STS Approaches to Energy Systems and Their Boundaries

Exchanges between STS and Zero emission/energy building design

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Agenda

• 2 Departure points
  – ZEB
  – STS

• 2x2 Alternative approaches
  – 2 x ZEB
  – 2 x STS

• 1 Exchange
Departure point 1: ZEB

- Zero emission/energy counting what?
- **Zooming in:** Optimimizing components
- **Zooming out:** Optimizing (trans-)national energy systems (including chains of provision)
Alternative proposals 1+2: ZEB

- Adding an active layer between building and use (Santo et al.)
- Rethinking the building envelope (Francesco Goia)
Departure point 2: STS

• The socio-technologies of zero emission buildings studied where?

• **Zooming in**: Studies of technology use and users

• **Zooming out**: Studies of socio-technical regimes/landscapes/niches
Increasing structuration of activities in local practices

Socio-technical landscape (exogenous context)

Socio-technical regime

Socio-technical regime is 'dynamically stable'. On different dimensions there are ongoing processes.

External influences on niches (via expectations and networks)

Niche-innovations

Landscape developments put pressure on existing regime, which opens up, creating windows of opportunity for novelties.

New regime influences landscape

New configuration breaks through, taking advantage of 'windows of opportunity'. Adjustments occur in socio-technical regime.

Elements become aligned, and stabilise in a dominant design. Internal momentum increases.

Small networks of actors support novelties on the basis of expectations and visions. Learning processes take place on multiple dimensions (co-construction). Efforts to link different elements in a seamless web.

Time
Alternative proposal 3: ANT

- The improbability of both the local and the global
- Instead: precarious connections, flows between (chains) of local nodes
- Flat ontology
  - “Landscapes” and “Regimes” “are” just more or less precariously connected “Niches”
  - “Niches” are always already “in the middle” of “Regimes” and “Landscapes”
Alternative proposal 4: Assemblage Theory

- Assemblages can be components of larger assemblages
- Components of assemblages interact
  - Expressive, material or both
  - De/territorialisation (routines vs. new skills)

Buildings as assemblages: Tradition (territorialisation) and the birth of fashion (deterritorialisation)
# Bringing it together

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<th>Reassembling ZEBs</th>
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<td>Top down/Bottom up</td>
<td>Rethinking connections and separations</td>
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<td><strong>ZEB</strong></td>
<td>Optimizing the system within a given boundary</td>
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<td>Study “practices” or “innovation”</td>
<td>Study the emergence of new assemblages</td>
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