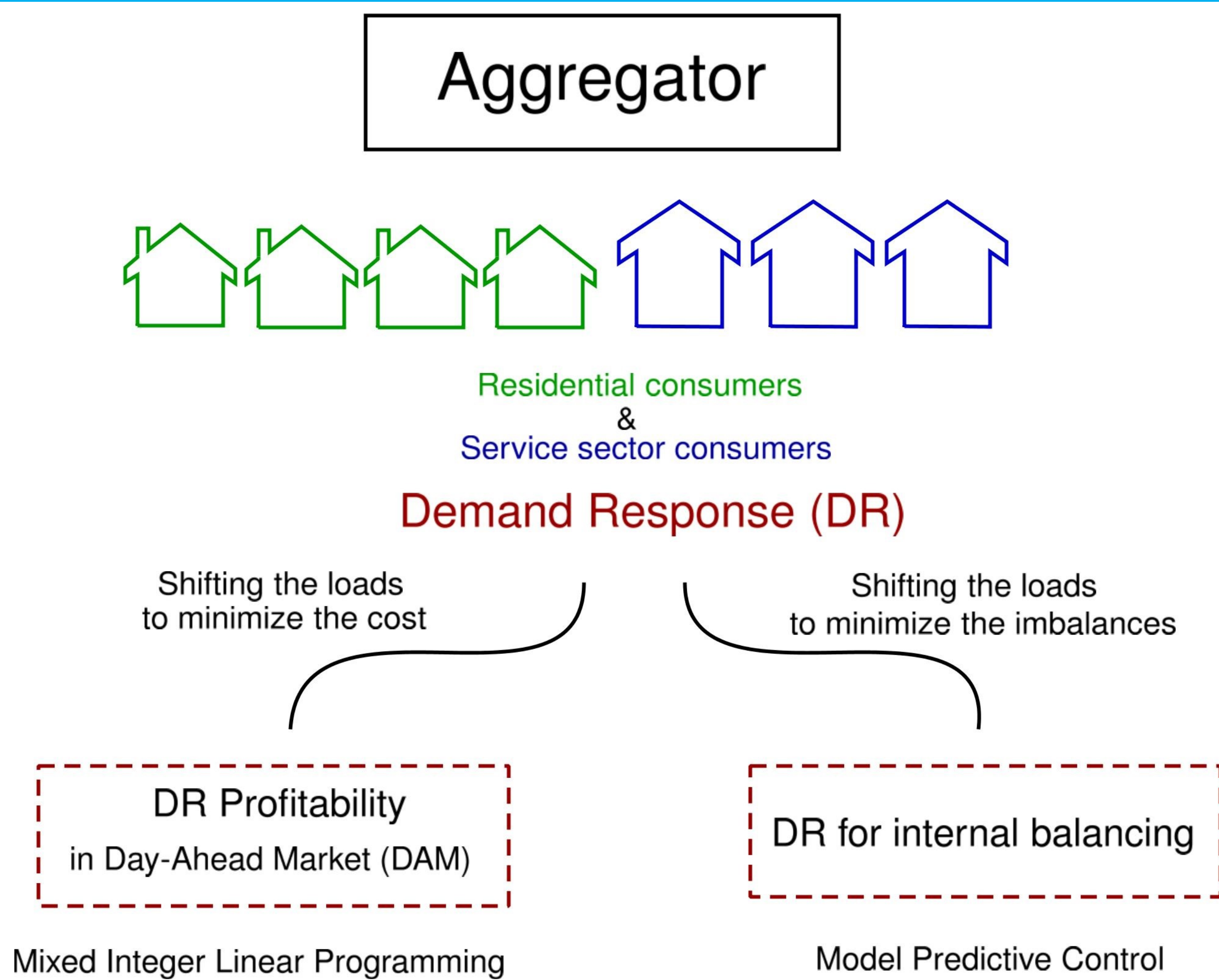


# Aggregator's Role in Demand Response with Uncertainties

Özge Okur, Petra Heijnen, Zofia Lukszo  
o.okur@tudelft.nl

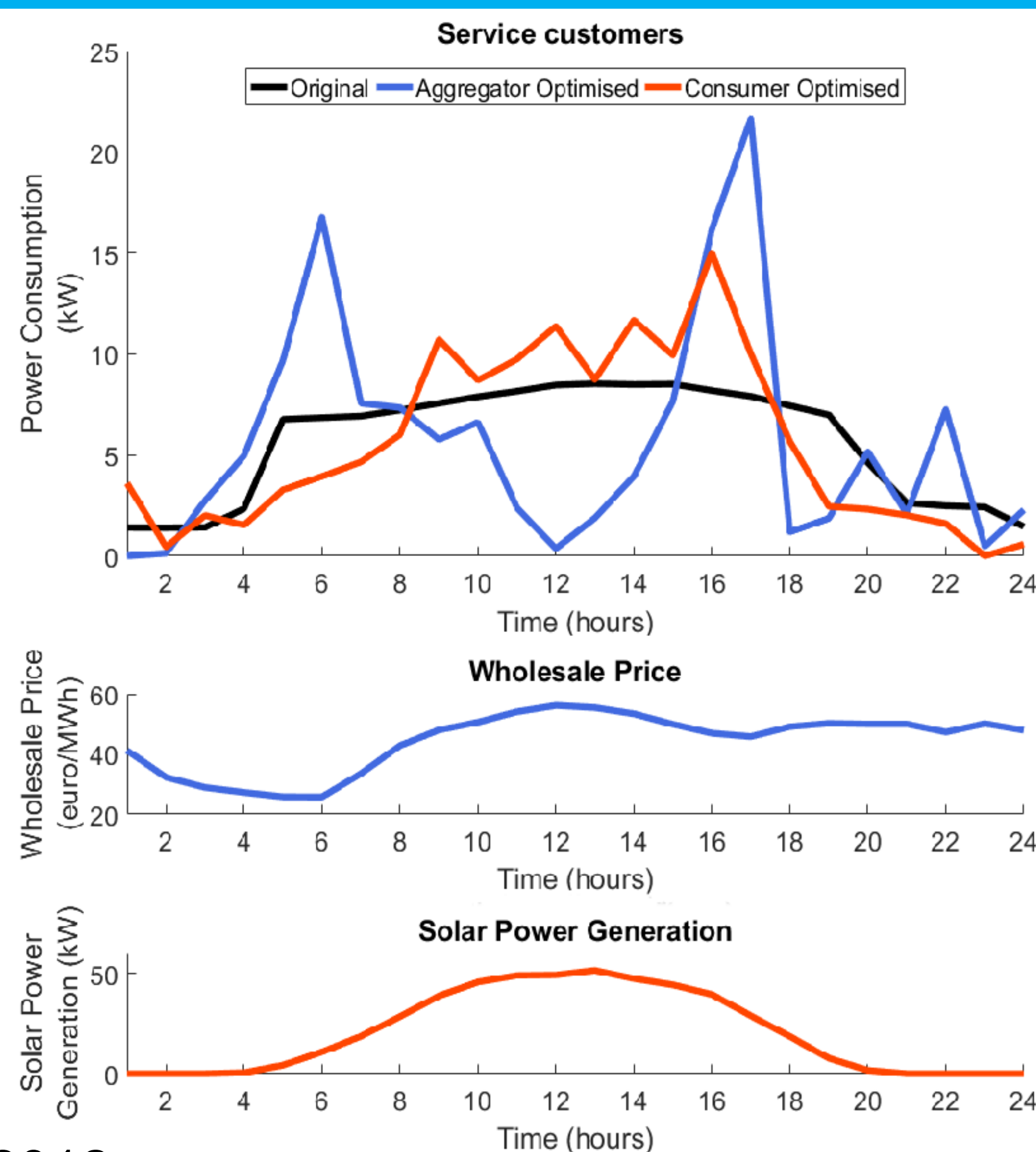
## 1. Introduction



## 2. DR profitability in Day-Ahead Market

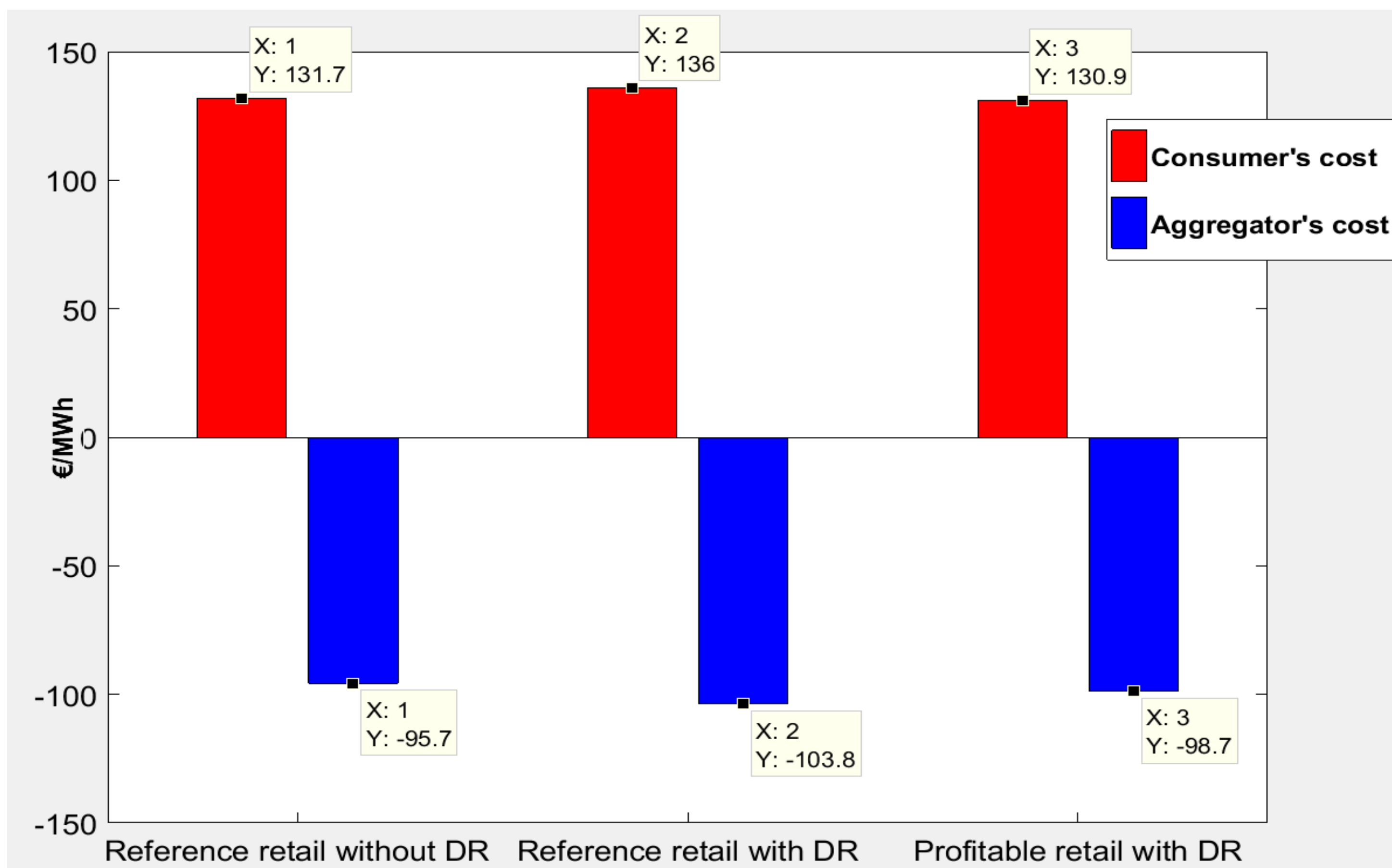
- Two optimization approaches: optimizing from aggregator's and from consumers' perspective.

- Under which conditions DR can be profitable for both aggregators and consumers?



Average values for June 2012

## 3. DAM Scheduling Results

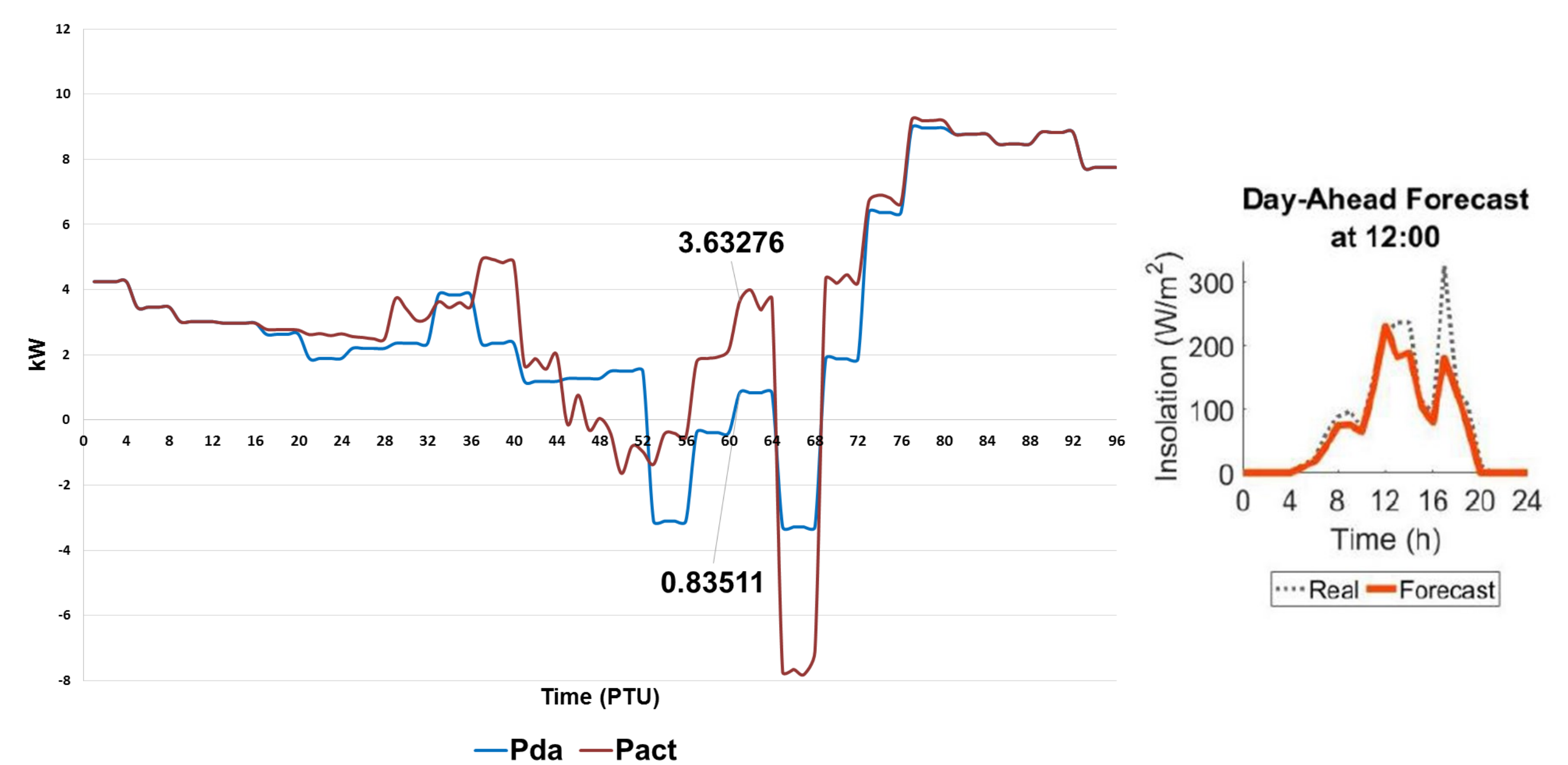


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## 4. DR for Internal Balancing

As the PV generation forecasts get more accurate, the imbalances caused by PV generation can be reduced using **internal balancing**.

$$\text{Imbalance} = \text{Energy purchased/sold in DAM (Pda)} - \text{Actual energy required (Pact)}$$



## 5. Internal Balancing Preliminary Results



Preliminary results showed that the total number of imbalances are reduced by 5-10% in June.

## 6. Conclusion and Future Work

- Profitability of DR with flat-rate retail prices in DAM is very limited
- DR for internal balancing: Preliminary results indicate that imbalances are reduced by 5-10% in June
- The impact of imbalance prices for future research: Minimizing imbalances vs. minimizing imbalance cost