Module 4 – Ancillary Services

4.2 Payments for capacity and energy





market time unit

Capacity and reservation





market time unit

- Contracting of ancillary services by the system operator implies capacity reservation
- More generally capacity reservation can be in both up and down directions
- This hence affects the possibility to offer on the day-ahead electricity market



 \bullet Imagine that $\mathrm{RT}^{\textcircled{R}}$ can generate up to $p_{max}=100 MW$ for a market time unit of interest.

3 illustrative cases:

- RT[®] gets a capacity reservation of 10MW for **upward** regulation, it can then only offer between 0 and 90MWh on the day-ahead electricity market
- Say capacity is reserved at 100DKK/MW and all energy sold at $\lambda^S = 200$ DKK/MWh, the resulting revenue is

 $\mathsf{Revenue}(\mathrm{RT}^\circledast) = 10 \times 100 + 90 \times 200 = 19000\mathsf{DKK}$

3 illustrative cases (cont.):

- RT[®] gets a capacity reservation of 10MW for **downward** regulation, it can then only offer between 10 and 100MWh on the day-ahead electricity market
- Say capacity is reserved at 100DKK/MW and all energy sold at $\lambda^S=$ 200DKK/MWh, the resulting revenue is

 $\mathsf{Revenue}(\mathrm{RT}^{\textcircled{R}}) = 10 \times 100 + 100 \times 200 = 21000\mathsf{DKK}$

- $RT^{(R)}$ gets a capacity reservation of 10MW for **upward** regulation and 20MW for **downward** regulation, it can then only offer between 20 and 90MWh on the day-ahead electricity market
- Say capacity is reserved at 100DKK/MW and all energy sold at $\lambda^S=$ 200DKK/MWh, the resulting revenue is

 $\mathsf{Revenue}(\mathrm{RT}^\circledast) = 30 \times 100 + 90 \times 200 = 21000\mathsf{DKK}$

Use the self-assessment quizz to check your understanding!

