



PARENT Project Amsterdam Pilot: Towards an energy independent Prosumers Community



PARENT project

Aim:

"Reduce electricity consumption in households through community participation and technological solutions"

- Electricity meters (smart meters)
- Home energy management system (HEMS)
- Electricity consumption (production) data analysis
- Engagement and active participation

Scope:

- 3 Pilots: *Bergen, Brussels and Amsterdam* (3 universities, 2 consultancies and 1 hardware provider)
- Local authorities, electricity providers and citizens

1st Phase in
Borneokade:
15 Prosumers

Hugo

Simen

Steve

Caroline


Niels

Jacco

Hasdrijver

Peter

SCALABILITY



1st phase
Borneokade:
15 Prosumers

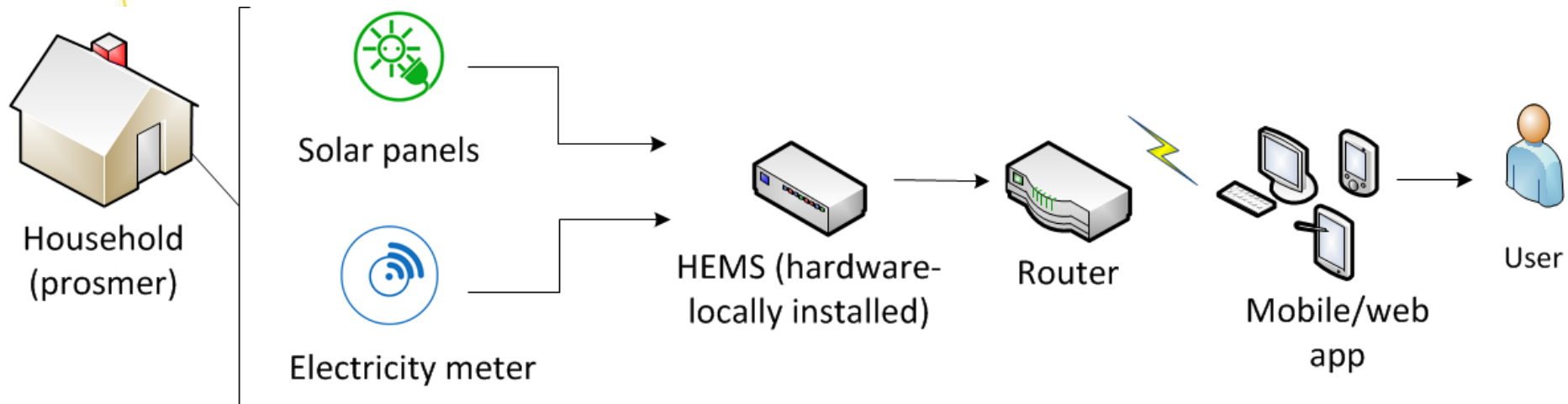
Second phase, Amsterdam
Eastern Docklands:
100 households



Pilot in Amsterdam

1st Phase - De Borneo Eiland:

- 15 Prosumers
- Snappee system as a HEMS
- HEMSs currently installed in 8 households
- Data collection started in March 5, 2017

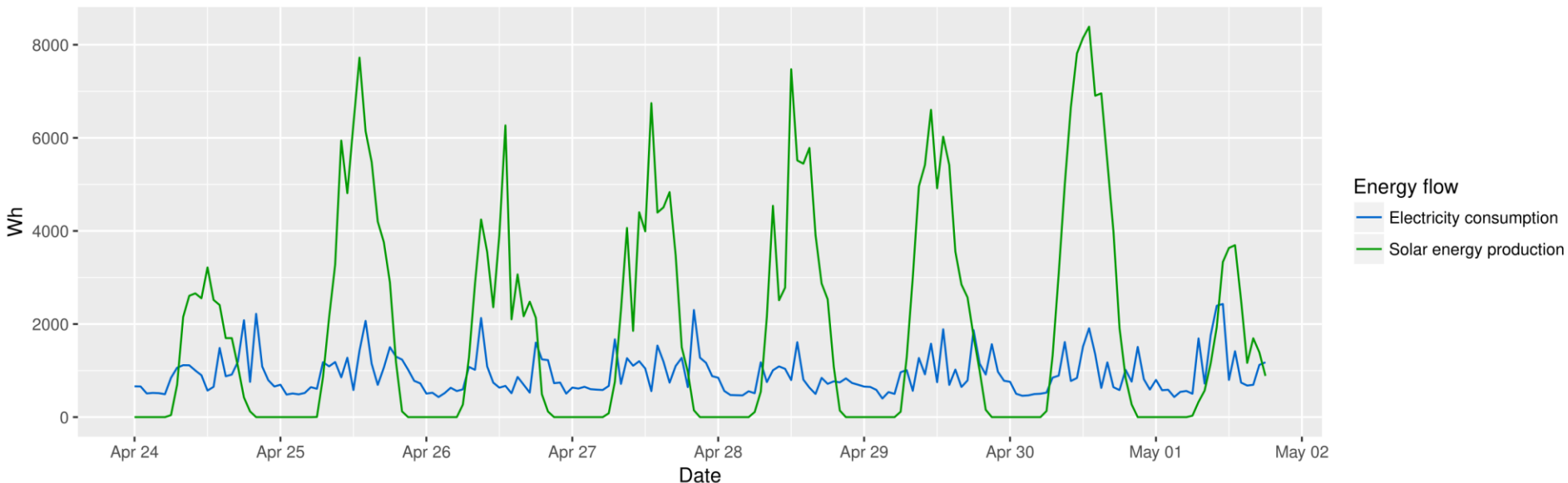




1st Phase initial results

- Large amount of surplus PV-generated energy injected into the grid.
- Around 24 kWh on average between 25th-30th April for 3 households

Production and consumption of energy over a week



3 connected prosumers: 24th April - 1st May April 2017



Objectives

- Solutions for increasing self-consumption levels (reduce interaction with the grid)
 - Peak demand
 - Over-generation
- Large-scale integration of Renewable Energy Sources (RESs) at a neighborhood level
- Filling the gap between electricity suppliers and their customers



Proposed solutions and research activities

Technical solutions:

- Scheduling of shiftable load (e.g., wet appliances)
- Storage (in-home vs. community storage systems)
- Planning of EVs charging stations
- Potential of variable electricity pricing schemes (e.g., ToU, CPP, RTP)
- P2P energy (transactive energy)

Socio-economic solutions:

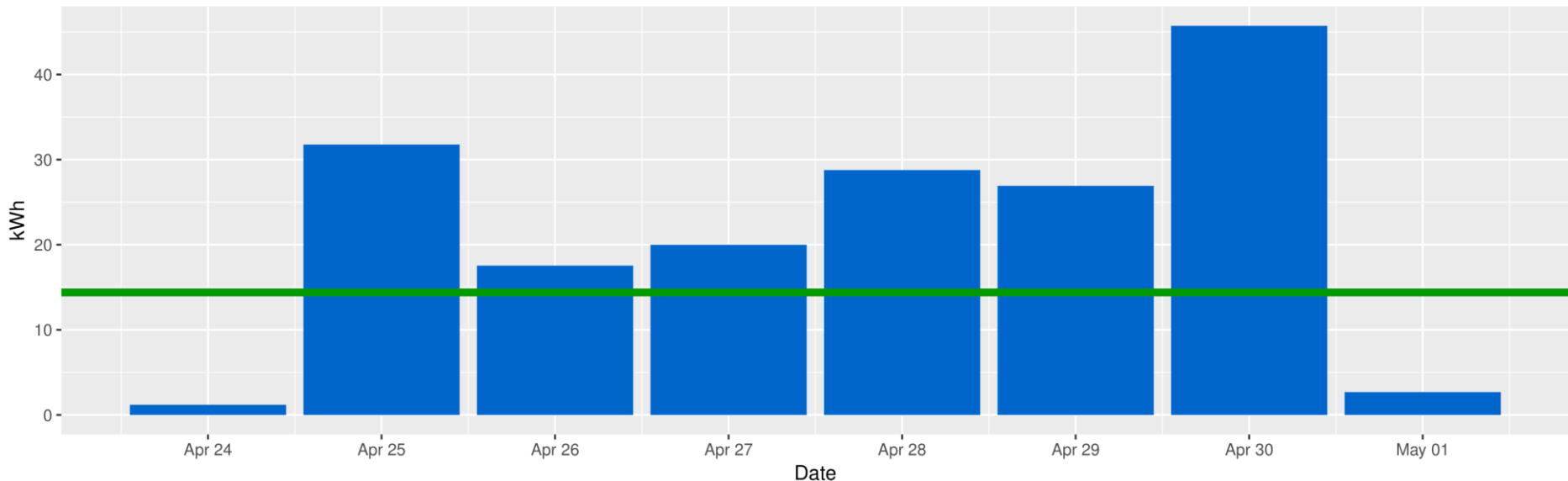
- Electricity consumption behaviour change
- Engagement and active participation
 - Gamification (game design elements and mechanics)



Potential of surplus PV in Borneo Eiland for EVs charging stations

Households' surplus PV energy to supply the demand of EV charging stations in the Borneo Eiland

Overproduction of electricity versus average daily consumption at EV charging point





Methods

- System design and planning
- Data analytics
- Optimization techniques
- Forecasting techniques
 - Demand and solar generation profiles
 - Driving patterns (plugging in/out times, driving distance, driving styles)
 - Electricity prices



Challenges

- Understanding the target group need
 - Consumption behavioral aspects
 - Motives: economic, environmental, etc
 - Comfort and privacy concerns
- Different stakeholders
 - System operators, suppliers, end-users, etc
- Data management and security
- New business models



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