Europe’s future city-transition: CleanMobilEnergy

Avi Ganesan
Resourcefully
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We are an urban energy transition consultancy based in Amsterdam.

**Our mission is to accelerate Europe’s sustainable energy transition.**

We focus on optimal integration of local renewable energy and e-mobility in cities.

- **analyse**
  - data collection
  - scenario development

- **present**
  - strategic advice
  - communication
  - network events

- **do**
  - financing acquisition
  - project contents and management
Cities want clean energy and mobility

- Promoting and enabling electric vehicles
- Local electricity consumption
- Optimum resource utilisation
- Local power generation

CleanMobilEnergy
Integrated energy management system
Forecasting, monitoring and interventions ensure minimal CO$_2$ emissions & maximal energy independence.
4 EU-Cities develop the transition system
4 different city applications, one system

**Arnhem**
Solar and battery, Car charging, Cold ironing
Technical partners: ProfiNRG, Allego

**Nottingham**
Solar and Battery, Car and bike charging, Building
Technical partners: BP Chargemaster, D2N2

**London**
Solar and battery, Car charging
Transport for London

**Schwäbisch-Gmünd**
Solar and battery,
Car charging
Technical partners: e-mobil BW, Unicorn Energy
All 4 cities strive towards:

1) **more solar energy**  
2) **more e-mobility**  
3) **more electric heating**

ALL need smart management to avoid excessive costs.
Integrated system requires real-time data access to all components.
System components in Arnhem

**Storage:** 0.5MWh battery

**Solar PV:** 10MW installation

**Grid connection**

**Harbour energy demand:** Maintenance dock

**EVs:** Allego public charging points
Charging profiles definition

Number of sessions

Connection start time
Clustering process

- Worktime: 12%
- Short-stay: 25%
- Long-stay: 15%
- Pillow: 48%

Number of connection hours vs. Connection start time graph.
Results

Smart charging simulation

Demand peak
- 36 kW (31%)

Local consumption
+ 6,26 MWh (7,51%)

CO2 emissions
- 3500kg
Who controls the system?

An multi-stakeholder system requires a controller:
• with real-time access to flexible components
• which control or suggest actions for participants
• with access to flexibility markets
• who processes the financial transactions
• who fulfils the needs of all participants
Conclusions CleanMobilEnergy

CleanMobilEnergy demonstrates that reducing carbon emissions in cities is best achieved by integrating renewable energy generation, storage, flexible charging of EV’s, heat pump and building usage through an Energy Management System.

Critical themes:

1. Interoperability
2. Scalability
3. Technical and financial control of the system
Thank you

For more information regarding the CleanMobilEnergy project, please contact:

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