



B-SEC „Capacity Markets“
Berlin, November 04, 2011


Do We Need Capacity Instruments?; and if yes, Which Ones?

Institutional Economic Analysis on the Rationality and the Realization of Capacity Instruments

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Based on joint research with Jan Siegmeier

Main Theses

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- 1) The traditional (academic) discussion about capacity markets is not particularly useful in the (German) debate of sector design in the energy transformation („Energiewende“)**
 - 2) The discussion needs to build upon generally agreed objectives (which are unclear at present): for example security of supply; consumer interest; environmental objectives**
 - 3) There is a general consensus that capacity instruments are NOT needed in Germany in November 2011 with the sole objective of security of supply**
 - 4) The discussion in Baden-Wuerttemberg, which is the driver of the current discussion in Germany, hovers around an ill-defined problem and misses the breadth of options on the table**
 - 5) The range of options stretches from strategic reserve to „vertical integration“, with advantages and disadvantages**
 - 6) Since i) the problem is not well defined; and ii) there is no urgent need for action, we should take the time to research the topic in-depth, before deriving concrete policy conclusions**
 - 7) In the meantime, the best thing to do is to avoid short-termist action, such as implementing de-facto capacity instruments for power plants in the „Kraftwerksinvestitionsprogramm“ (Brunsbüttel, Profen, others)**

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Objectives and evaluation criteria

Effective achievement of objectives

Short- and long-term security of supply

Limiting consumer payments (long-term perspective)

- Welfare effect of instrument choice
 - Risk bearing and risk costs
 - Incentives to efficient investments from system perspective
 - Incentives to efficient dispatch decisions
- Distributive effects
 - Generators - consumers
 - To distinguish: neighbour countries' consumers and generators

Constraint: Avoid opportunistic behaviour towards sunk investments

Compatibility with environmental objectives

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Despite nuclear phase-out no „power gap“

Results of recent studies: No „power gap“ at least until 2020

- ENTSO-E (2011)
- Consentec, EWI, IAEW (2010, cf. table)
→ Monitoringbericht des BMWi (2011)

Leistung [GW]	2008		2010		2015		2020*	
	installiert	gesichert	installiert	gesichert	installiert	gesichert	installiert	gesichert
Erneuerbare	38,4	4,5	46	5,3	61,4	7	78,4	8,6
Wasserkraft	8	7,2	8	7,3	9	7,5	9	7,5
Kernenergie	20	17,6	19	16,6	13	11,5	7	5,8
Gas	25	21,1	20	17,3	25	21,3	31	26,3
Braunkohle	20	17,4	23	19,6	21	18,3	20	17
Steinkohle	26	22,2	31	26,9	31	27	28	24,3
Summe	137,4	90	147	93	160,4	92,6	173,4	89,5
Last		86,8		86,8		87,5		88,2

Source: Consentec et al. (2010), S. 42/46; generation in 2008, 2010 and 2015 based on known building projects, in 2020 based on cost minimization at given reliability level

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Where is capacity required ? N – S – E – W ?



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Overview of capacity instruments

- 1) Strategic reserve
- 2) Operative reserve
- 3) Capacity payments
- 4) Capacity certificates
 - 4.1) Capacity tender
 - 4.2) Capacity requirements
- 5) Capacity options
 - 5.1) Capacity options tenders
 - 5.2) Capacity options requirements
- 6) Regulatory procurement contracts
- 7) Vertical integration
regulator – generation

Capacity options tender – evaluation

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Fundamentally

- Possible to meet security of supply objective
- Flexible coverage of residual load can be realised efficiently due to incentives for availability
- Consumer payments can be limited to any preferred degree
- Positive welfare effects resulting from risk allocation: aggregated demand side can take risk better than single suppliers
- High complexity

Depending on design

- If only new utilities are addressed, pitfalls regarding opportunistic behaviour towards old investments have to be avoided by an appropriate design
- Hazard of market power problems if tendered, especially if:
 - existing utilities participate
 - spatial differentiation
 - technological differentiation

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Thank you !

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