Status update
on 4 different themes

sweet swiss energy research for the energy transition

DeCarbCH

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Federal Office of Energy SFOE

Legal & Socio-economic

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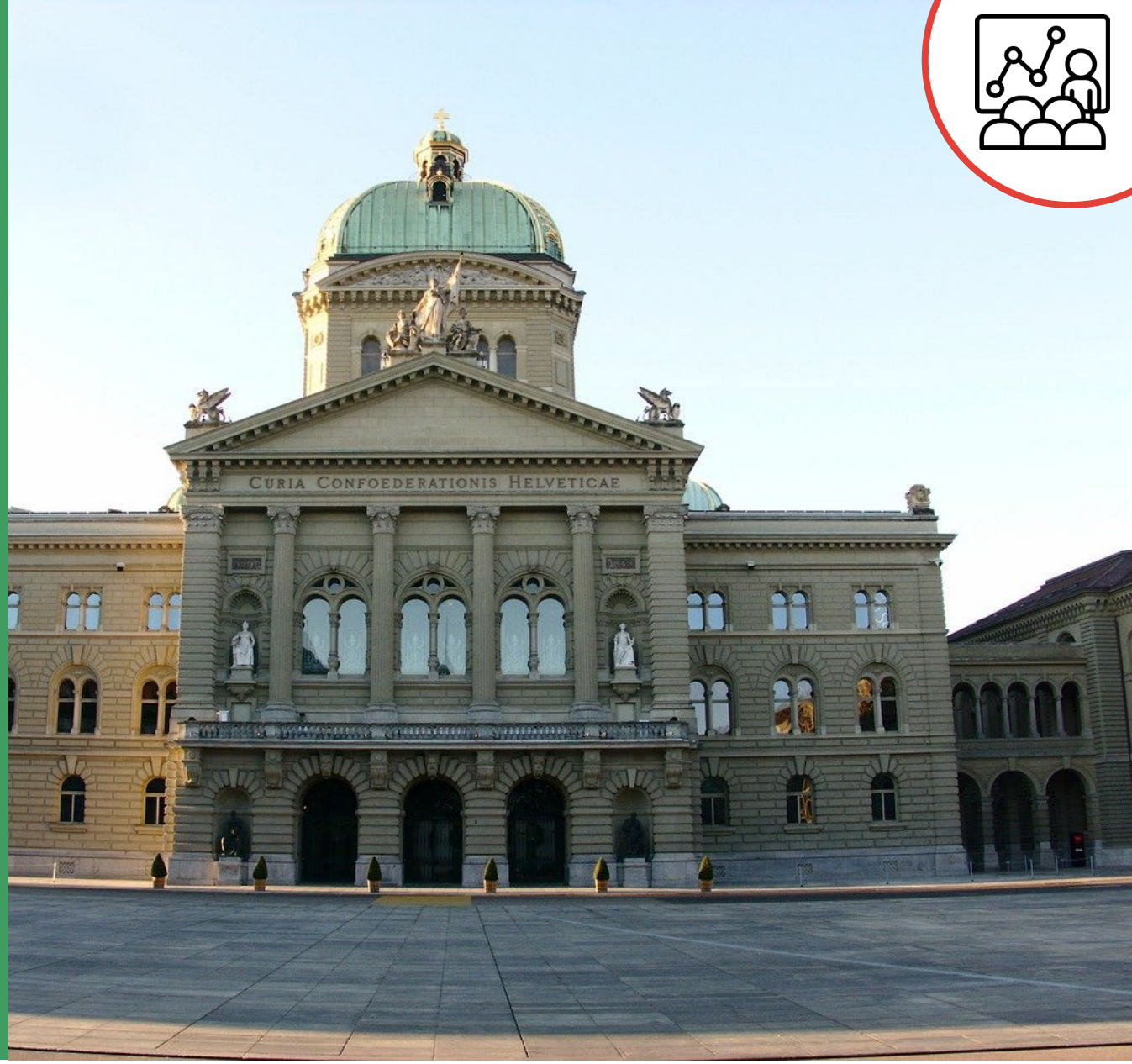
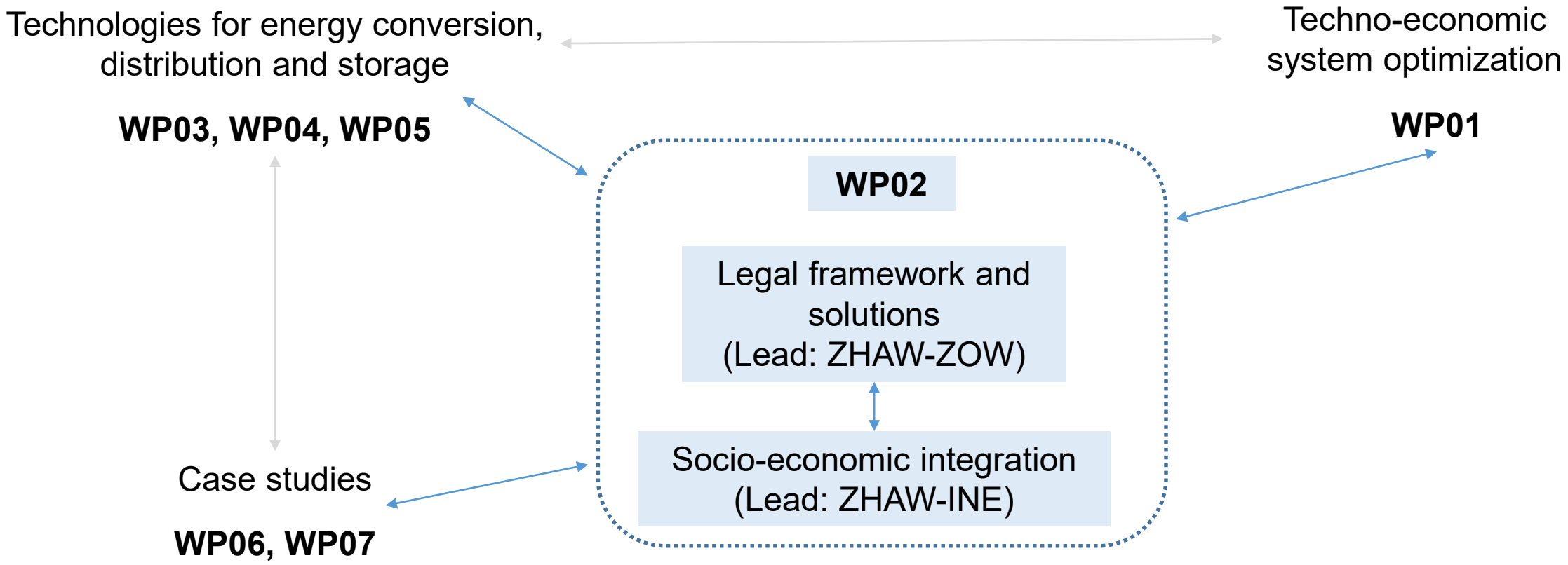


The role of WP02 in SWEET-DeCarbCH



=> How to integrate techno-economically sensible solutions in the **regional energy system** so as to achieve a **timely implementation** and **sustainable operation**?

WP02: The legal perspective

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- Legal barriers to clean heating and cooling solutions
- Legal framework concerning clean heating and cooling solutions
- Strategies to reduce legal barriers / to optimise the legal framework

Research: published & ongoing

- Journal article on **district heating** (2022)
- Short monograph on **biomass power plants** (2022)
- Journal article on **photovoltaics in farming** (ongoing)
- Journal article on **oil and gas heating** substitutes (ongoing)

Research questions & interests

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- Distribution of competences btw federal, state, municipal levels
- Planning law (land use plans, guiding plans, sectoral plans, procedures)
- Construction law (permits, land use, procedures, etc.)
- Operations (licences, mandates, etc.)
- Pricing (price supervision, anti-trust, subsidies, tenders, etc.)
- Fundamental rights (property rights, economic freedom, equal treatment, non-discrimination, etc.)
- Rule-of-law issues (e.g. legal certainty and predictability)

Zürcher Hochschule
für Angewandte Wissenschaften

School of
Management and Law

WP02: The legal perspective
Publications/Projects - Overview

Building Competence. Crossing Borders.

PD Dr. iur. Beatrix Schibli
beatrix.schibli@zhaw.ch, 25/26 April 2022

WP02: Publications/Projects - Overview

1. Journal article on district heating (2022): «Andreas Abegg/Nagihan Musliu, Die Fernwärmeversorgung – eine rechtliche Einordnung, sui generis 2022»

2. Doctoral thesis by Annette Zoller-Eckenstein on the construction of thermal grids (ZHAW/University of Lucerne): Work in Progress

3. Monograph on Biomass Power Plants: «Beatrix Schibli, Biomasseanlagen in der Landwirtschaft, in: Schriften zum Energierecht, Zürich 2022»

4. Photovoltaics in farming: Work in Progress

District Heating (2022)

1. Background

2. Planning, Construction and Running
    1. Competences
    2. Energy planning
    3. Structure plan (Art. 8 Spatial Planning Act)
    4. Land use plans (Art. 14 Spatial Planning Act)
    5. Building permits / Use / Procedure

3. Compulsory connection and right to connection

District Heating (2022)

Background

- Energy strategy 2050: renewable energies
- Climate policy objectives
- Thermal grids of increasing importance, many legal questions in relation to construction and running of thermal grids

District Heating (2022)

1. Background

2. Planning, Construction and Running
    1. Competences
    2. Energy planning
    3. Structure plan (Art. 8 Spatial Planning Act)
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    5. Building permits / Use / Procedure

3. Compulsory connection and right to connection

District Heating (2022)

Planning, Construction and Running – Competences:

- Energy consumption in relation to buildings: Cantons
- Spatial planning: Confederation (principles) / Cantons

District Heating (2022)

Energy planning

- Energy planning: spatial impact
- Energy planning: sectoral plan
- Energy planning: shows future needs in relation to renewable energy and supply of exhaust heat

District Heating (2022)

Thermal grids in structure plan:

- Not mandatory (unless high need for coordination due to size / impact / politics)
- Occasional Practice: areas suitable for district heating supply in structure plan
- Recommendation: If thermal grids mentioned in structure plan, mention pipelines as well

District Heating (2022)

Thermal grids in land use plans:

- Communes may designate areas/zones determined to district heating
- Determination by way of: Frame Plan („Rahmennutzungsplan“), Special Plan („Sondernutzungsplan“) or Infrastructure Plan („Erschliessungsplan“)
- Analysis required: May Communes determine the type of energy source?

District Heating (2022)

Building permit, use and procedure (1):

- Building permit requirement (procedure depending on cantonal laws / installation type)

- Permit requirement in relation to buildings and installations outside building zones:
  - If the purpose of installations necessitates their location outside the building zones
  - If there are no overriding interests to the contrary (high importance of renewable energy sources)

District Heating (2022)

Building permit, use and procedure (2):

- Use of Water resources (open to the public): permit / assignment of exclusive right to extraordinary use
- Use of Geothermal heat – owner of private ground: no permit requirement
- Use of deep geothermal systems/power stations: assignment of exclusive right
- Use of exhaust heat from waste incinerator plant: Approval of responsible body / assignement of exlcuive right

District Heating (2022)

Building permit, use and procedure (3):

- Thermal grids – ground owned by the state
  - Permit to extraordinary use / Assignment of exclusive right (depending on installation / extension / time period)
  - Permit requirement even without legal provisions
  - Fees

- Thermal grids – private ground
  - Measures legitimised by private law: rith to build / servitude
  - Measures legitimised by public law: duties / expropriation

District Heating (2022)

Building permit, use and procedure (4):

- Legal Person is determined to provide an area with district heat:
  - If district heating is defined as public task: performance mandate
  - If district heating is not defined as public task: territorial concession (exlusive right)

District Heating (2022)

1. Background

2. Planning, Construction and Running
    1. Competences
    2. Energy planning
    3. Structure plan (Art. 8 Spatial Planning Act)
    4. Land use plans (Art. 14 Spatial Planning Act)
    5. Building permits / Use / Procedure

3. Compulsory connection and right to connection

District Heating (2022)

Compulsory connection – economic freedom / right to property

- Legal basis
  - Impact on use of property
  - Significant restrictions must be based on legal provisions enacted by Legislature: E.g. Energy Act, Building Act
- Public interest: promotion of renewable energy sources
- Proportionality (depending on concrete situation)
  - High investment costs
  - Time period to implement
  - New or old installation?
  - Same conditions as ordinary installations?

District Heating (2022)

A right to connection

- Voluntary connection

- Private supplier: Obligation to enter into contracts if:
  - Supplier offers the district heating publicly
  - No other equivalent energy sources
  - No legitimate reason to reject
  - Irrelevant: whether dominant or not

District Heating (2022)

Main findings - summary (1)

- Background/Importance of district heating: means to reach energy policy objectives and climate policy objectives

- Competences in relation to district heating supply:
  - Energy consumption in relation to buildings: Cantons
  - Spatial planning: Confederation (principles) / Cantons

District heating (2022)

Main findings - summary (2)

- Energy planning by Canton/Communes: sectoral plan
- Thermal grids in structure plan: not mandatory (unless high need for coordination due to size / impact / politics)
- Land use plan: Communes may designate areas/zones determined to district heating

District Heating (2022)

Main findings - summary (3)

- Construction: Building permit requirement (within or outside building zones)
- Use of thermal sources/public ground: Assignment of exclusive right (subject to charges)
- Use of private ground: Approval of owner / forced use based on legal basis

District Heating (2022)

Main findings - summary (4)

- Running of thermal grids by third party:
  - If running of thermal grids defined as public task: Performance mandate

- Compulsory connection: Legal basis required

WP02: Publications/Projects - Overview

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4. Photovoltaics in farming: Work in Progress

Biomass Power Plants (2022)

Main findings – summary (1)

- Biomass power plants are conform to zone requirements in agricultural zones under restrictive conditions
- Biomass power plants must be subordinated to the farming business
- Legal provisions of the Federal Ordinance on Spatial Planning turn out to be more restrictive than the Federal Act on Spatial Planning
- Recommendations how to revise the legal provisions of Federal Act on Spatial Planning

Biomass Power Plants (2022)

Main findings – summary (2)

Art. 16a para 1bis Federal Act on Spatial Planning - Proposition

^{1bis} A permit may be granted for buildings and installations that are required for the production and the transport of energy from biomass or for connected composting facilities on the basis that they conform to zone requirements if the processed biomass is closely linked to the agricultural or forest activities of the farming business on site and businesses nearby. The processed biomass is closely linked if:

a. Wood biomass: x, y, z

b. Unwooded biomass: x, y, z

Permits must be made conditional on the buildings or installations being used only for the permitted purpose. The Federal Council shall regulate the details.

WP02 The legal perspective: Publications/Projects - Overview

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4. Photovoltaics in farming: Work in Progress

Photovoltaics in farming (work in progress)

Main questions – summary

- Agricultural zone: Photovoltaic systems on roofs conform to agricultural zone
- Agricultural zone: Photovoltaic systems free standing on agricultural land do not conform to agricultural zone
- Agricultural zone: Do Photovoltaic systems combined with agricultural use/farming (so called Agro-PV) conform to agricultural zone? Under which conditions?

Deliverables – Socio-economic topics

By the end of 2022

Multi-actor **portfolio of solutions** for the decarbonization of heating and cooling

By the end of 2023

Actor-specific recommendations on **integration strategies**, business model innovation as well as supporting policy measures

Simulation model with online interface

By the end of 2024

Scenarios of **sectoral implementation dynamics** of the selected use cases as well as **strategy and policy recommendations**

What have we reached so far?

Empirical work

- **In-depth interviews** on industrial decarbonization
- **Workshops** with utilities, officials, consultants, etc.
- **Scoping meetings** with diverse actors

Conceptual work

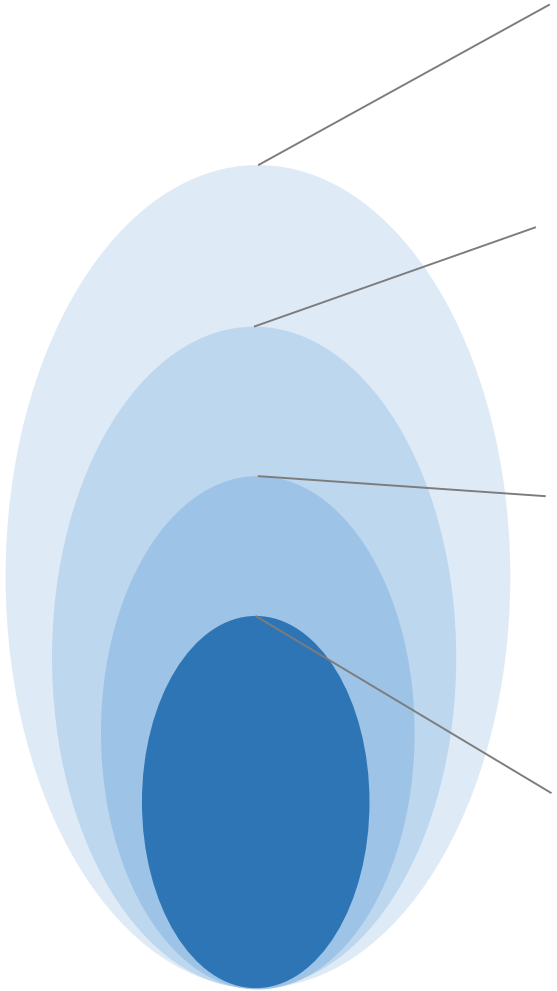
- Definiting our **analytical lens** to develop and assess new solutions

Conceptualization

Business ecosystem perspective on decarbonization:

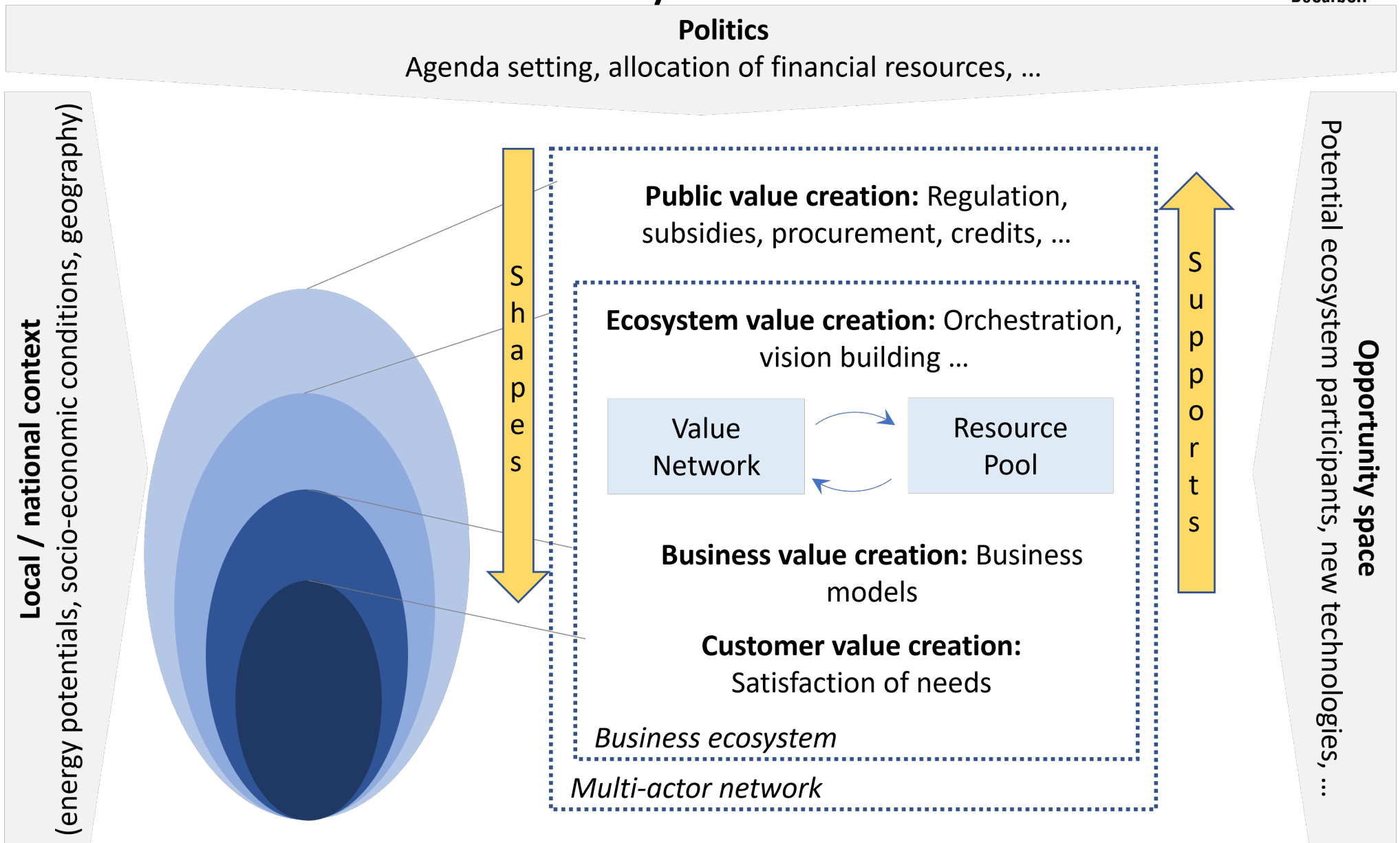
- No «command-and-control» governance
- Common value proposition
- Interdependence
- Need for **orchestration** and **alignment**

Value at multiple levels

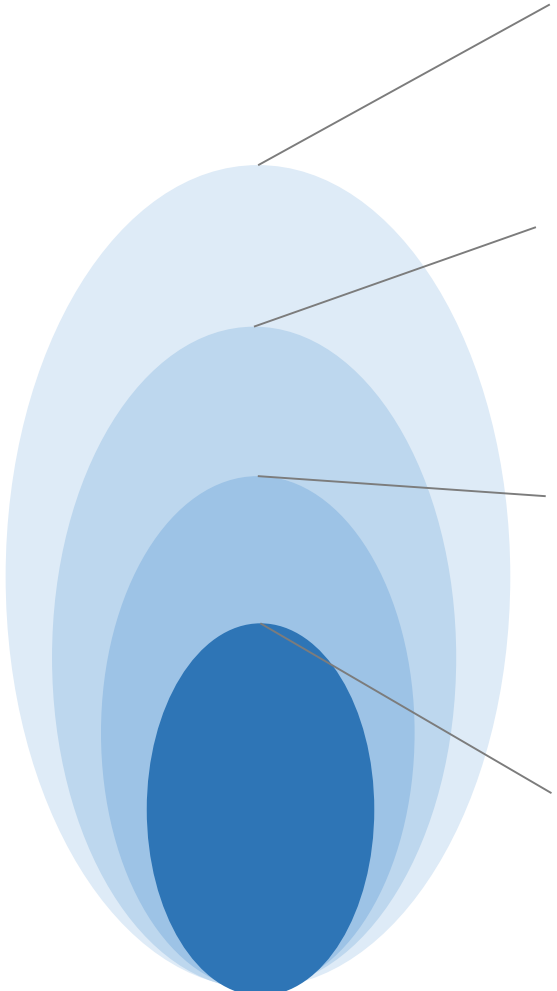


	Value dimensions
Public / societal value	Fulfillment of political mission
Ecosystem value	Access to complementary resources / capabilities / demand
Business value	Profit, economic sustainability
Customer value	Satisfaction of needs (material, physiological, social…)

Decarbonization ecosystem



Current research foci



Public / societal value

Ecosystem value

Business value

Customer value

Fair tariff models for district heating

Intermediary resources to support decarbonization

Options to valorize circular energy use in multi-actor systems

Intermediary resources: examples

Digital platforms

For networking, data valorization…
e.g. geoImpact/SEP

Decision-support tools

e.g. Pinch, Sympheny, …

Networking and knowledge-transfer platforms

e.g. EnAW exchange groups, Energiestadt activities

Intermediary resources:

resources that link actors of the decarbonization ecosystem to enable and accelerate the low-carbon transition

…

Specific training or consulting offers

e.g. decarbonization roadmaps

Ongoing and planned research activities (2022)

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Design science approach: how do Swiss cities tackle socio-economic decarbonization challenges, and what kind of **intermediary resources** are needed?

RENOWAVE (Innosuisse Flagship)

Elaboration of business models for **fuel switch, building retrofit** and **district energy planning.**

PEDSET (SNF)

How do **integrated district energy concepts** contribute to the energy transition?

Planned

Fair and sustainable **tariff models** for district heating.

Schemes to **valorize** energy efficiency and decarbonization in **multi-actor** settings (circular energy use).

Deliverables – Socio-economic topics

By the end of 2022

Portfolio of solutions to address socio-economic challenges to heating/cooling decarbonization

Business model archetypes

- **Tariff models** for district heating
- Options to **valorize decarbonization**
- Building and offering **intermediary resources**

By the end of 2023

Actor-specific recommendations on **integration strategies**, business model innovation as well as supporting policy measures

Simulation model with online interface

By the end of 2024

Scenarios of **sectoral implementation dynamics** of the selected use cases as well as **strategy and policy recommendations**

How can we help you?

Authorities, utilities, energy professionals, consultants, technology providers, industry, entrepreneurs…

We are happy to support **you** in tackling your **pain points** on the way to decarbonization

Commercialization of new technologies & solutions

Actor coordination

Risk sharing

Uncertain effects of new policies

Customer engagement

…

Rest of the day

now	**break**	
15h30	**breakout sessions**	Networks; Case Studies; Industrie; Legal & acceptance
16h30	**break**	
16h45	**breakout sessions**	Networks; Case Studies; Industrie; Legal & acceptance
17h30	**break**	
19h	**evening dinner**	

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