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SCHUMAN
CENTRE FOR
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STUDIES

Florence
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of
Regulation

Shift, Not Drift: Towards Active Demand Response and Beyond

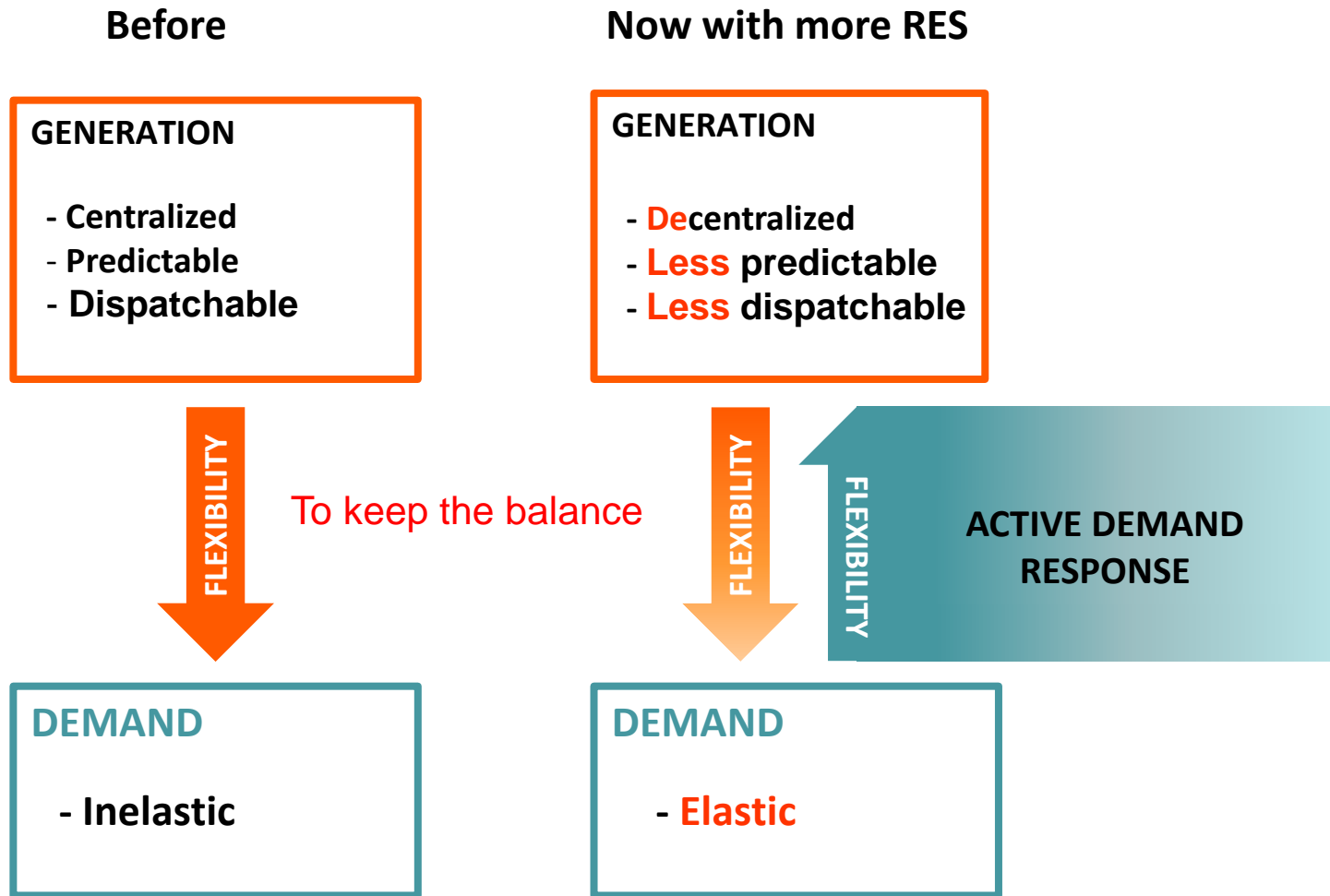
Xian He

CEER workshop on Regulatory & Market Aspects of Demand Side Flexibility

18/11/2013

Why active demand response?

...The flexibility challenge



Hardware is in progress, but ...

Are energy consumers ready to be active today?



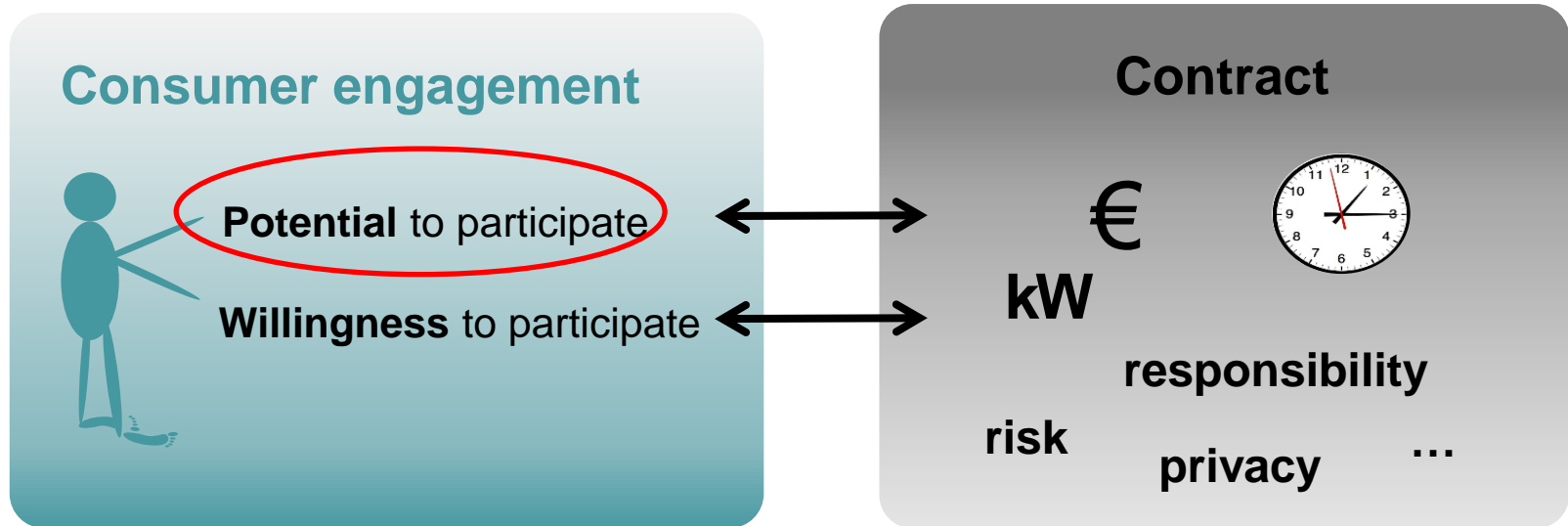
*Financial incentives
are too small*



**No future for demand
response!!**

We challenge this view

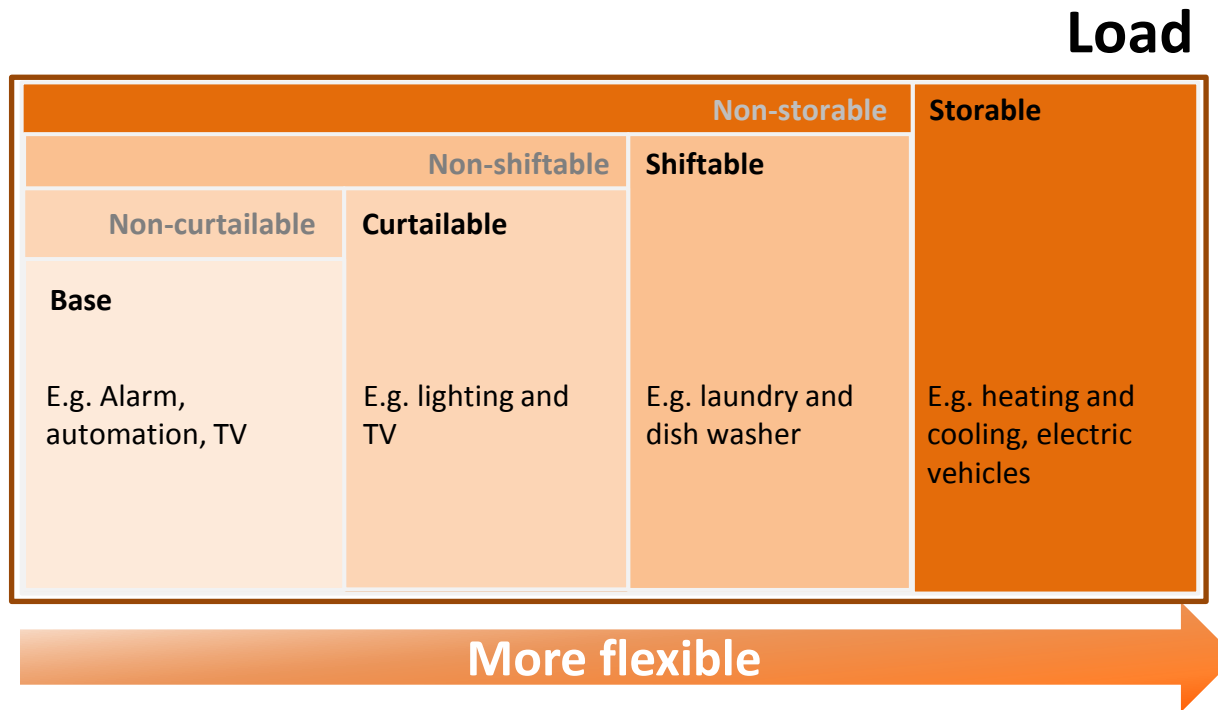
How consumers will be engaged?



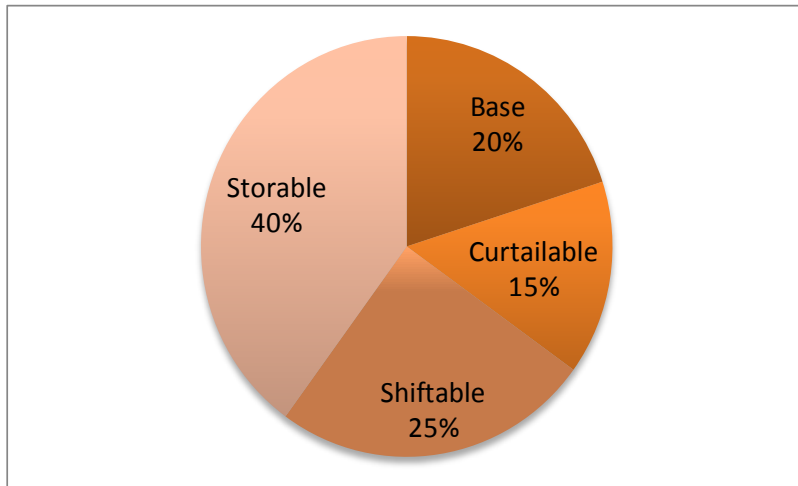
We assess the interaction between contracts and consumers to better understand how to mobilize consumers.

Consumers' potential to participate in active demand response

- Not only about the smart appliances
- But also about the way they use the 'smart' and 'dumb' appliances
- Assessment tool: Characterization of load mix



Assessment tool: load mix



Load mix

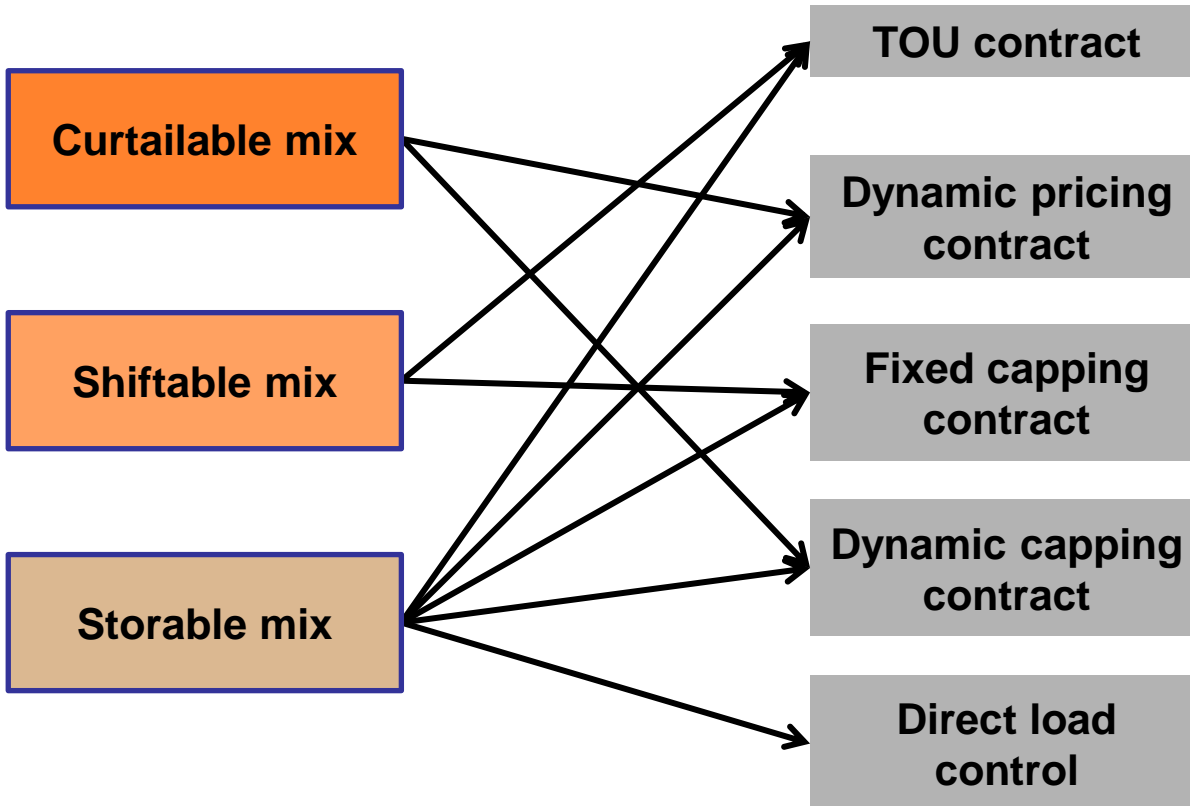
Curtable mix

Shiftable mix

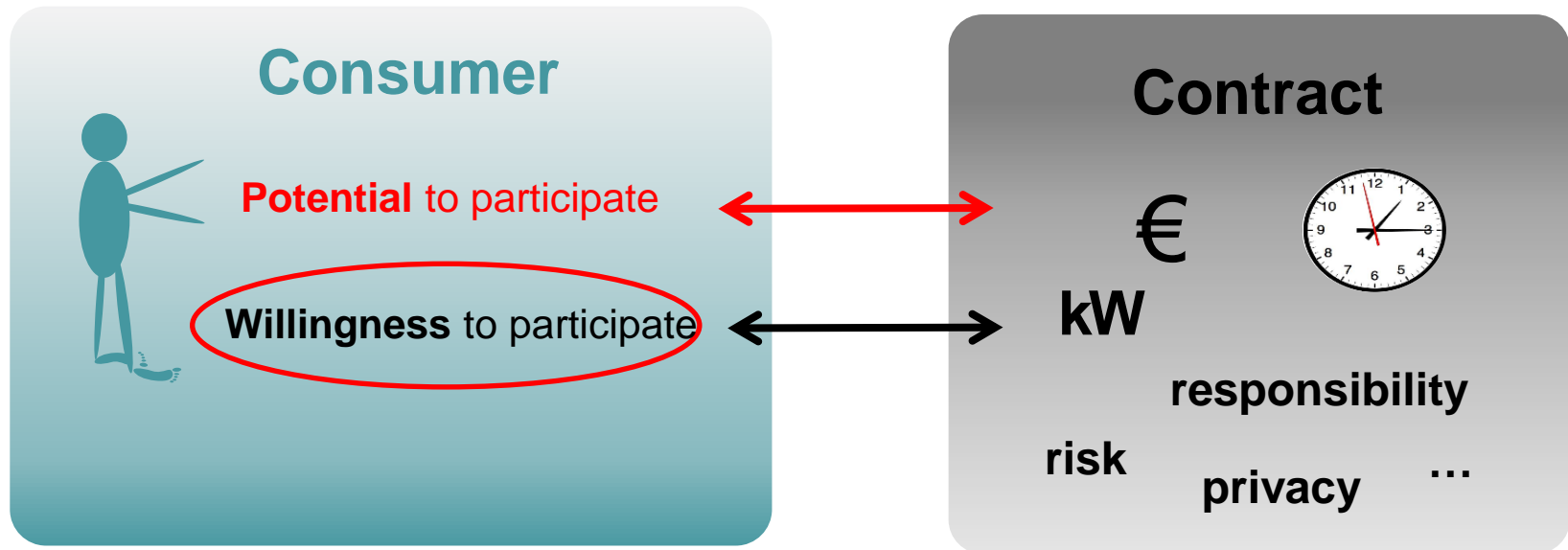
Storable mix

Interaction between load mix and demand response contracts

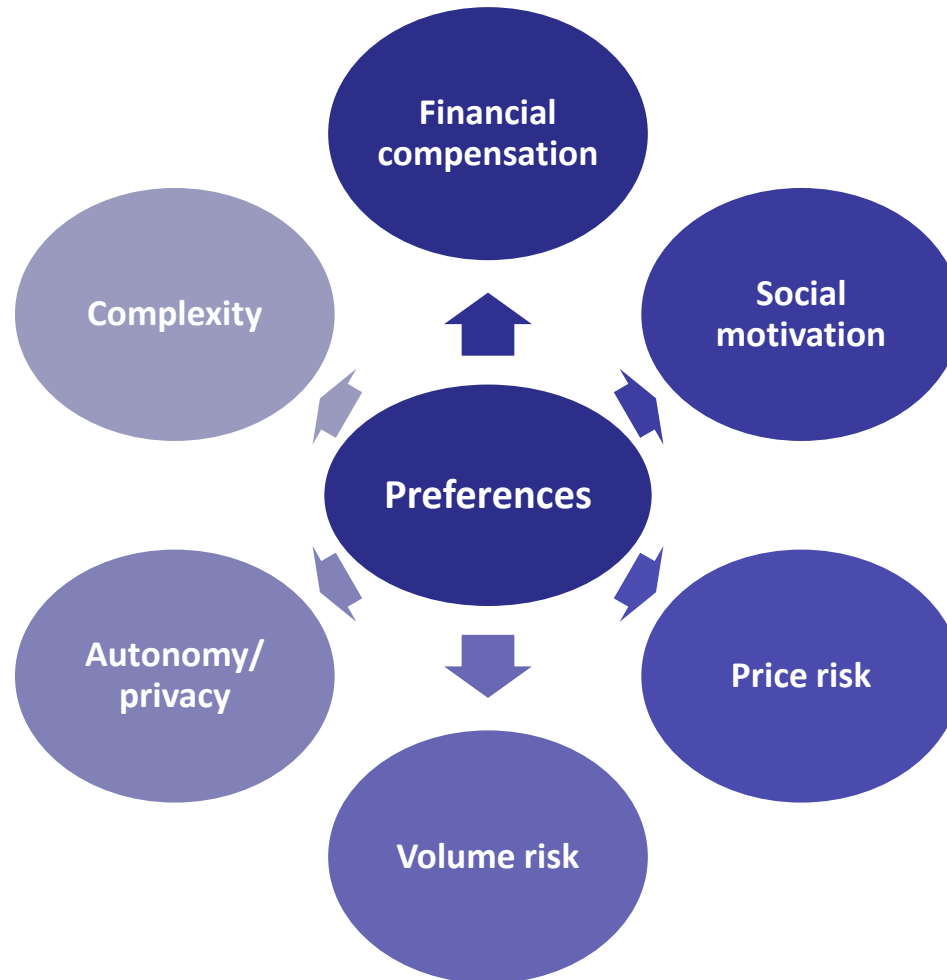
5 contract types



How consumers will be engaged?



Consumers' willingness to participate in active demand response



Interaction between consumer preferences and demand response contracts

Contract	Preferences				
	Price Risk	Volume risk	Complexity	Autonomy/ Privacy loss	Financial compensation
TOU	Low	None	Low	None	Limited
Dynamic pricing	High	None	High	None	High potential
Fixed capping contract	None	Low	High	Limited	Limited
Dynamic capping contract	None	High	High	Limited	High potential
Direct load control	None	None	None	High	High potential

Lots of trade-offs

Can consumers be engaged to participate in active demand response?

Yes,

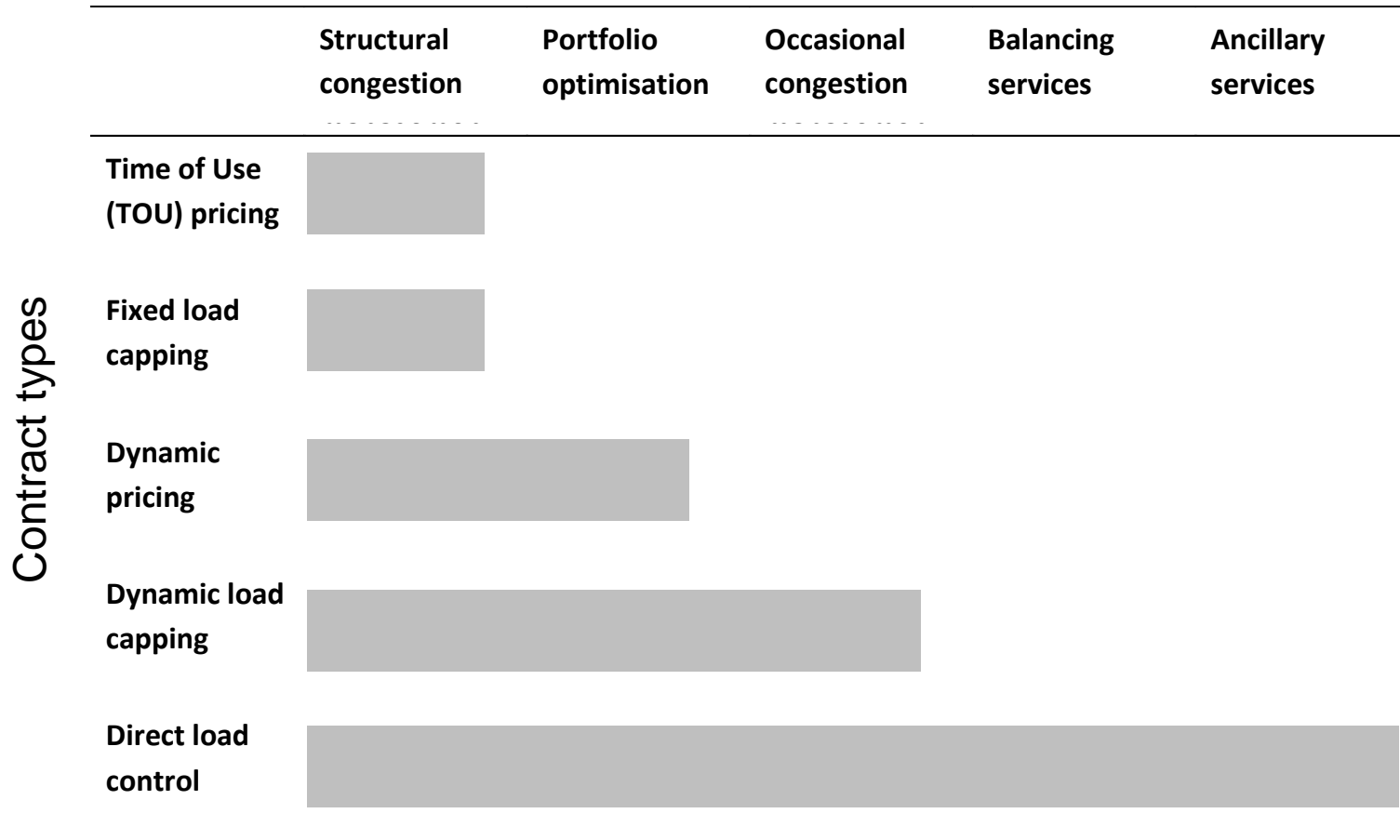
if they have **enough options that** reflect their diversity.



Would **intermediaries** offer these options?

How DR intermediary get value out of DR contracts

Demand response services



For different DR contracts to emerge, DR services need to be correctly valued.

Distorted valorization of demand response

- Demand response is **undervalued** because:
 - The wholesale markets (including day-ahead and balancing markets, ancillary services market, and sometimes capacity markets) are not fully open to demand response.
 - The way balancing markets are organized today often involves the socialization of some of the costs among grid users.
- Demand response is **overvalued** in case:
 - The aggregators assume partial or no balancing responsibility. Risk of distorting the price formation in the wholesale markets.

The good market design is the one that gets the value ‘right’.



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Thank you for your attention

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THINK Report, Policy brief, and Webinar on this topic can be found:
<http://www.eui.eu/Projects/THINK/Research/Topic11.aspx>