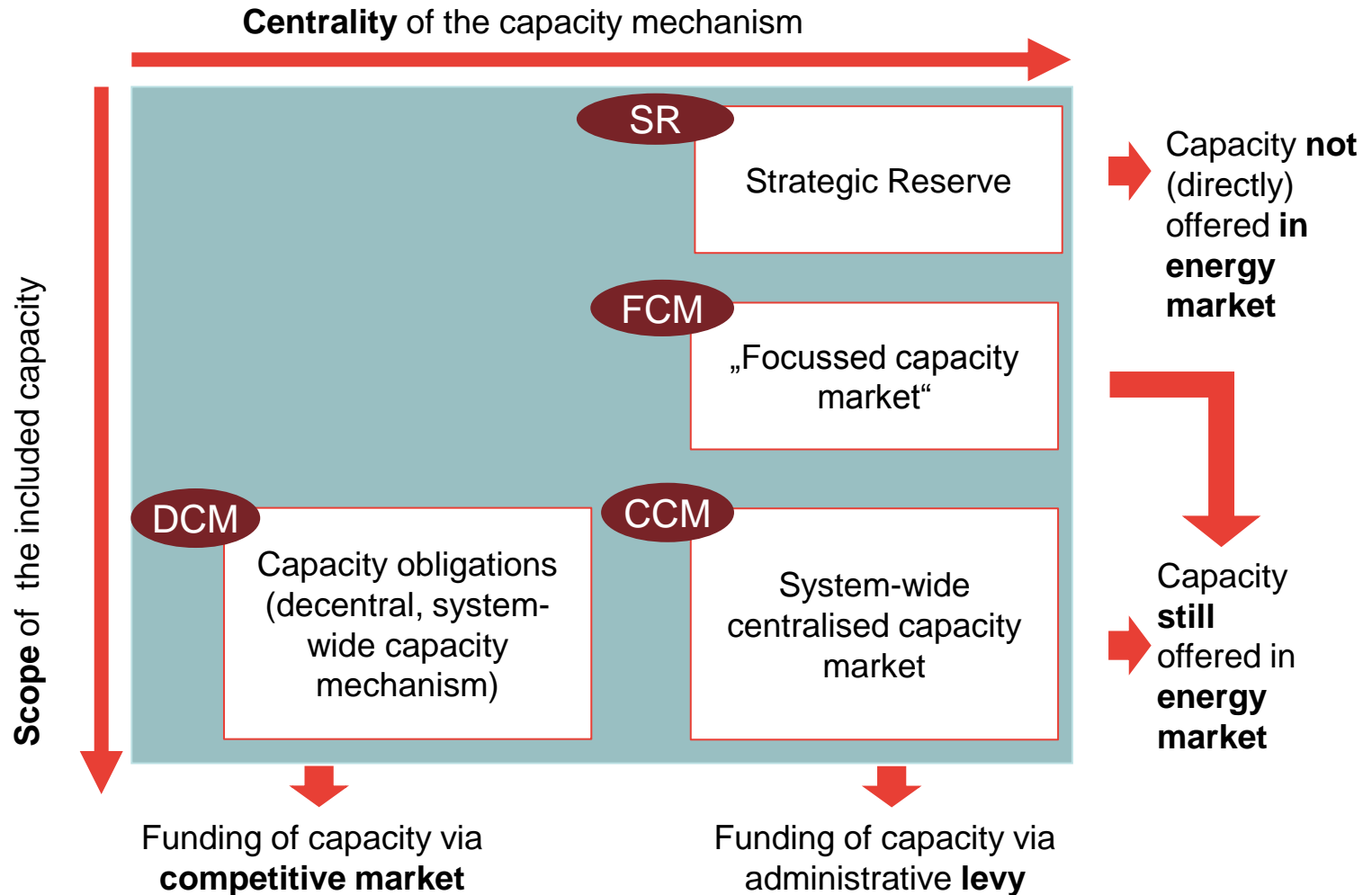
Conclusion

- Real EOM in Germany / Europe is able to guarantee for generation adequacy if reforms are implemented



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# Capacity mechanisms (CM) evaluated in the “Impact Assessment”



# Summary - assessment of the consultants

Please note: political control of capacity/level of security of supply is not an economic value by itself

Effectivity (political accuracy)	Effectivity (consumer preferences)	Efficiency	Regulatory risks / policy	International compatibility
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Competition	Reversibility	Distribution
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Please note: Distribution is not an economic criteria

EOM (today)	-	+/-	+/-	++	++
EOM 2.0	+/-	+	++	++	++
Reserve	+	+/-	+	+	+
Decentral comprehensive CM	+/-	+	+/-	+/-	+/-
Central comprehensive CM	+	-	-	-	-
Focussed CM	+	-	--	--	--

+/-		
+		
+/-	+	+/-
+/-	-	-
+/-	+/-	-
+/-	+/-	+

Here evaluation from the perspective of domestic consumers (at the expense of producers and overall efficiency)



Decisive criteria



Less relevant criteria

# CRMs come with extra cost that increase with the severity of the CRM market intervention

CRM system cost are moderate...

- As long as we assume a well-informed „central planner“, extra cost of most CRMs are moderate::
  - ~ 2 Mrd. € for a Strategic Reserve or a comprehensive CRM (NPV 2015-2039)
  - ~ 6 Mrd. € for a „Fokussed capacity market (NPV 2015-2039)

... but CRM go along with significant regulatory risks...

- “Central planner” has to take many complex decisions, which are now taken decentralised by market participants
- Market participants will increasingly optimise against the regulatory setting, not according to consumer preferences
- Considerable risk of a „slippery slope“ with a continuous expansion of market interventions (see US examples)

...that result in high extra costs

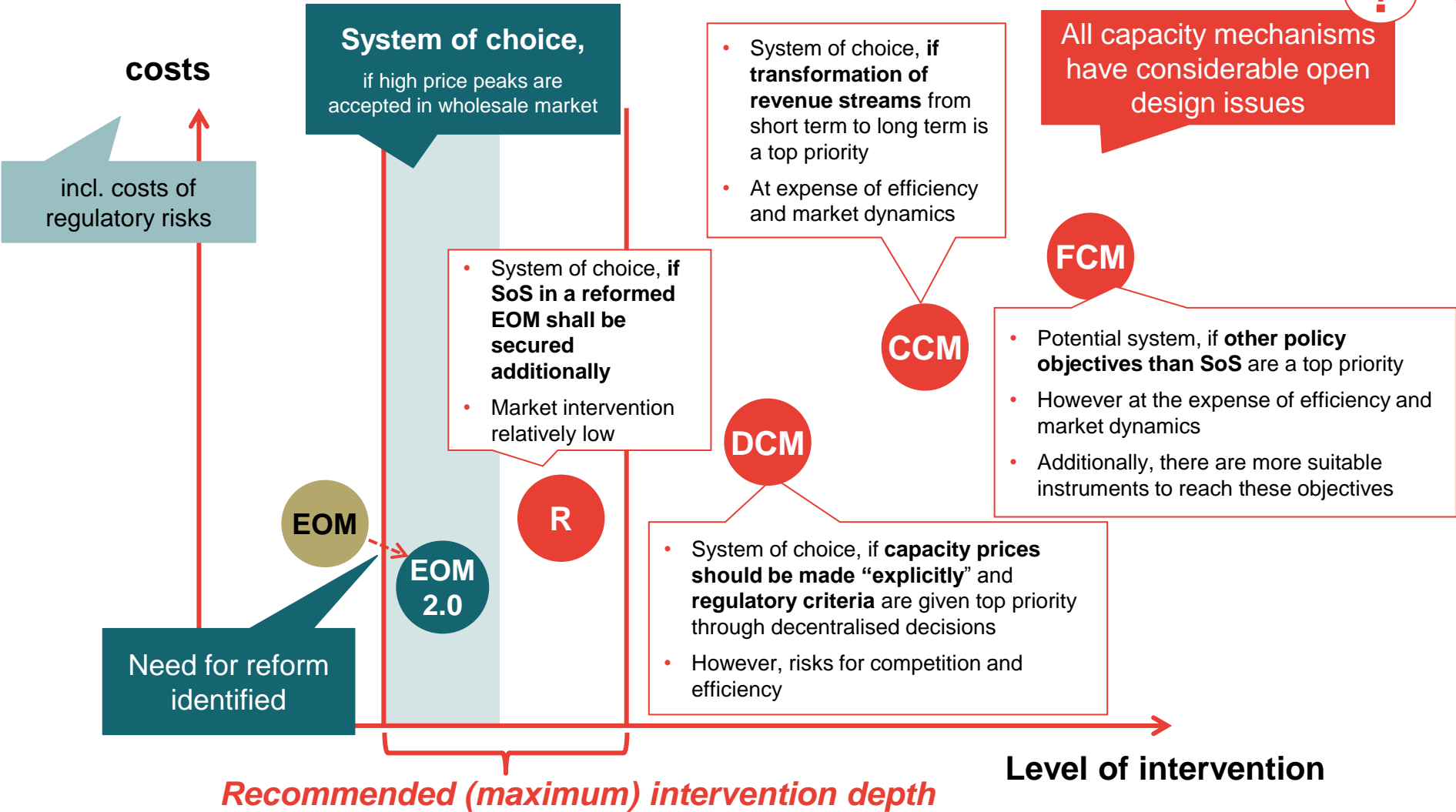
- **Extra cost through regulatory risks likely to exceed direct system costs by far**



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# Conclusive assessment based on...

illustrative



... costs and depth of intervention of CMs



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FRONTIER ECONOMICS EUROPE LTD.  
BRUSSELS | COLOGNE | LONDON | MADRID

Frontier Economics Ltd, 71 High Holborn, London, WC1V 6DA  
Tel. +44 (0)20 7031 7000 Fax. +44 (0)20 7031 7001 [www.frontier-economics.com](http://www.frontier-economics.com)