

Consument-en-ergie



Aart-Jan de Graaf – Lector Meet- en Regeltechniek



Drie vragen – Nederlandse situatie

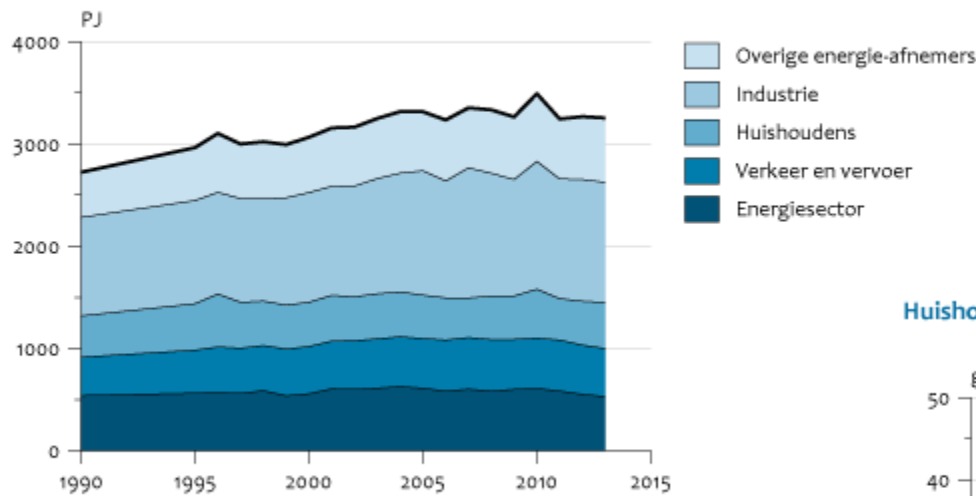
- **Hoeveel primaire energie wordt gebruikt voor opwekking elektriciteit?**
 - A) 12%, B) 25%, C) 33%
- **Hoeveel extra huishoudelijke elektriciteit bij inzet warmtepomp?**
 - A) 25%, B) 50%, C) 100%
- **Hoeveel extra huishoudelijke elektriciteit bij gebruik elektrische auto?**
 - A) 25%, B) 50%, C) 100%

Outline

- **Use of energy by consumers**
- **Consumers at work (=consumenten energie)**
- **Cost of energy**
- **Cost of transport**
- **Consumers response?**

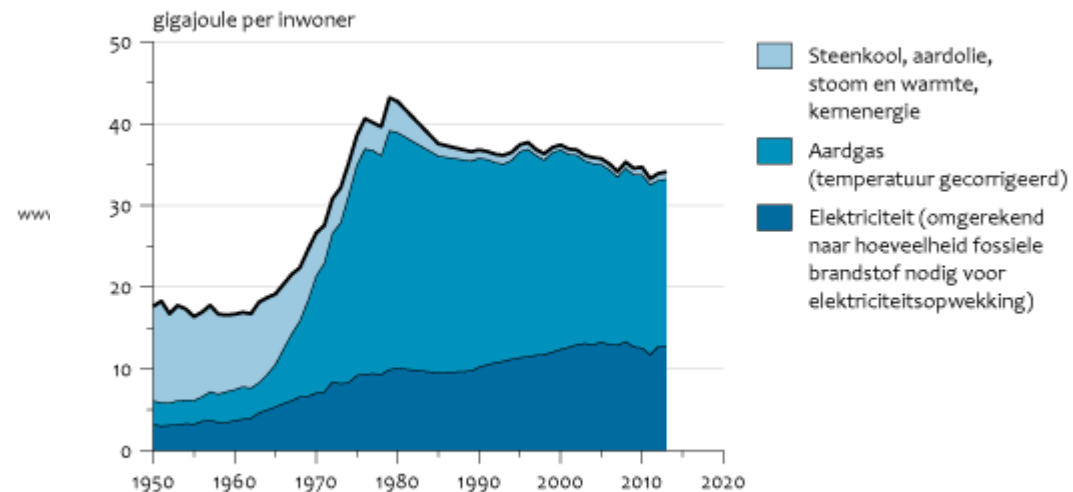
Use of energy by consumers

Energieverbruik naar sector



Bron: CBS.

Huishoudelijk energieverbruik per inwoner

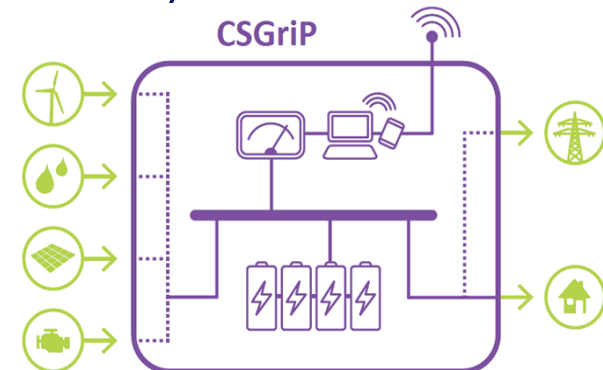


Bron: CBS.

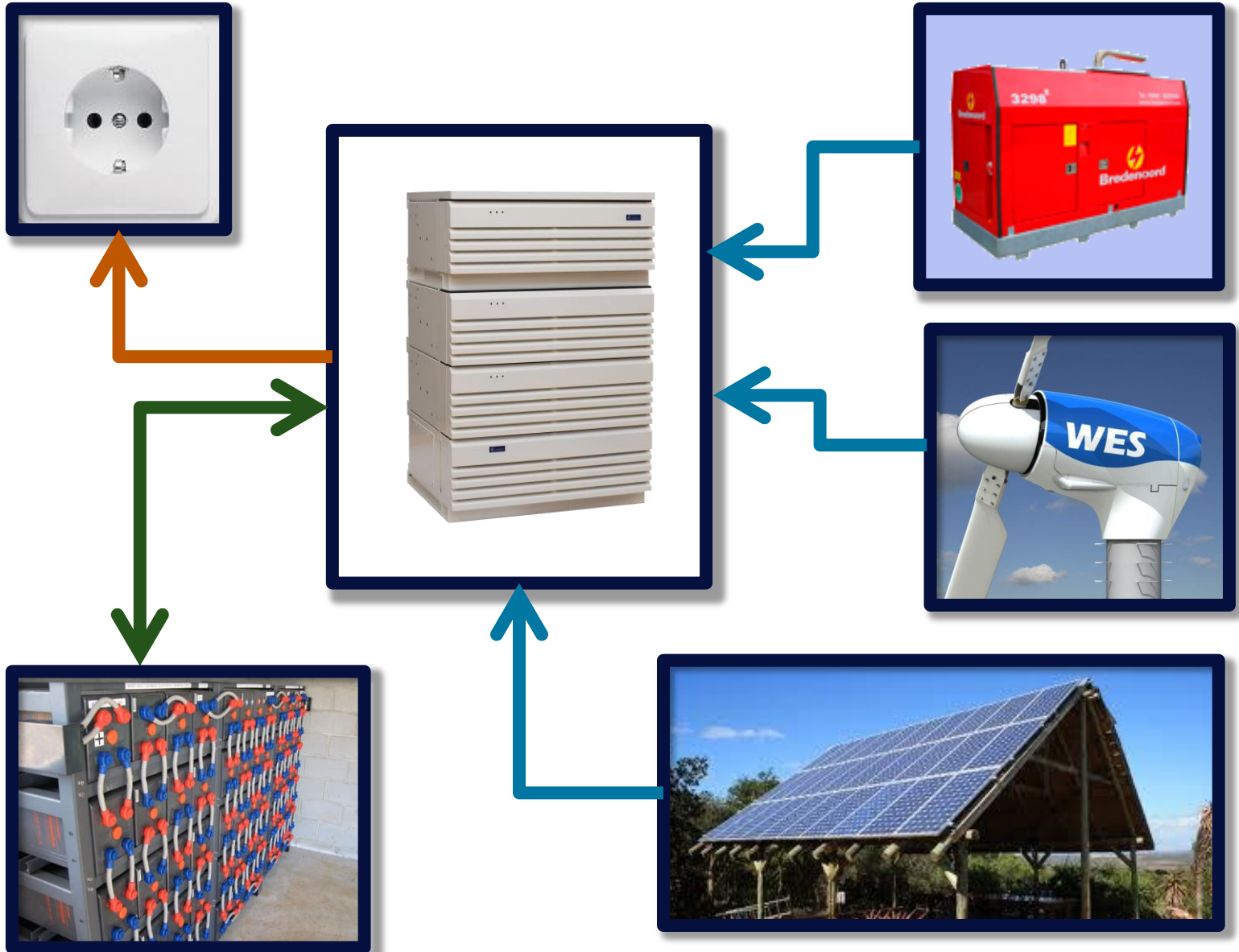


Consumers and energy at work, on the move or in charge?

- **Why?**
 - Benefits / cost reduction
 - Responsibility / climate concerns
- **Consumer -> prosumer -> retailer?**
 - Consumption (electricity, gas, heat)
 - Production (electricity, heat)
 - Supply (electricity)
 - Storage (electricity, heat)?
 - Control (demand-side, storage, production)?
- **Your own microgrid?**



SOPRA/CSGriP

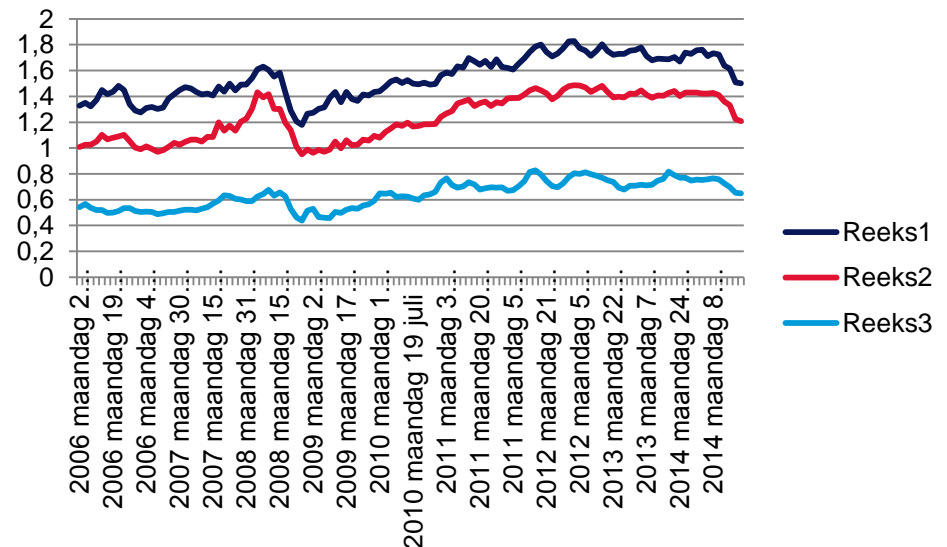


Cost of Energy - residential (approx 10% of avg net income)

- **Tax – 40%**
 - Energy tax
 - Opslag Duurzame Energie
 - VAT
- **Energy consumption – 43 %**
 - Supply
 - Vastrecht
- **Network services – 17 %**
 - Connection
 - Metering
 - System services

Cost of Transport - car (approx 10% of avg net income)

- **Tax (> 50%)**
 - Road tax
 - Excise duty (accijns) €0,766/€0,482/€0,185 per litre
 - BPM
 - VAT
- **Energy consumption (< 30%)**
 - Fuel price
- **Other (20 %)**
 - Insurance
 - Depreciation



Consumers response?

- **Actions**

- Home Insulation?
- Solar panels?
- Energy collectives (postcode roos)?
- Combined power and heat (uWKK)?
- Energy storage (batteries, heat)?
- Off-grid, off-gas?
- Electric vehicle?
- Home Energy Management System?

- **Return of investment?**