Managing energy consumption
National Research Programme NRP 71

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Multiplying energy-saving behaviour in cities through formal social groups

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ECEEE Summer Study 2015 | 1-6 June | Toulon/Hyères, France

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Background: Switzerland's new energy strategy and the role of cities

- Key priorities (Swiss Federal Council, 2013)
  - Reduction of per capita energy consumption
  - Promotion of renewables, phase-out of nuclear power (current nuclear power production: 40% of electricity)

➢ Cities are key agents of change in the upcoming energy transition (Swiss Federal Council, 2013):
  - as role models (e.g., energy-efficient public buildings)
  - by promoting energy-saving behaviour

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➢ Sufficiency-oriented behaviour needs to complement efficiency measures (Notter, 2013; Herring 2006)

How do we understand energy-sufficiency (individual perspective)?

Energy-sufficient behaviour = change of routine behaviours that leads to less energy consumption (Breukers et al, 2013).

	Required changes of behaviour	*One-shot decisions (examples)*	*Repeated behaviour (examples)*
Transport	No or small changes	• Buying an energy-efficient car	• Driving (Ecodrive)
	Large changes	• Moving closer to place of work to avoid commuting	• Changing commuting and leisure mode of transport • Using shared transport systems
Heating / hot water	No or small changes	• Refurbishment of home	• Changing ventilation behaviour • Turning off heating when absent • Reducing heating in rarely used rooms
	Large changes	• Reducing living space	• Changing showering behaviour, showering instead of bathing • Reducing space heating, changing of clothing behaviour
Electricity	No or small changes	• Buying more efficient appliances (e.g., fridge)	• Switching off plug bar when away • Turning out lights when away • Cooking patterns (e.g., cover pots)
	Large changes	• Refraining from purchase of appliance	• Line-drying laundry instead of using tumble drier

Can cities use formal social groups as multipliers to promote energy-sufficient behaviour?

- Energy consumption is socially embedded: Many social practices ('shared behavioural routines') lead to energy consumption (e.g., cooking, commuting) (Spaargaren, 2011 Barr et al., 2011)
- Feedback about reference groups' (e.g. neighbours) electricity consumption influences own consumption (e.g., Schultz, 2007)

➢ Formal social groups might provide a link between the individual level and the city level
→ potentially interesting "middle actors" (Parag & Yanda, 2014)

Goals of this paper

- Identifying activities of the three analyzed cities (Winterthur, Baden, and Zug) to promote private energy-saving

- Discussing the role of formal social groups in cities when addressing private consumers.

Characterisation of the three cities

Winterthur	Zug	Baden
105’000 inhabitants	26’000 inhabitants	18’000 inhabitants
European Energy Award Gold	European Energy Award Gold	European Energy Award Gold
Flourishing machine industry (beginning of 20th century)	Many international companies (trading, finance)	Flourishing machine industry (beginning of 20th century)
City utility: Stadtwerk	City utility: Regionalwerke AG	City utility: Wasserwerke Zug
Key challenge: Transition to 2000-Watt-society (public vote in 2011)	Key challenge: Change of behaviour/lifestyles to reduce energy consumption	Key challenge: Promotion of public transport, dissemination of energy policy

City activities promoting energy-saving

Area	Energy-saving activity	Electricity	Heat/hot water	mobility	Involvement of middle-actors
Information	Information events on energy, campaigning (e.g., presentations)	x	x	x	Local energy utility, NGOs, association of homeowners, research institutions, etc.
	Display of electricity consumption in public buildings	x			
	Education programs for schools (energy & climate)	x	x	x	Local schools, foundation
	Articles in city newspaper on sustainable energy consumption	x	x	x	
	Sustainable travelling/tourism			x	Tourism association
	Competition between households to save elctricity	x			Local energy utility
	Being present at local exhibitions and fairs	x	x	x	Canton, other communities, business networks
Promotion	Subsidies for energy-efficient buildings		x		Local energy utility
	Promotion of natural gas-fuelled vehicles			x	Local garages
	Funding for local innovative ideas to save ressources and prevent climate change	x	x	x	Local energy utility
	Promotion of using public transport for football tournaments			x	Regional transport company, regional football association
	Promotion of public transport, carsharing and e-bikes during summer months			x	NGO
	Competition for sports teams and members of fitness studios to go to trainings by bike			x	Local sports clubs, regional sports associations and fitness studions
Infra-structure	Charging stations for e-mobility in the city center			x	Local industry
	Bike station in the city center			x	NGO that promotes bike use
	Provision of bikes for employees			x	
Network-s	Constitution of expertise networks				Local businesses and research institutions
	Collaboration with other cities to promote sustainable energy consumption	x	x	x	
Consul-ting	Consulting on retrofitting strategies to increase energy-efficiency of buildings	x	x		Local energy utility
	Large employers are required to elaborate mobility strategy			x	Local businesses

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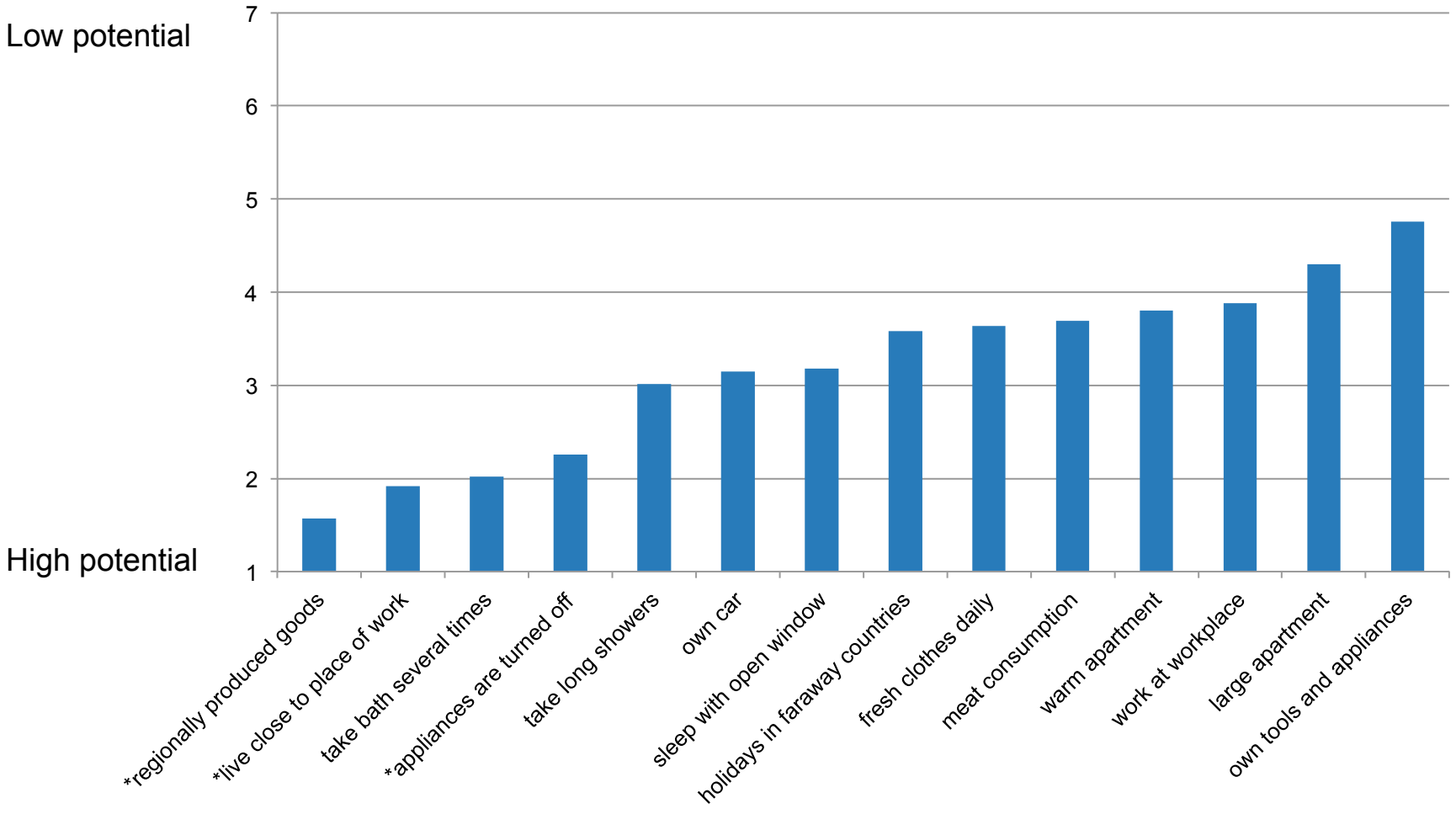
Source: Lists of activities provided by the three cities

Societal potentials for sufficiency: Survey in Winterthur (How important is … for you?)



* = recoded items, N = 350

Workshop with cities: Experiences with formal social groups as middle-actors

Winterthur	Zug	Baden
• Luftaus.ch	• Sustainability report • Bike4car	• District associations

Outlook: Testing the multiplying potential of formal social groups in field experiments

What does this mean? Example: Volleyball Club going to away games

Status quo:  meet at:  → Members use their private cars

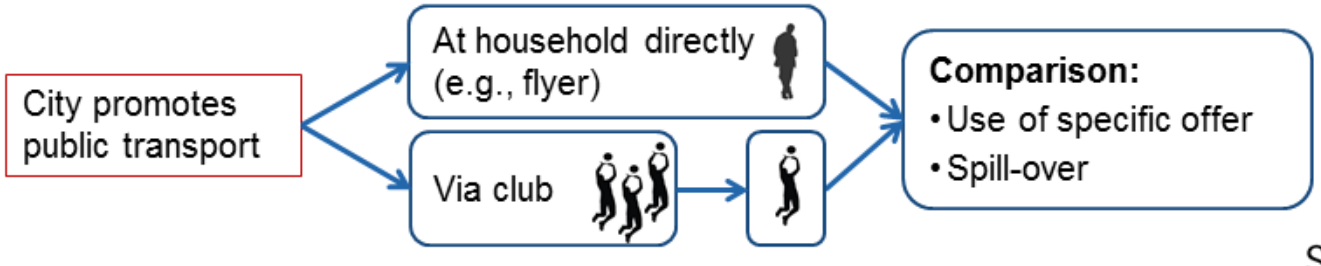
Alternative:  meet at:  → Members use train (direct effect)
- shared experience
- time to talk

→ Spill-over to private behaviour (indirect effect)

City promotes public transport

Our hypothesis, to be tested in field experiments:

Activities promoted via social groups have a stronger impact on energy-sufficient behaviour compared to activities addressing inhabitants directly.



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Discussion, some questions from us to you

- Ideas on energy sufficiency interventions that might be interesting to test in a field experiment?
- What are your experiences in working with formal social groups? (e.g., communication, incentives for participation, …)
- How «far» can/should we go? → Formal social groups as channel or utilizing a more participatory approach (shared experience, involvement in research design)?

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Thank you for your attention!

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