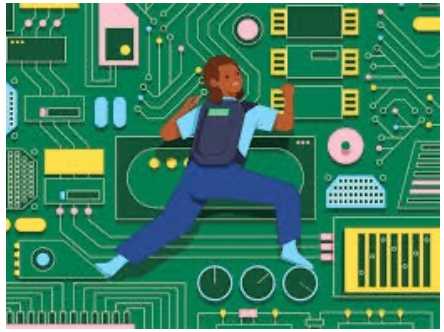
UsersTCP | Gender and Energy

Gender, expertise and control in Dutch residential smart grid pilots

Sylvia Breukers, Marten Boekelo, Benedetta Oberti

ECEEE Summer Study June 9th 2022

DuneWorks



IEA UsersTCP – Gender and energy task

Empowering all: Gender in policy and implementation for achieving transitions to sustainable energy. https://userstcp.org/task/gender-energy-annex/

Lead: Chalmers University Sweden **Other participating countries**: Austria, UK, Australia, USA, Netherlands, Ireland, Denmark

Aims: analyse energy policy and technologies from gender perspectives and provide recommendations for policy design and implementation

Duneworks: Case study in NL on Gender and Smart Grid technology – based on our work for 2 H2020 projects

Hestia
Holistic demand response services for European residential communities

NRG2 PEERS

These projects have received funding from the European Union's H2020 framework programme for research and innovation under grant agreement no 890345 and No. 957823.

UsersTCP

Gender and Smart Grids

Gender:
"*the socially constructed differences between what is considered masculine and feminine, and the corresponding roles (unlike sex which refers to biological differences)*"

Challenge in this research: not falling in the trap of reification and stereotyping

Relevance:
- Household practices: gendered
- Impact on effectiveness of flexibility arrangements
- Distributional impacts

Smart grid

- Energy monitoring and management systems (EMS)
- Renewable Energy Systems (RES)
- Other decentralised appliances such as heat pumps
- Storage systems (such as EV; batteries)
- Smart contracts and technologies
- Smart apps and interfaces

'Promise' of residential smart grids:
- contribute to a more efficient use of the energy grid,
- support an increase in the share of RE capacity
- contribute to a decrease in fossil fuel consumption

How do residents talk about smart grids?

UsersTCP

Residential smart grid pilots:

NRG2 PEERS

SchoonSchip (Amsterdam)

30 arks; 46 households. Participants: mostly living as two-gendered couples, with children living with them. Progressive urban residents, DIY attitude and lifestyle. Circularity; strong sense of community; idealistic.

Solar pv; home batteries; heat pumps; p2p; one connection to the grid;

Hestia

De Wals /Voorhout

33 homes; participants were mainly pensioners. Most of them moved into the senior homes because of the characteristics of the homes and surroundings (not because of the SG).

Solar pv; home batteries; heat pumps; (EV & charging poles; collective battery)

UsersTCP

Residential smart grid pilots:

NRG2 PEERS

SchoonSchip (Amsterdam)

- 2x focus groups - 13 residents: 5 female.; 9 male; 12 households; August 2021
- 1 user interview (male), Aug.'21
- 2 interviews tech-developers (male) Sep-Dec '21

Hestia

De Wals / Voorhout

- 10 interviews with households; 7 female; 7 male; 9 households) (June-Aug '21)
- 2x focus groups with women; 12 in total, Feb. '22
- 3 interviews with tech developers (male), Sept-Dec '21

How do these changes (digitalisation) of our energy infrastructure affect the ways in which people/citizens are and/or can be involved?

- What are the gendered experiences related to the build-up of smart-grid related interest and expertise?
- To what extent is smart grid expertise (likely to become) concentrated with one person within the household?
- What are the gendered experiences related to comfort, control, safety, and trust (in the technology and the technology providers)?

UsersTCP

Literature review

- **Cognitive & Material housekeeping**
- **Digital and Technical (maintenance) housekeeping**
- **Experiences of control; comfort; safety and trust**

Household management - **Energy management**

UsersTCP

Findings - SchoonSchip

"*My first feeling is that of failure, I feel it is my responsibility because others can do it and I cannot.*"

- Few respondents that are energy-and digitally skilled
- Experienced control: expressed need for tailored support (from detailed data to rules-of-thumb)
- Feeling incompetent – withdrawal
- Not-acknowledging own build-up knowledge

"*I am 'forced' to deal with the digital stuff in our home, but I also don't know much about it. And when I find out such things (underperforming battery), then I think: why is this not generally known here?*"

- **Accumulation and concentration of smart-grid related interest and expertise –** uneven patterns, somewhat gendered
- **Digital – material housekeeping** – gap, somewhat gendered
- **Experiences of control, comfort, safety and/or trust** – not very strongly gendered

Findings - Voorhout

- Most respondents are not highly energy-and digitally skilled, yet the few that are, are men, not women
- Male respondents considered themselves to be the main spokespersons
- Experienced control: differences women and men
- Female respondents experience risk to become dependent on their male counterparts or others
- Women do not appreciate their role in identifying problems related to the smart grid (asking about responsibility in case of malfunctioning)

- **Accumulation and concentration of smart-grid related interest and expertise –** gendered
- **Digital – material housekeeping** – gap, gendered
- **Experiences of control, comfort, safety and/or trust** –gendered

However, I also need to understand some things, in case he is not around or away or whatever …then I also need to understand it all a bit (…) ….but I also need to understand it in my own way."

These homes were supposed to allow you to be independent (longer), but that's not how I feel here. (….). I mean, I need to be self-reliant and then I would like to stay here. But eh….if things stay the way they are now, and he passes away (I hope not)…but in any case, then I will be gone. Then I will leave."

Gendered concentration and build-up of smart grid expertise?

"We did not expect that there would be so much technology in the house that we don't understand anything about."

Overwhelming complexity - new dependencies and risks of lock-out

Risk of undermining experienced control, comfort, safety and trust.

Both pilots:

- Concentration of digital and technical energy expertise and know-how (gendered in Voorhout, less so in Sch.S.)
- Those that feel competent are more likely to take action to regain control – gendered, mostly in Voorhout
- Experience of not being in control: gendered (mostly in Voorhout)
- Experiences of safety and trust: idem

Gender intersects with age, socio-economic background, educational background

How can the designers and implementers of residential smart grids better take account of these differences – both from the perspective of distributive justice as well as from a more instrumental perspective of effectiveness of smart grid solutions?

Towards more shared and/or distributed forms of learning/expertise accumulation with households?

UsersTCP

Concluding remarks

- Qualitative research & literature
- Pilot communities with specific characteristics (well-resourced)

- If we see these communities already struggle with the complexity and invisibility of smart energy networks in the home, what is to be expected when residential smart grids are implemented in other contexts where people are less well-resourced? (e.g. energy poverty in relation to gender)

- Institutional dimension of responsibility

Thank you!

https://userstcp.org/task/gender-energy-annex/

Dr. Sylvia Breukers
sylvia.breukers@duneworks.nl

Dr. Marten Boekelo
Drs. Benedetta Oberti

www.nrg2peers.com
https://hestia-eu.com/

These projects have received funding from the European Union's H2020 framework programme for research and innovation under grant agreement no 890345 and No. 957823.