

THE EU POWER SECTOR NEEDS LONG-TERM PRICE SIGNALS

INDUSTRIAL IMPLICATIONS

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Yes, there are challenges

- ▶ CAPEX is high
- ▶ Uncertainties and thus investment risks are high
- ▶ Legal & Regulatory Framework is not stable

But, not all is negative

- ▶ Not all long term contracts need approval
- ▶ New technologies / solutions for peak capacity might have lower CAPEX
- ▶ Other high CAPEX industries (oil, aluminium, shipping) function

“Long term contracts with regulated counterpart” will reduce CAPEX. *But will it work?*

- ▶ Will shift risk from investor to society
- ▶ Wrong decisions cannot be corrected by market
 - Over-capacity results in higher prices/tariffs
 - Under-capacity results in lower prices/tariffs
 - In combination with market: vicious circle!
- ▶ Either “market” or central planning”
- ▶ Will “central planner” be better?

Conclusions: Think twice!

- ▶ Long-term contracts with regulated counterparty means “central planning”
- ▶ Despite challenges: “market” preferable above “central planning”
- ▶ So concentrate on real issues for a well functioning market, like:
 - Ensure VoLL pricing (tackle “regulatory paternalism”) and allow for scarcity pricing in forward markets
 - A well-designed CRM can reduce risk (dependency on uncertain scarcity rents), without long-term contracts
 - Behind-the-meter issue
- ▶ And avoid “regulating the market” like:
 - Promoting “flexibility” by specific rules for DSR aggregators
 - Allowing DSOs to own & operate storage
 - Nodal pricing (because of negative impact on liquidity of forward markets)

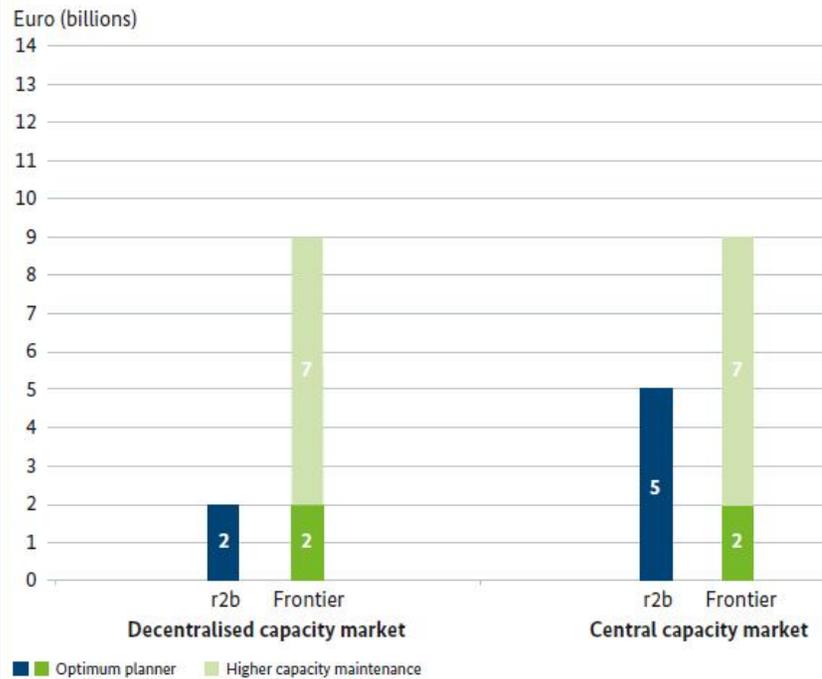
What did we do 25 years ago?

- ▶ Europe: introduce *competition* to increase *efficiency*
- ▶ Other countries: introduce *privatisation* to attract *investments*

- ▶ Competition introduced in the 1990ies to replace 'centrally' planned investment decisions with commercial decisions by contestable agents
 - 'Central planner' was government, regulator, vertically integrated monopoly, ..
 - Reducing overcapacity by making contestable investors (=utilities) responsible for investment decisions
 - Unprofitable investments would no longer result in higher prices to end users, but be avoided (if utilities are reasonably rational)
 - Profitable investments will be carried through, and thus ensure security of supply
- ▶ Questions about utilities' ability to invest timely result in 'demand' for capacity arrangements controlled/supervised by regulator

The standard question: *What is better? EOM or EM + Capacity Markets (CM)?*

Figure 4: Additional system costs of capacity mechanisms compared with the electricity market 2.01



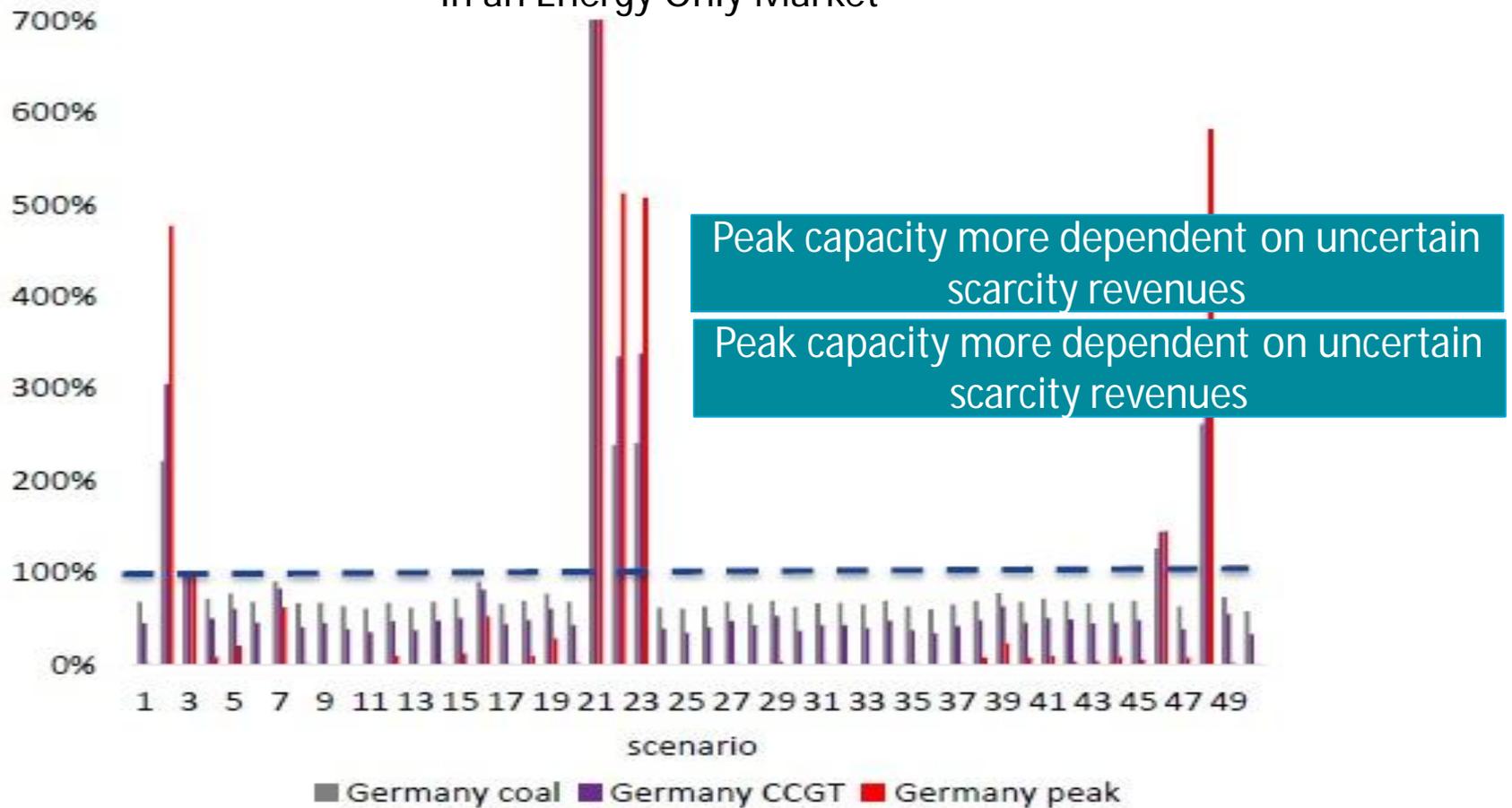
EM+CM is less efficient than perfect EOM
 Reality will never be "perfect EOM"
 Costs for a well-designed CM are low
 But risk element (for investments in assets that have to rely on scarcity rents) was not modelled

Pragmatic conclusion: *it is more important to implement a design correctly than trying to find the correct design*

1) The graphic illustrates the cash equivalent of system costs in the r2b model period spanning 2014 – 2030, and the 2015 – 2039 model period compared against the optimised electricity market.

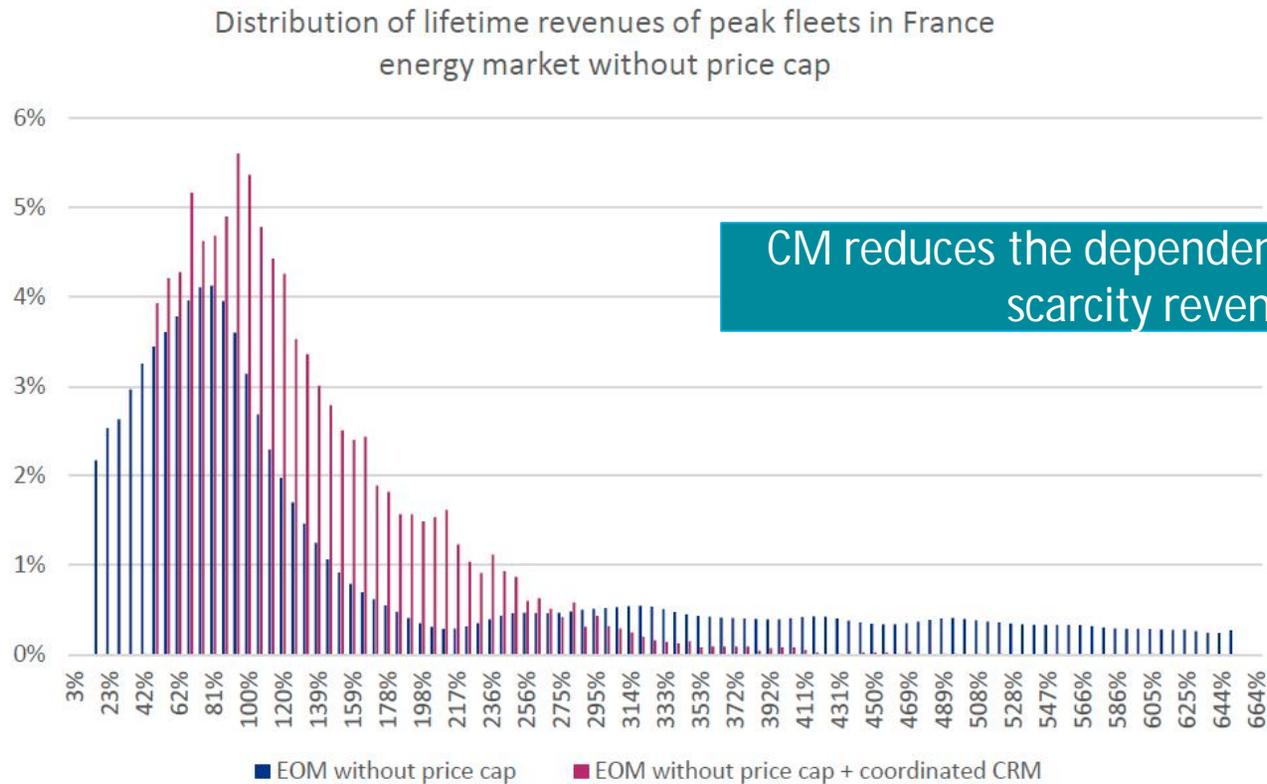
Source: Own graphic based on data provided by r2b and Frontier

Impact of weather scenarios on revenues of German plants In an Energy Only Market



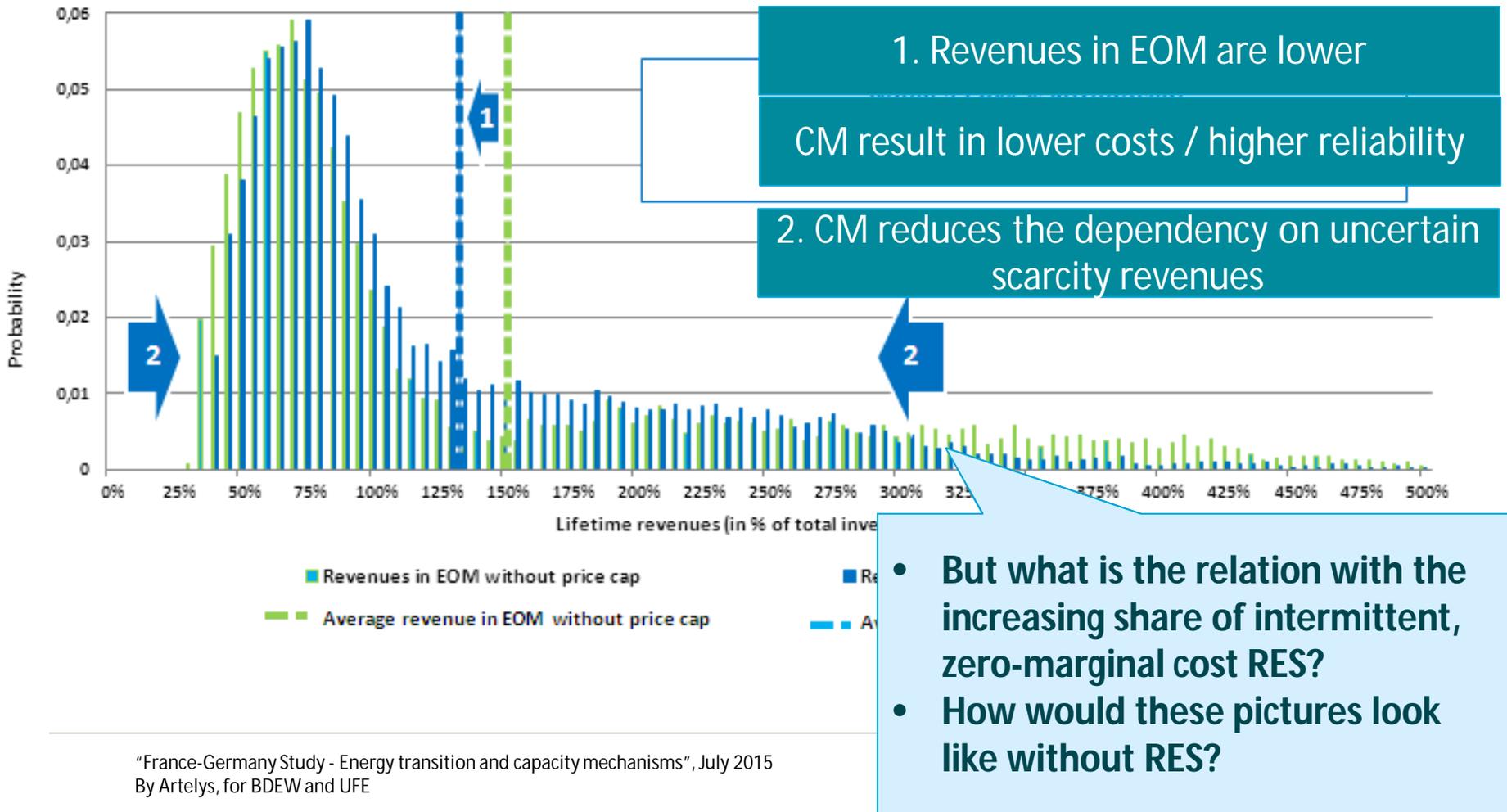
"France-Germany Study - Energy transition and capacity mechanisms", July 2015
By Artelys, for BDEW and UFE

The “Artelys study“ did model the investment risk element



“France-Germany Study - Energy transition and capacity mechanisms”, July 2015
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Impacts on CCGT revenues of the introduction of a CRM



What are the new questions? (1)

The old question was: EOM or EM+CM?

- ▶ To what extent does the increasing share of RES, change the dependency on uncertain scarcity rents?
 - Hypothesis: a small share of RES is reducing this dependency and would make the EOM less vulnerable
 - An EOM works better in a small (isolated) system than in a large (integrated) system

What are the new questions? (2)

The old question was: EOM or EM+CM?

- ▶ In case of a sudden over-capacity (e.g. caused by a sudden increase of the RES share), is an EOM or an EM+CM better suited to allow for efficient divestment decisions?
 - RES (low OPEX) should normally replace baseload plants. However, high CAPEX (of baseload) does not play a role in divestment decisions.
 - Hypothesis: a CM could be useful to steer efficient transition

Economic model needs to be able to model:

- investments/divestments decisions properly
- At least two conventional technologies (base & peak)
- Capacity Market

What are the new questions? (3)

The old question was: EOM or EM+CM?

- ▶ Are RES support schemes hindering emergence of scarcity prices?

- ▶ How to ensure VoLL pricing (both in EOM also in EM+CM design)?
 - Introduce market rule that ensures VoLL-pricing in case of actual scarcity
 - Like under-frequency load shedding or any other type of TSO intervention

Summary

- ▶ EOM or EM+CM is not the question
- ▶ a CM can incur costs (especially if ill-designed)
- ▶ a CM can have benefits
 - Reduce the dependency on uncertain scarcity rents
- ▶ What is the impact of RES?