

# CrowdNett: THE FIRST DUTCH VIRTUAL POWER PLANT OF AGGREGATED HOME BATTERIES



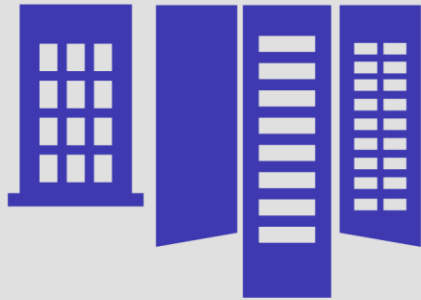
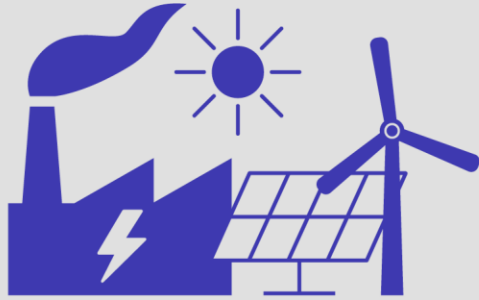
European Utility Week  
Amsterdam, October '17  
Dirk-Jan Middelkoop  
@DJ\_Middelkoop



# BALANCE SUPPLY & DEMAND BY...



SUPPLY



DEMAND

Time of use pricing

Energy storage

Conversion

Improved transmission system

(Gas-fired) backup capacity

Curtailement

WHAT IS IN IT FOR  
THE CUSTOMER?

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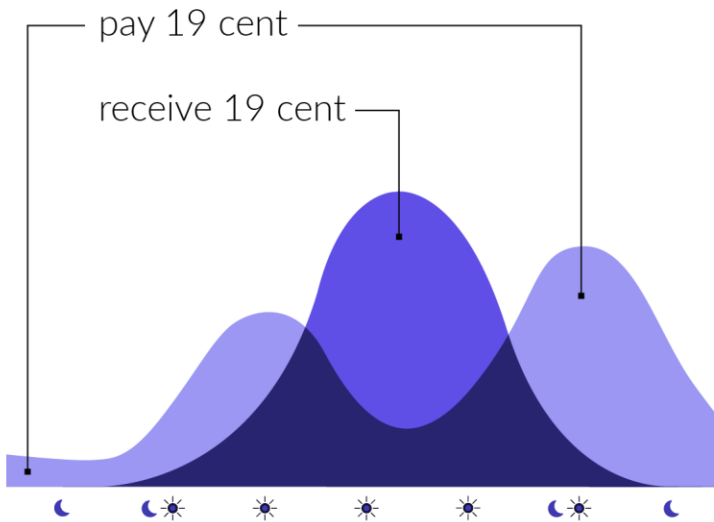


WHAT IS IN IT FOR  
THE UTILITY?

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# STORING ELECTRICITY AT HOME – DOES IT MAKE SENSE IN NL?



## Motives for home energy storage:

- ➔ More self-consumption of solar PV
- ➔ Saving energy costs with the battery
- ➔ Increasing level of autarky (black out)
- ➔ Supporting energy transition

## Interest in home storage due to:

- ✔ Use of own solar production
- ✘ Netting is possible, no incentive for self-consumption
- ✘ Reliable electricity network, no back up functionality yet
- ? Not explicit yet



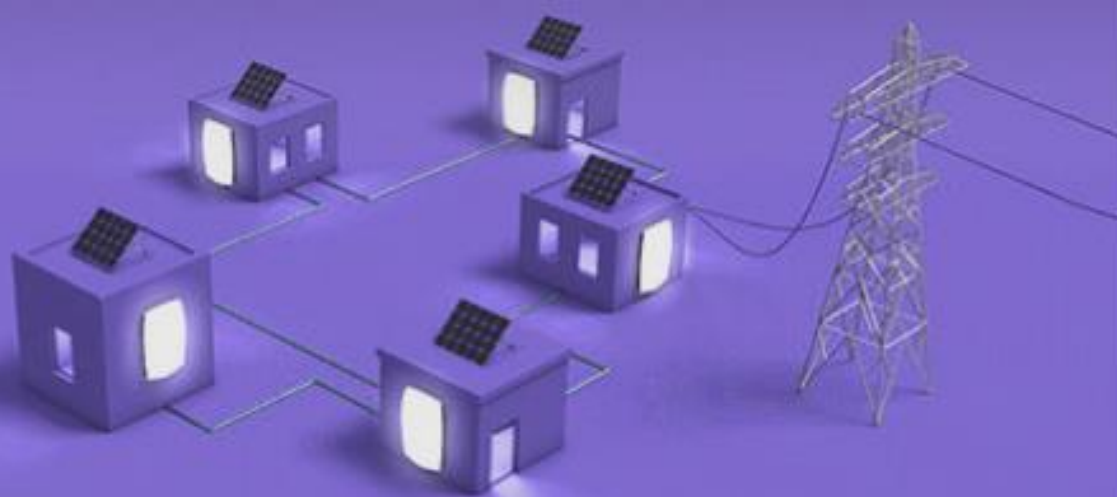
# WHAT IF WE CROWDNETT?

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What if we would use the battery on the primary reserve market?

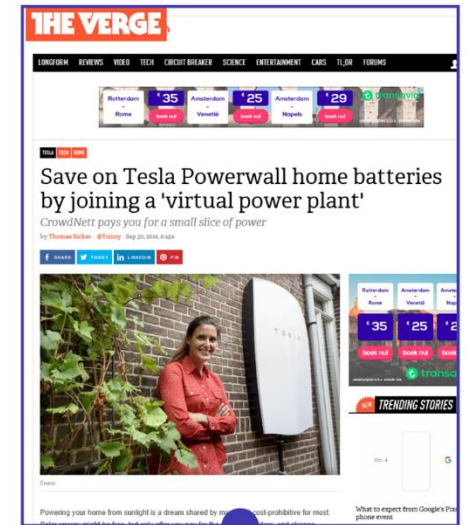
- Income on the **primary reserve market** will fluctuate, but we are very well acquainted with that market.
- In order to reach **1 MW capacity** 300-400 home batteries are required
- This way we can give the CrowdNett customer an extra substantial **revenue per year**.  
And we **compete with convential power plants**.



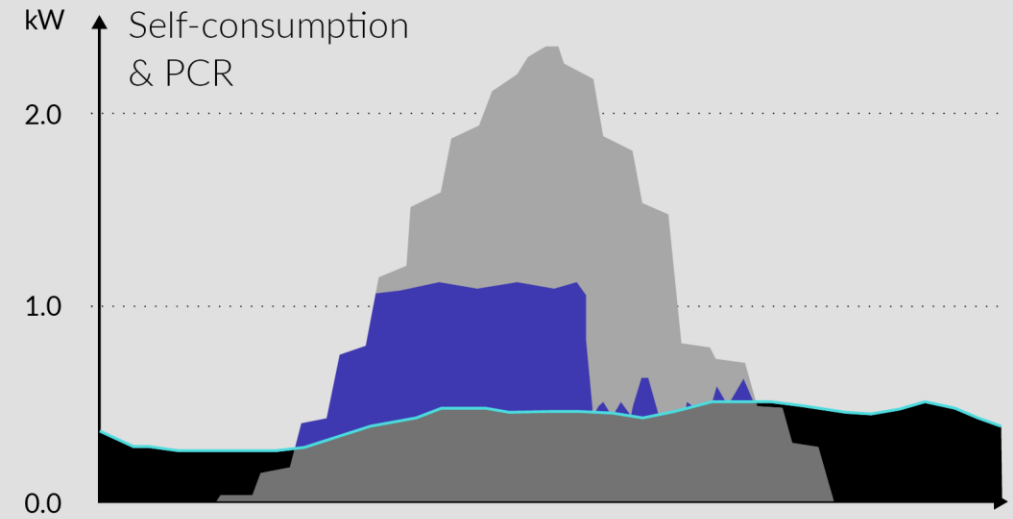
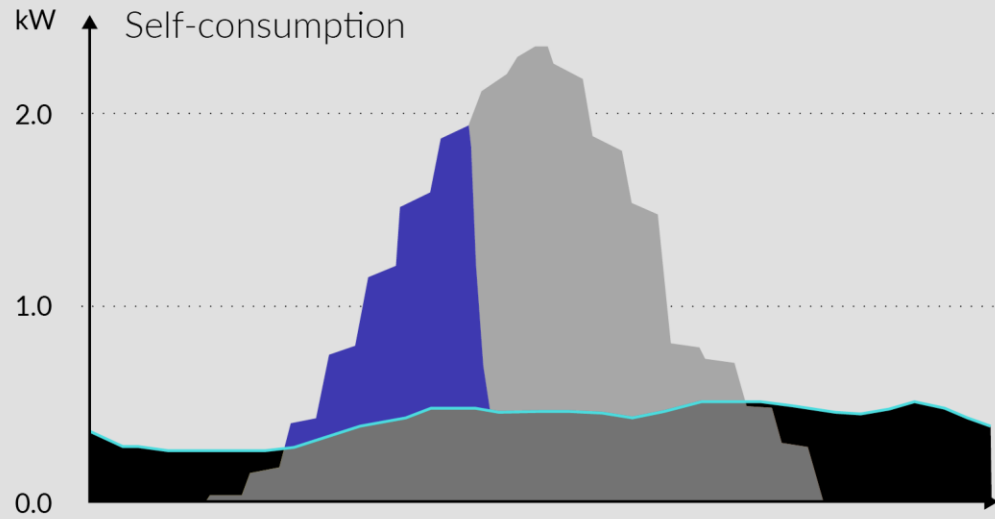
# CROWDNETT: LAUNCH IN OCTOBER 2016



The screenshot shows the Eneco CrowdNett website. At the top is the Eneco logo and navigation links: 'Energieproducten', 'Slim met energie', 'Service', and 'Stel je vraag'. The main heading is 'Eneco CrowdNett' with the subtext 'Zelf zonne-energie opslaan, samen CO<sub>2</sub>-uitstoot terugdringen'. Below this are two bullet points: '• Investeer in een Tesla Powerwall voor slechts € 4.500 (excl. btw)' and '• Vijf jaar lang € 450 vergoeding'. A green 'BESTEL NU' button is present. The section 'De voordelen van CrowdNett' lists four benefits with green checkmarks: 1. 'Gebruik je eigen opgewekte energie: Zonder batterij lever je overdag je opgewekte maar niet direct verbruikte energie terug aan het net...' 2. 'Balanceer het elektriciteitsnet: Elektriciteitsnetwerken fluctueren sterk, omdat vraag en aanbod van elektriciteit continu veranderen...' 3. 'Duurzaam én financieel voordeel: Dankzij CrowdNett wordt Nederland nog schoner, en jij krijgt daar nog een aantrekkelijke financiële vergoeding voor ook.' 4. 'CrowdNett is er nu voor alle zonniefhebbers: Nog geen zonnepanelen? Kies dan voor een totaalpakket: CrowdNett + Thuisbatterij + Zonnepanelen.' An image of a hand holding a smartphone displaying the CrowdNett app interface is shown on the right side of the website screenshot.



# SELF-CONSUMPTION & PRIMARY CONTROL RESERVE



● PV to Household ● PV to Battery ● PV to Grid ● Battery to Household ● Consumption of Household

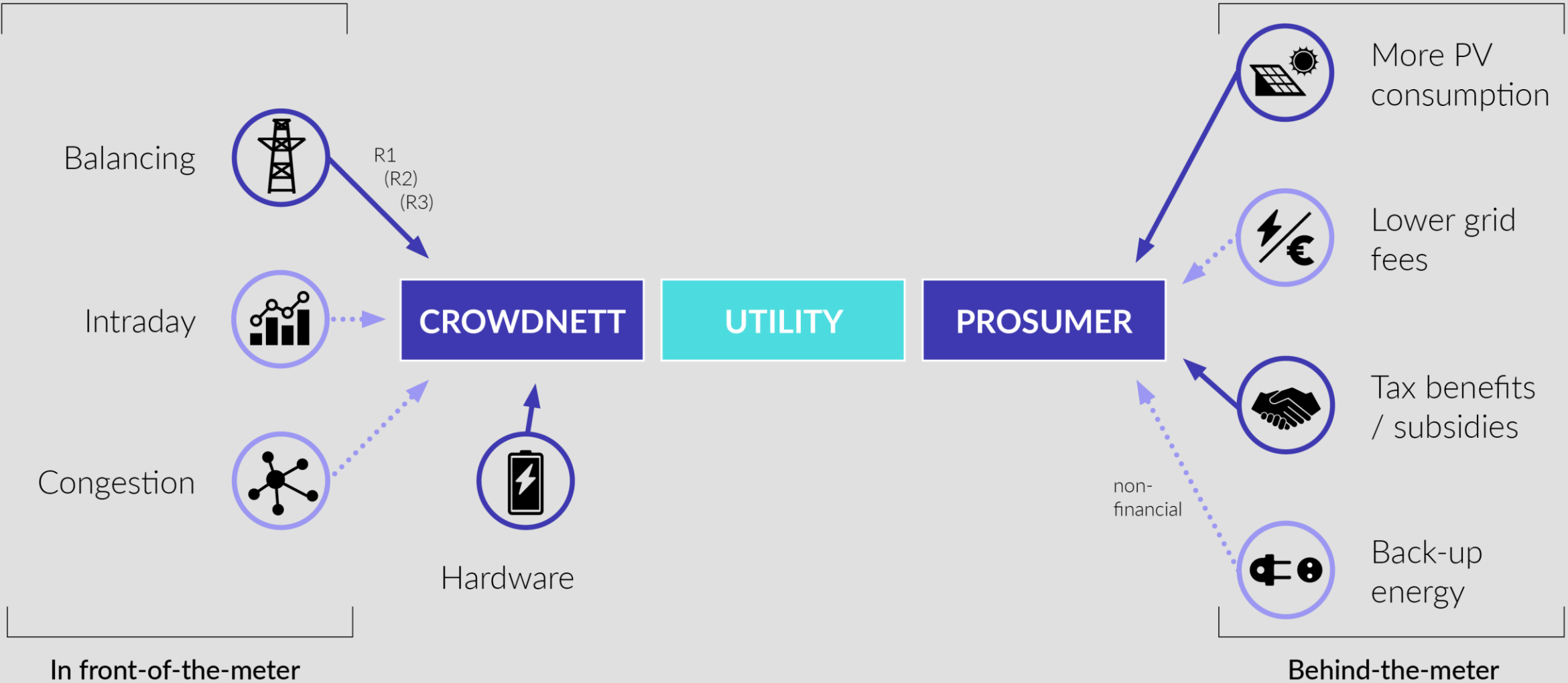
## Dutch customer

Annual consumption: 4,000 kWh  
Installation: 10 PV panels of 300 kWp  
Tesla Powerwall 1: 3,3 kW / 6,4 kWh  
Reserved for balancing: 2,64 kW / 1,32 kWh

## Results

Self-consumption rate of: **85 % vs. 78%**  
Additional income of at least: **200 €/year**

# UTILITY: THE CENTRAL ROLE IN THE BUSINESS CONCEPT





# CONCLUSIONS

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- Value for customer: extra revenue & partner in the energy transition
- Storage can strengthen the position of energy retailers.
- The revenue stream of balancing services can be an accelerator for the combination of solar & storage.

# NEXT STEPS

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- Implementing new hardware (LG Chem, SolarEdge HD wave, Powerwall 2.0)
- Pilot and launch in Germany and Belgium
- Develop other use cases and countries



# CrowdNett

Contact

Dirk-Jan Middelkoop

[Dirk-Jan.Middelkoop@eneco.com](mailto:Dirk-Jan.Middelkoop@eneco.com)

[🐦 @DJ\\_Middelkoop](https://twitter.com/DJ_Middelkoop)