Technology Collaboration Programmes

TCP on Demand Side Management

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Energy Technology Network
Technology Collaboration Programmes

Where next for the DSM TCP?

■ The TCP landscape has changed since DSM was created in 1993.

1. There are now TCPs in each major demand sector:

   Buildings (EBC); Products (4E); Vehicles (HEV); and Industry (IETS).
   - 4E took on much of DSM's work (e.g. on product labelling).

2. There is now an increasing role of users in the network.
   - DER need people to permit, adopt and use them as designers intended.

3. There has been a societal shift towards buying services.

■ No TCP addresses the role of people in energy technology systems

■ People use energy through technologies to create social value.

   - Users have mental models of how to make technologies create value.

   - Technologies contain their designers' mental models of users.

   - Where these don't match we have problems (e.g. 'performance gaps')

Strategy

- Why focus on socio-technical issues?
  - Energy is an intermediary economic good of no intrinsic value (like money).
  - Consumers engage with energy services & technologies they need/want
  - Technologies (hardware, software and business models) not adopted or used as intended are energy ineffective and inefficient.
  - Therefore people (designers, intermediaries and end users) are as integral to *delivered* energy efficiency as hardware and software.

$$\text{National energy} \equiv \underset{\text{Energy Intensity}}{\underbrace{\frac{\text{Energy Input}}{\text{Service Unit}}}} \times \underset{\text{Consumption Intensity}}{\underbrace{\frac{\text{Service Demand}}{\text{Capita}}}} \times \underset{\text{Population Size}}{\underbrace{\text{Number of Citizens}}}$$

$$\frac{\text{Energy Input}}{\text{Service Unit}} \equiv \frac{\text{Energy Input}}{\text{Tech. Choice}} \times \frac{\text{Tech. Choice}}{\text{Design Eff.}} \times \frac{\text{Design Eff.}}{\text{Manu. Eff.}} \times \frac{\text{Manu. Eff.}}{\text{Assum. Behav.}} \times \frac{\text{Assum. Behav.}}{\text{Actual Behav.}}$$

Strategy

■ Why focus on socio-technical issues?

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Energy Intensity x Consumption Intensity x Population Size

- Service demand depends how we structure society:

  - **Physical Infrastructures:** Cycling lanes; heat networks; etc

  - **Temporal structures:** Work times; School times; holidays; etc

  - **Social structures:** Social norms; cultural expectations; social practices;

  - **Psychological structures:** Habits and routines; role modelling; etc

  - **Legal structures:** speed limits; property ownership; collab.econ; etc

  - **Economic structures:** taxes & charges; subsidies; etc

  - **Knowledge and skills:** Information campaigns; skills training; etc

Current work in the DSM TCP

- **■ *Restructuring and relaunching in 2020***
  - ● *Mission:* To provide evidence from socio-technical research on energy use to inform policy making for clean energy transitions.
  - ● Our Tasks are focused on the needs and roles of users throughout the energy system. Reaching them, understanding their needs, earning their trust, and engaging them by delivering services they find valuable and useable.

- **■ *Current Task***
  - ● Energy Service Business Models and Systems

- **■ *New Tasks***
  - ● Hard to Reach Energy Users
  - ● Observatory on P2P & CSC Energy Trading
  - ● Social Licence to Automate

- **■ *New Task concept notes***
  - ● Behavioural Insights Platform
  - ● Best Practices in Energy Efficiency Obligations
  - ● Inclusive algorithms for Energy Optimization

On-going Activities

- **DSM University**

  - The DSM University (training and capacity building) has continued to host a series of popular webinars, involving thousands of participants from over 120 countries and reaching thousands more through YouTube.

    - …
    - DSMU#42: Changing energy behaviour – what works? Karl Purcell, SEAI, Ireland
    - DSMU#43: Energy Consumption in Europe – why is it increasing and what are the policy implications? Samuel Thomas. Operating Agent DSM TCP, France
    - DSMU#44: Demand Response in US Markets: Lessons for a low-carbon transformation Mike Hogan, Regulatory Assistance Project, USA (20 December)
    - DSMU#45: Demand Flexibility as a Resource. Matt Golden, OpenEE, USA (17 October)
    - DSMU#46: Irish public sector programme. Ryan Alan, Sustainable Energy Authority Ireland (SEAI).
    - DSMU#47 The IEA Efficient World Scenario (21 March – Today!).
    - DSMU#48 on EE finance (Joule Assets) on April 18
    - DSMU#49 on issues facing ESCOs in different countries (IEA again) on May 23
    - …