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DECENTRALISED LABORATORIES IN THE GERMAN ENERGY TRANSITION

Empirical evidence from the District of Ahrweiler

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Berlin, April 12th 2016

Role of Decentralised laboratories in multi-level Governance systems

Idea of “laboratory federalism”:

- Decentral jurisdictions (with a given degree of discretion) function as “*laboratories of innovations*”
- Diverse interlinkages between decentral jurisdictions within a multi-level system cause subsequent horizontal processes of policy learning and diffusion

Bottom-up and decentralised innovation diffusion is an alternative or complementary *mechanism of convergence* to a hierarchical mechanism based on (inter)national state-centred negotiation

NEED FOR LABORATORIES OF INNOVATION IN LOW CARBON ENERGY TRANSITIONS

The specific nature of transition processes:

- **Complex process of socio-technical change**
  - Destabilisation of lock-in mechanisms
  - Shifts in behavioural patterns
  - Need for technological, political and social innovation
- **Characterised by a great deal of uncertainty**
  - No predefined and uncontested script
  - Need for experimentation

Assumption and positive narrative offered by scholars of polycentric governance:

the decentral level provides a space to experiment with innovation

NEED: BACKING UP THE POSITIVE NARRATIVE WITH EMPIRICAL EVIDENCE

- Idea of laboratory federalism is not new
- New: solid basis in empirical reality (e.g. 100% Renewable energy regions, transnational energy cities' collaboration, etc.)

but

- Literature on sub-national experimentation has a tendency to show over-enthusiasm for the innovation potential of decentral and bottom-up processes (positive narrative)

➢ **More research is needed on:**

- empirical evidence of decentral level's *real* contribution to solving the systemic challenges of energy transformations/global climate change mitigation

➢ **Re-shift research focus to:**

- Evaluation of efforts at decentral level with regard to :
  - governance challenges of systemic relevance that can be addressed at the local/regional level
  - transferability of decentral innovations

PROJECT ENAHRGIE - SUSTAINABLE LAND USE AND ENERGY SUPPLY AT THE LOCAL LEVEL IN THE MODEL REGION AHRWEILER (2015-2019)

- Task: Develop an energy concept for the transformation of Ahrweiler into a 100% RE Region, which is transferable to other regions in Germany
- Inter- and transdisciplinary project team

EA EUROPEAN ACADEMY OF TECHNOLOGY AND INNOVATION ASSESSMENT

ffu

BAD NEUENAHR AHRWEILER

Volksbank RheinAhrEifel eG

ahrtal-werke

evm

IfaS Institut für angewandtes Stoffstrommanagement

VORWEG GEHEN

GEFÖRDERT VOM

Bundesministerium für Bildung und Forschung

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Handwerkskammer Koblenz

DIALOGIK

tu technische universität dortmund
Fachgebiet Raumplanungs- und Umweltrecht

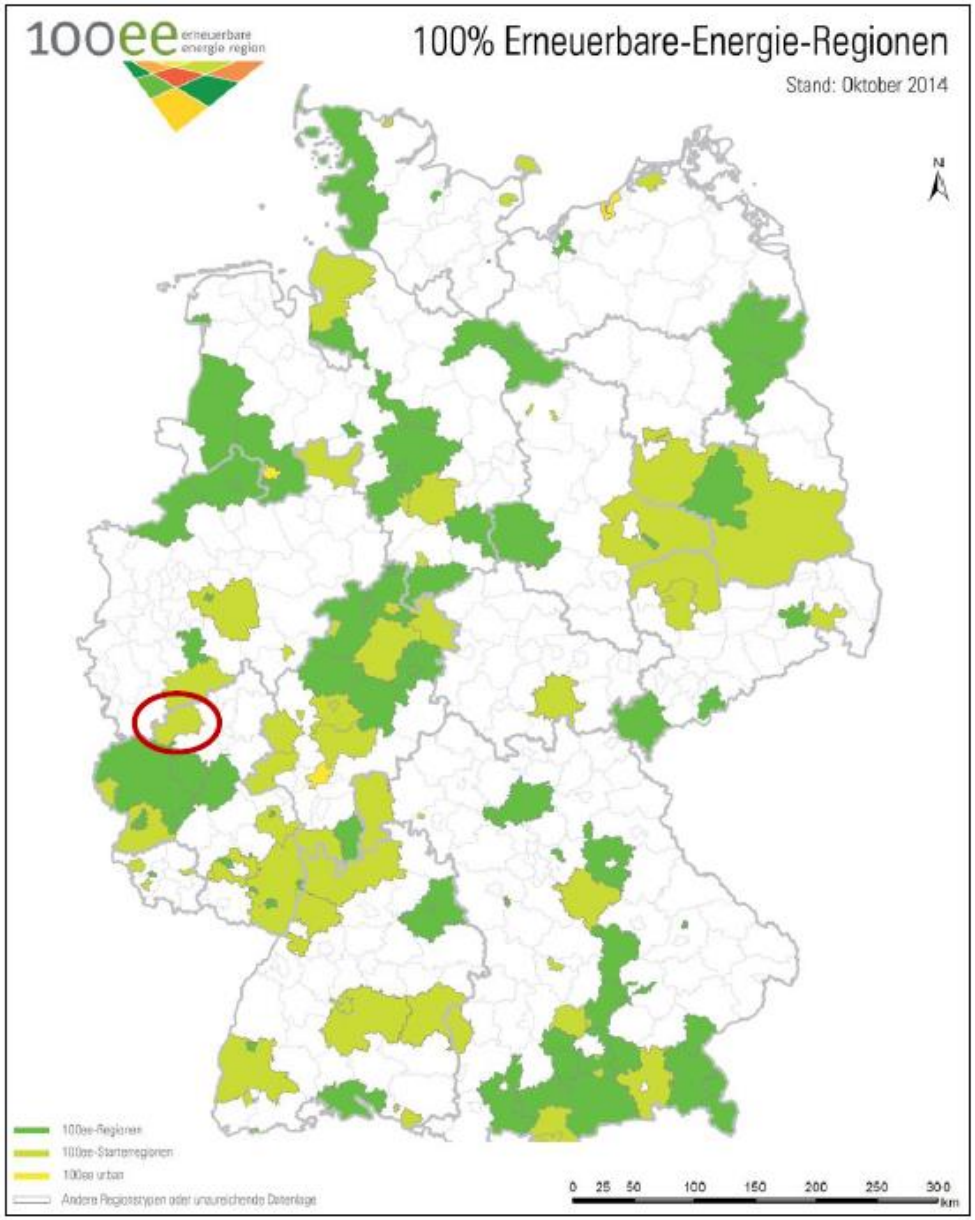
Fraunhofer UMSICHT

KREISVERWALTUNG AHRWEILER

ifu

Kreissparkasse Ahrweiler

FONA Forschung für nachhaltige Entwicklungen BMBF



- Positive narrative: 100% RE regions as nuclei of energy transition

↕

- Ahrweiler selected as "deficient" case:
  - Official target (2011): 100% RE electricity (on an annual basis) by 2030
  - ↕
  - Status quo: about 10% RE electricity (2014)

→ High potential for social and political conflicts with regard to RE deployment

- Facts about Ahrweiler
  - Jurisdiction: county (Landkreis)
  - 74 municipalities
  - Inhabitants: 126,000 (2013)

http://www.100-ee.de/

CHALLENGE OF REGIONAL GOVERNANCE: MISMATCH BETWEEN ISSUE AREAS AND TERRITORIAL BORDERS

- Land use and distributional conflicts on RE deployment go beyond county borders
- Regionalisation of energy flows requires exchange/coordination with neighbouring regions around Ahrweiler
- Fragmented interests and identities within and beyond the county of Ahrweiler

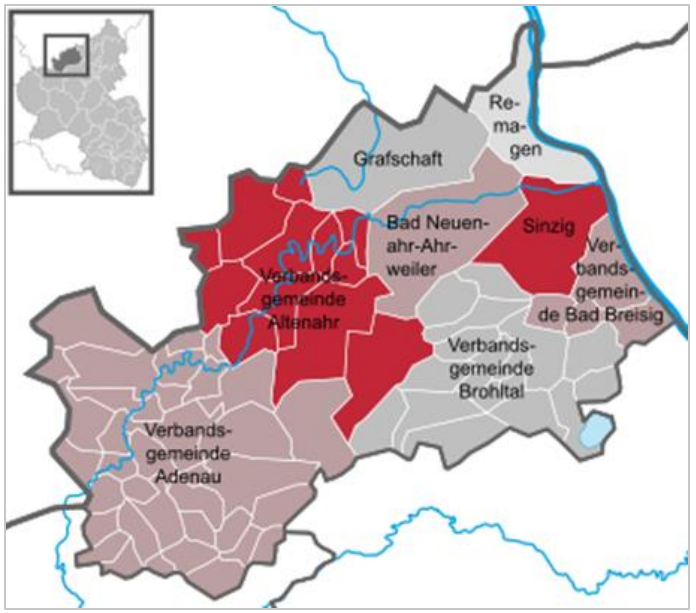
A county is **not** a sufficient spatial focus for a regional energy concept

source: EA European Academy GmbH

CHALLENGE: COMPLEX MULTI-LEVEL INTERPLAY OF SPATIAL PLANNING AND OTHER DECISION-MAKING COMPETENCIES

Formal spatial planning competencies distributed over five policy and administrative levels:

- Municipalities
- Federations of municipalities
- County
- Planning region
- State of Rhineland Palatinate



http://www.wikiwand.com/de/Landkreis_Ahrweiler

➡ Formalised coordination mechanisms between levels do not always work

➡ County has very limited formal competencies

PRELIMINARY RECOMMENDATIONS ON THE ROLE OF THE COUNTY BASED ON THE INITIAL FINDINGS

Will be discussed in the further dialogue among members of the transdisciplinary project team

- There is a need to extend *informal* coordination
- Although the county has the least formal planning competencies, it needs to take over the role of an *informal mediator/network broker* to stimulate cooperation between
  - municipalities
  - neighbouring regions beyond the county

GOVERNANCE CHALLENGES: ADAPTATION TO CHANGING/DYNAMIC POLITICAL FRAMEWORK CONDITIONS AT SUPERIOR POLICY LEVELS

I. Reform of support scheme EEG (partly based on European Commission's state aid guidelines)

- Introduction of annual caps
- Introduction of volume-based auction system

➡ **Increase of risks for planners /investors in RES + de-motivation at decentral level**

- Discussion about discrimination against small-scale initiatives, such as citizen energy projects and cooperatives

II. Ongoing energy market reform: increasing demand for flexible demand and supply management

➡ **Decentral pioneers (100% RE-Regions) have to re-invent themselves**

- Shift from a dominant inward-looking focus on merely adding local RE capacity to the grid into a more system-based perspective by offering feasible models of a regional organisation of energy flows (sector coupling of warmth, electricity & mobility; DSM; regional marketing models etc.)

CONCLUSIONS I

I. 100% RE Regions need to foster vertical and horizontal integration of decentralised RE deployment to provide systemic solutions and strengthen systemic impact

- Need to take a broader perspective beyond the individual region to address regional coordination of energy flows
- Need to strengthen informal coordination mechanisms within and beyond formal political administrative borders
- Need to start experimenting with system integration of decentralised RE deployment

CONCLUSIONS II

II. Need to strengthen lesson-drawing between decentralised experiments to foster diffusion of good practice

- Key questions for project EnAHRgie:
  - What can Ahrweiler learn from other model regions dealing with similar governance challenges?
  - How can the energy concept be designed so that its tools and measures can be transferred to other regions?

MANY THANKS FOR LISTENING!

Please share your thoughts,
feedback and recommendations!

Reference:

Beermann/ Tews (2015): Preserving Decentralised Laboratories for Experimentation under Adverse Framework Conditions. Why Local Initiatives as a Driving Force for Germany's Renewable Energy Expansion Must Reinvent Themselves. FFU Report 03-2015. Berlin. (submitted to Journal of Cleaner Production)

Download at: http://www.polsoz.fu-berlin.de/polwiss/forschung/systeme/ffu/ffu-reports/15_ffu-report_preserving/index.html

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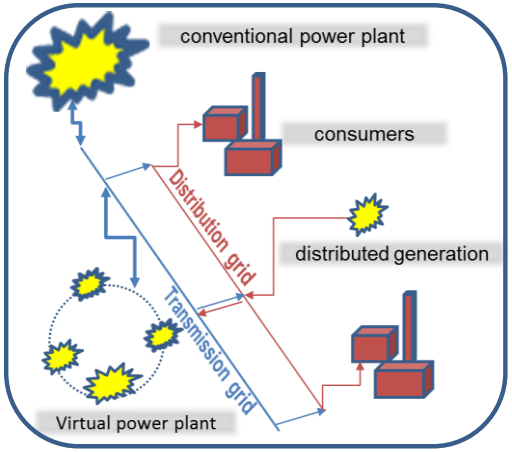
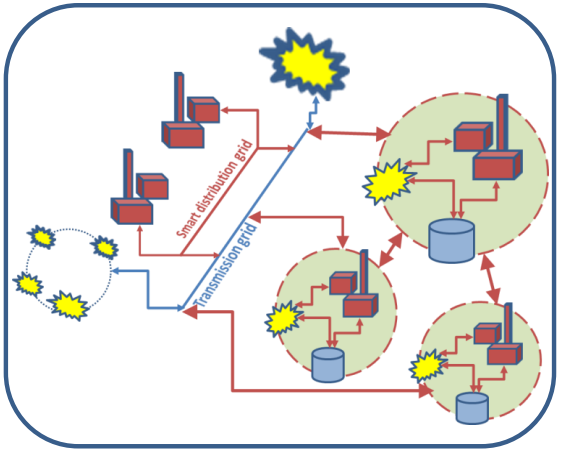
Accommodation of distributed generation into the current system



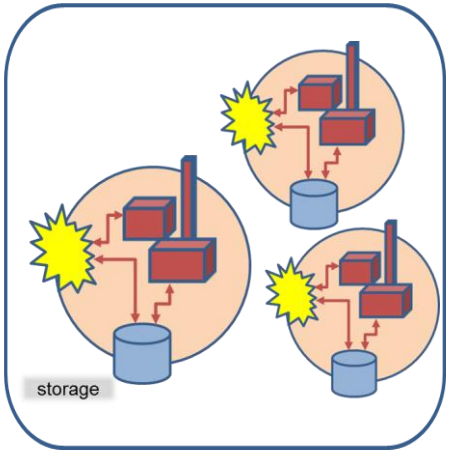
- No optimisation between generation and on-site consumption intended
- Grid structure remains rather unchanged
- Centralised control over the grid (TSO)
- Pooling of distributed energy resources (e.g. virtual power plant)

Decentralisation of the overall system architecture



- Striving for a synchronisation of local generation and on-site consumption in order to relieve the overall grid (as system service)
- Grid structure more decentralised/ interaction between various voltage levels of the grid (TSO+DSO)
- Growing overall grid control by operators at the lower grid levels (DSO)
- DSO responsible to balance supply and demand (active grid management)

Fragmentation of the energy system



- Full synchronisation of generation and consumption (micro-grids, power parks)
- Electricity island/ self-sufficient and separated sub-systems
- Full internal control of the subsystems
- Economic viability of higher voltage grid level is questionable

Source: © Kerstin Tews; own illustration based on IZES et al. (2008) and Leprich et al. (2005), (TSO =Transmission System Operator; DSO = Distribution System Operator)