

How Practice Theory and Complex Adaptive Systems Theory can inform future energy conservation policies

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**designing and coalescing energy-saving policy
instruments:
the example of energy retrofits in the residential**

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Outline

- **An overview of social-practices theories**
- **Defining the (disparate) practices of energy retrofit**
- **Practices' change: several ways**

An overview of social theories of practices

- **Origins:**
 - **Bourdieu**'s works on practices and habituses
 - **Giddens**' structuration theory(1984), namely the key role of routines in structuring societies
 - **Wittgenstein**
 - → all departing from the usual dichotomies:
 - holism/individualism,
 - structure/agency,
 - macro/micro,
 - mind/action

An overview of social theories of practices

- Unit of analysis: **practice** (always collective)
- **Key concepts:**
 - Schatzki (1996): a practice is a **coordinated entity**, i.e. a “**temporally unfolding & spatially dispersed nexus of doings and sayings**”
 - **key components** of the nexus as **linking doings and sayings** in order to constitute a practice
 - Reckwitz (2002): “The single **individual** – as a bodily and mental agent – then acts as the ‘**carrier**’ of a practice

**Material
arrangements,
products, techniques**

**Know-how,
routines**

**Practice:
doings &
sayings**

**Teleo-
affective
structures**

**Procedures,
institutionalised
rules**

Defining energy-retrofit's practices

- **Several practices:**
 - Change of frames and windows
 - Roof insulation
 - External walls' insulation
 - Other insulation works
 - Change of boiler, stove, heating system: possibly with renewable energy
 - (Heating-related practices)

Energy retrofitting = one practice?

- **Integrative / Bundle of practices**
 - **Integrative:** a set of doings and sayings linked by understandings, explicit rules, and teleoaffective structure (linked with the same components of practice organization, or via interrelations and cross-references among these components) (Schatzki, 1996)
 - **Bundle:** 'loose-knit patterns based on the co-location and co-existence of practice' (Shove et al., 2012)
- **? An integrative practice or a bundle of practices?**

Energy retrofitting, 1 practice? No!

- **A bundle of practices:** co-location and sometimes, co-existence of practices:
 - **Several disparate practices,**
 - **Different practitioners (contractors and/or DIY)**
 - **Bundle:** 'loose-knit patterns based on the co-location and co-existence of practice' (Shove et al., 2012)

Practice change

- **Integrating different disparate practices**
- Changing one component
- (Re-)shaping synergies between components
- Coalescing several (integrative) practices

Integrating different disparate practices

- **“Eco-pack”**: higher subsidies if 2+ energy-related renovations, possibly for DIY, also for renters (Wal.)
- Designing and using **the EPC as an epistemic object**
- Develop **integrated business** in insulation & energy savings, possibly supported by public authorities (ex: some municipalities in DK)

Integrating different disparate practices

- **Creation of educational programmes on energy retrofit**
 - Continuous training (ex: DK: Knowledge Centre for Energy renovation of Buildings since 2008)
 - New technical school programmes
 - Community learning programmes

Practice change

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Reinforcing the procedures' component

- **Relate the EPC to other policy**

instruments:

- Condition for subsidies or low-rate loans for energy retrofit (Wal)
- Free updated EPC after energy retrofit
- Tax exemption for buildings with a good EPC (BG, PT)
- Rent legally linked to the EPC

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Reinforcing the teleo-affective structure's component

- **Make energy retrofit more mainstream and valorized:**
 - Associate energy retrofit with
 - Comfort, cosiness (! Rebound effect!)
 - Healthy lifestyle
 - Local employment
 - Individual autonomy (renewable energy)
 - Instead of
 - Saving money (>< distinction/inclusion)
 - Saving the planet! (>< liberalism, LV, BG)

Reinforcing the teleo-affective structure's component

- Reshaping experience from childhood
- Reconfiguring “domestic power” (Bourdieu)
- Changing values associated with heat:
 - Healthy living
 - Right to consume → idea on the good life

L'indicateur électricité

Prévisions de la situation sur le réseau d'électricité belge à 7 jours.



Aujourd'hui 18/01
Situation normale

Il y a suffisamment d'électricité disponible pour répondre à nos besoins de consommation. Pas d'inquiétude !

PRÉPAREZ-VOUS DÉJÀ POUR LES AUTRES CAS DE FIGURE !

Dim.
18/01

Lun.
19/01

Mar.
20/01

Mer.
21/01

Jeu.
22/01

Ven.
23/01

Sam.
24/01

'Needs' → 'rights'

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Developing the products' component

- **Developing (research on) products**
 - Easy-to-use energy-saving and/or renewable-energy products and techniques for:
 - DIY
 - Neophytes
 - → ex: windmills in SW?
- **“Thermostat with a password”**
- **Smart meters? Apparently not a solution** (Buchanan et al., 2015, JEPO)

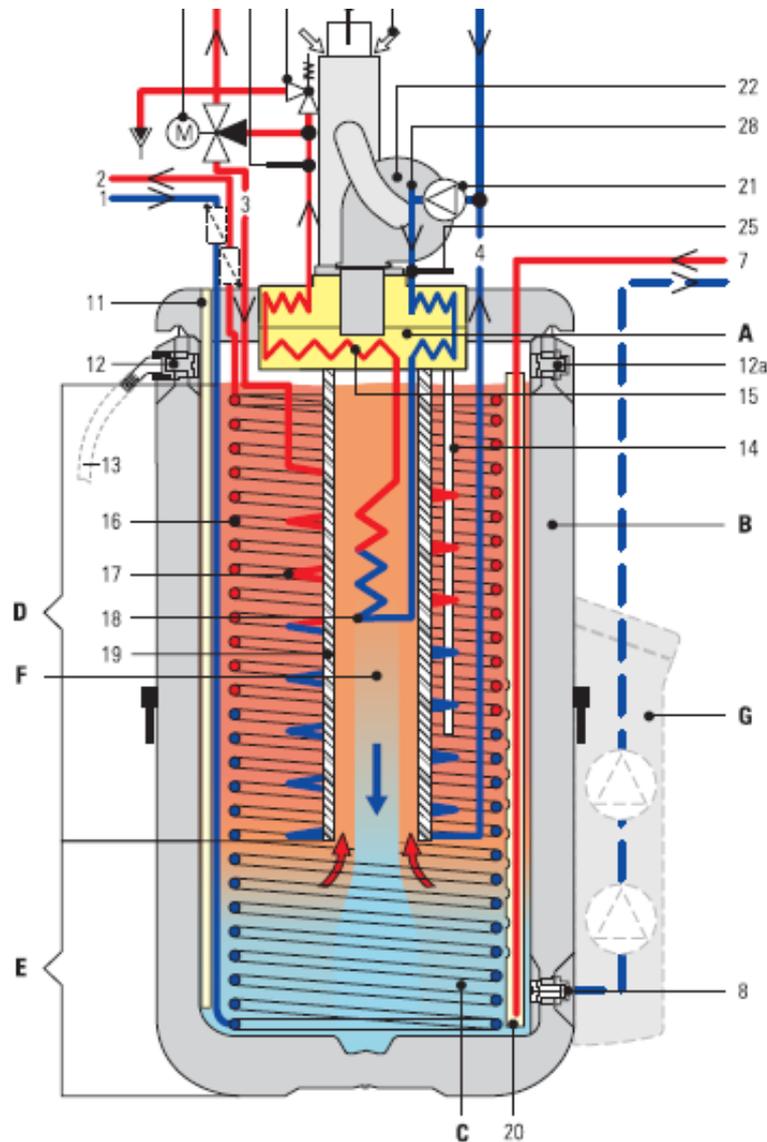
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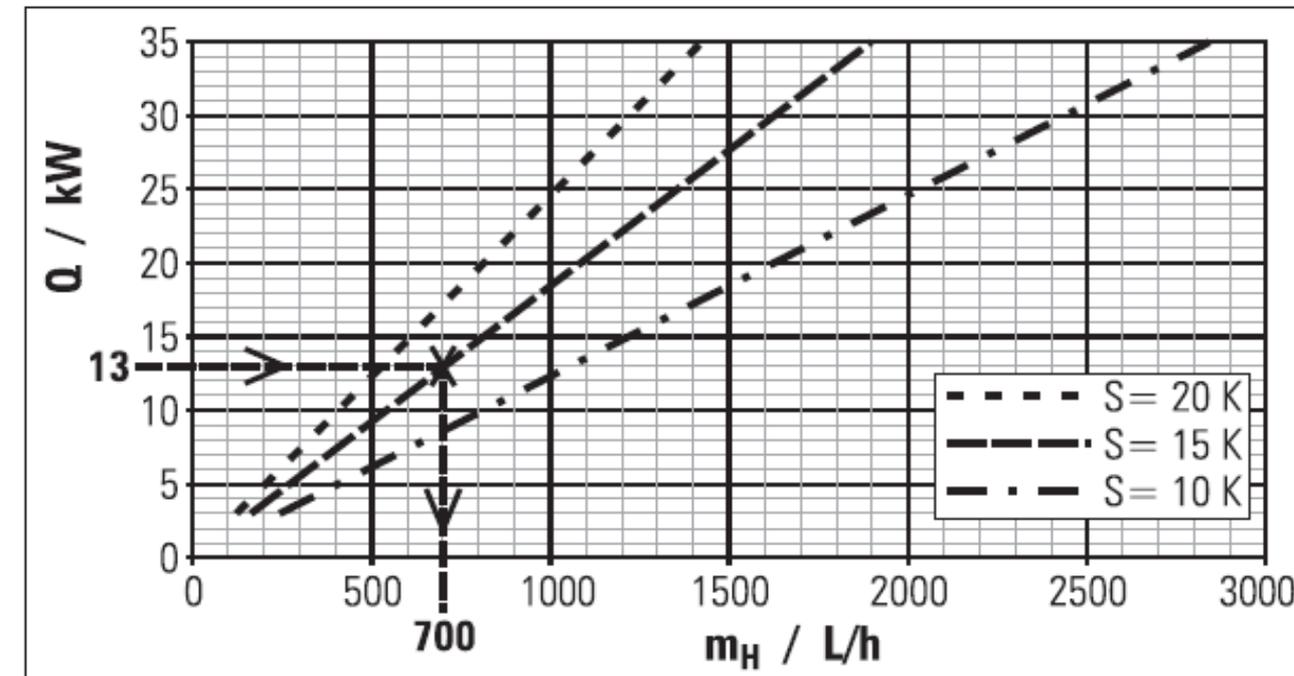
**Procedures,
institutionalised
rules**



- D** Zone d'eau chaude
 - E** Zone solaire
 - F** Zone d'assistance de chauffage
 - G** Unité de régulation et de pompe RPS (accessoires Solairs)
- 1 Eau froide^Ø
 - 2 Eau chaude^Ø
 - 3 Aller d'échangeur de charge d'eau chaude
 - 4 Retour d'échangeur de charge d'eau chaude
 - 5 Aller du chauffage (chaud)
 - 6 Retour du chauffage (froid)
 - 7 Aller Solaris
 - 8 Retour Solaris avec insert de vanne
 - 9 Fumées
 - 10 Air
 - 11 Douille à immersion pour sonde de ballon et pour sonde de température de retour Solaris
 - 12 Raccord de trop-plein de condensats
 - 12a Raccord de remplissage supérieur (autre possibilité : Raccord de trop-plein de condensats vers l'avant)
 - 13 Flexible d'écoulement de condensats (fourni par le client)
 - 14 Tuyau de condensats
 - 15 Echangeur de chaleur (corps de chaudière)
 - 16 Echangeur de chaleur d'eau potable (TW-WT)
 - 17 Echangeur de chaleur pour la charge du ballon (SL-WT)
 - 18 Echangeur de chaleur pour l'assistance de chauffage solaire (HU-WT)
 - 19 Protection thermique pour échangeur de chaleur pour l'assistance de chauffage solaire
 - 20 Tube de stratification d'aller Solaris
 - 21 Pompe de circulation de chauffage
 - 22 Brûleur à soufflante à gaz ▲
 - 23 Vanne 3 voies
 - 24 Sonde de température d'aller ▲
 - 25 Sonde de température de retour ▲
 - 26 Sonde de température des gaz de fumées (accessoires)
 - 27 Soupape de sûreté ▲
 - 28 Raccord de vase d'expansion à membrane ▲
- ▲ Dispositifs de sécurité

En fonction des besoins en chaleur et des températures de dimensionnement de l'installation de chauffage, il est également possible de faire fonctionner la pompe à un **régime réduit**, sans limitations de l'alimentation en chaleur. Ceci vous permet de faire des économies de courant pour la pompe. La pompe montée dans le ROTEX GSU consomme env. 75-80 W à l'étage de puissance 3, env. 55-60 W en étage de puissance 2, et seulement 40 W en étage de puissance 1.

Détermination de l'étage de pompe nécessaire



Q Puissance du chauffage

m_H Quantité de débit

Figure 4-5 Schéma de puissance de chauffage

- Déterminez dans le schéma de puissance de chauffage (Figure 4-5) la puissance de débit correspondant à une certaine puissance de chauffage en fonction de la plage de dimensionnement

Who does understand?

Developing the know-how component

- **Easier manuals**
- **Increase the know-how of contractors**
- **Include a training session for users on programming the boiler in the annual maintenance of the boiler (mandatory)**
 - During absence
 - During the night

Practice change

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- **(Re-)shaping synergies between components**
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(Re-)shaping synergies between

- Material and procedural components
 - **Co-funding of renewable-energy projects for private house (ex: LV)**

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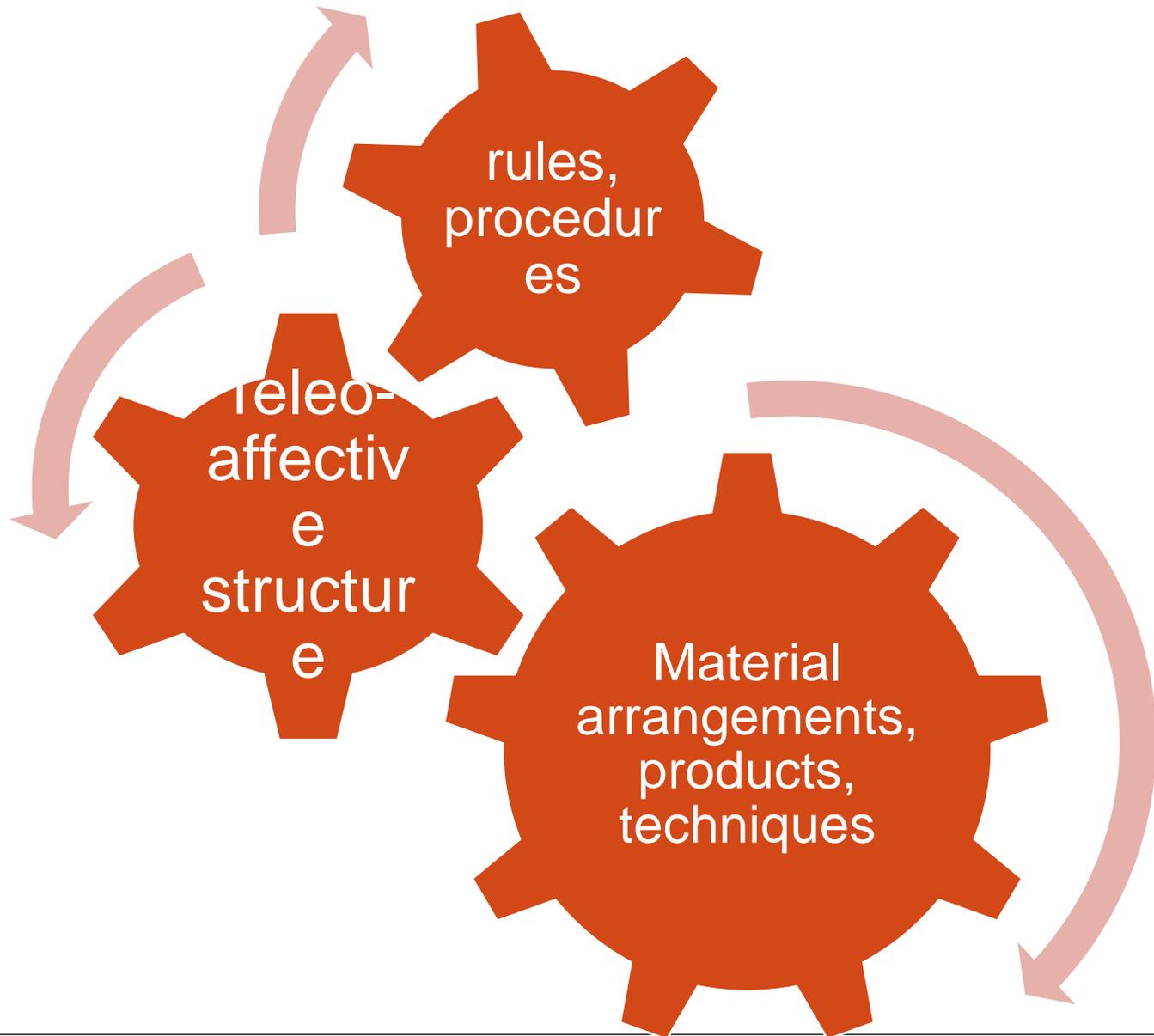
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(Re-)shaping synergies between

- Material, procedural and teleo-affective components
 - **Higher subsidy for natural and locally-produced insulation material (hemp)**



Practice change

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- **Coalescing several (integrative) practices**

Coalescing several (integrative) practices

- Energy retrofit + heating practices
 - Customising the energy bill with the EPC
 - Progressive tariffs for gas and electricity
- Energy retrofit + heating practices
+ dressing practices
 - Bad examples...

Météo 20h00

Samedi 17 janvier 2015

2min 51s



Clothes > < weather



A counter-example of reconfiguring material arrangements and dressing routines

**Thank you very much
for your attention!**

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