

Exploring energy citizenship in relation to district heating

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Project funded by
the Swedish
Energy Agency

**Sheffield
Hallam
University** | Centre for
Regional Economic
and Social Research



The project 'walking with energy'

The project's aims to find methods to

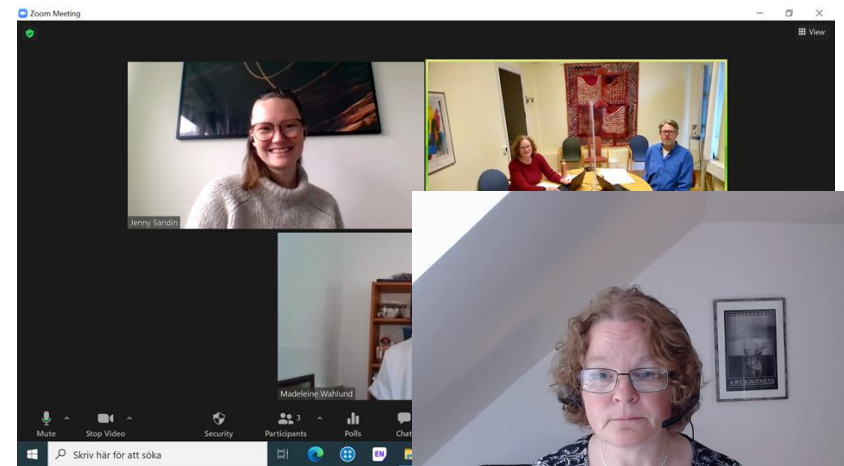
- facilitate a discussion on how to engage in the heating system
- contribute to a reflection on how the heat is produced
- and if that is sustainable or not



Ambrose, A. (2020). Walking with Energy: Challenging energy invisibility and connecting energy futures through participatory research. *Futures*, 117, 102528.



Different "walks"



Comparison of 4 events

Event	Number	Who
Walk through waste facility	15	Event run as part of a national popular science programme aimed at the general public. The audience were largely white, middle class in terms of income and background but they varied in age from 24 to 85. The group was educated with professional or skilled backgrounds.
Heat exchanger	8	Home-owners, only one tenant. Mainly interested in house renovation and maintenance, and how to adjust heating system, white middle-class to low-income, 27-70+ years old
Language café	6	Immigrants, tenants. There mainly to learn Swedish and get familiar with the Swedish society, 20-50 years
Virtual walk	54	Mainly young students, 20-30 y



Event	Technology in focus	Theme discussed	
Walk through waste facility	Energy from Waste facility	Emissions	Energy invisibility
		Waste volume and overconsumption	
		Plastic waste	
		Recycling - landfill	
		Circular economy	
		Heating system - monopoly supply of heat	
Heat exchanger	Waste to heat facilities	Heating/cooling systems	Practical issues how the heating system works, problems occurring in the heating system
	Heat pumps	Security/reliability of the system	
	DH	Lock-in effects DH	Fossil vs renewables
		Waste incineration	Passive house
		Pricing of DH	
Language café	Radiators	Heating/cooling systems	Different heating and cooling practices
	Diesel, oil and wood burner	Climate and heating systems	Indoor temperature
	Solar panels		Sweden vs place of birth
Virtual walk	Waste to heat facilities	Emissions	Different heating technology
	Heat pump	Waste volume and overconsumption	
		Plastic waste	
		Recycling – landfill	
		Waste incineration	
		Profit EfW facility	
		Pricing of energy	



The walk through the waste facility

- Reactions were fairly consistent and involved a combination of discomfort at the volume and nature of the waste gathered from the city and a degree of reassurance that it was being put to a 'good use'

"Personally seeing all the waste is quite a sobering thing coming face to face with the consequences of our over-consumption seeing our waste pouring into a pit like that."



Heat exchanger

- All discussion related back to their home system

Researcher: *What are your reflections on what you saw and heard in the basement.*

Participant K: *It's interesting, it's just that ...this with all these concepts. For me, I'm not an engineer so ... I do not know this... and it is gas and natural gas and hydropower from Holland. So, somehow ... I'm glad I'm getting warm in my small cottage. Then he [the guide] probably misunderstood me because I don't have electricity heating ... I have such a regular ... what is it called ... it is called water heating...*

Participant M: *But then you probably have an im heater inside it.*

Participant K: *Yes...you think?*



The language café – we lacked a common language

- Gestures and the mobile phone

Interviewer: What is this called?

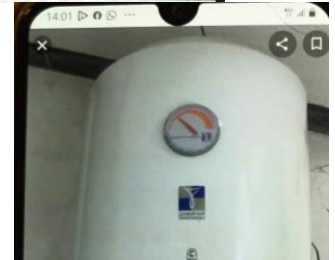
Woman Y: [say an Arabic word]

Interviewer: What does that mean?

Teacher language café : Stove?

Woman X: Diesel and oil stove.

Woman Y: It's old. All the children sat around it and you make tea, coffee and food there.



Virtual walks

- The chat gives the possibilities to share links to tweets, reports, blogs etc:

14:06:38 From participant A: What proportion of fossil based waste (Plastics) are in the combusted waste stream?

14:06:46 From participant B : what does actually happen to the 'slag' and other solid end product?

14:07:03 From Aimee Ambrose : <https://zerowasteeurope.eu/2020/03/understanding-the-carbon-impacts-of-waste-to-energy/>

14:08:19 From Marilyn Smith : @participant B -- SYSAV sells metals to other recyclers and what can't be processed goes into landfill

14:08:53 From participant B : thats what I thought :-(



Some concluding thoughts

- Combine education and data collection
- important to make citizens part of the transition process and re-engaged
- Requires time and resources
- Active citizenship needs active facilitation



Thanks!

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