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IKEM Summer Academy

Governing Climate Change: A Multi-Level Approach to Energy System Transformation

Bridging the Gap between Public Support and Local Opposition

Options for Financial Participation of Stakeholders

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This presentation is based on joint research activities with Prof. Dr. Thorsten Beckers, Albert Hoffrichter, Daniel Weber, Johannes Heurich, Nils Bieschke (all WIP), Prof. Dr. Rodi and Simon Schäfer-Stradowsky (IKEM). The presented (intermediary) results derive from the project “DZ-ES” funded by the BMBF.

Agenda

- 1) Introduction to the Topic**
 - 1.1) Allocation of Exploiting Rights for Natural Resources**
 - 1.2) Legal Examples and Institutional Setting**
- 2) Current Situation of Local Participation in Germany**
 - 2.1) Problems associated with RES Projects (Negative External Effects)**
 - 2.2) Shift of Power to the People**
- 3) Characteristics of Wind and PV Projects**
- 4) Options for Financial Participation**
- 5) National and International Examples**
- 6) Conclusion**

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Initial Questions:

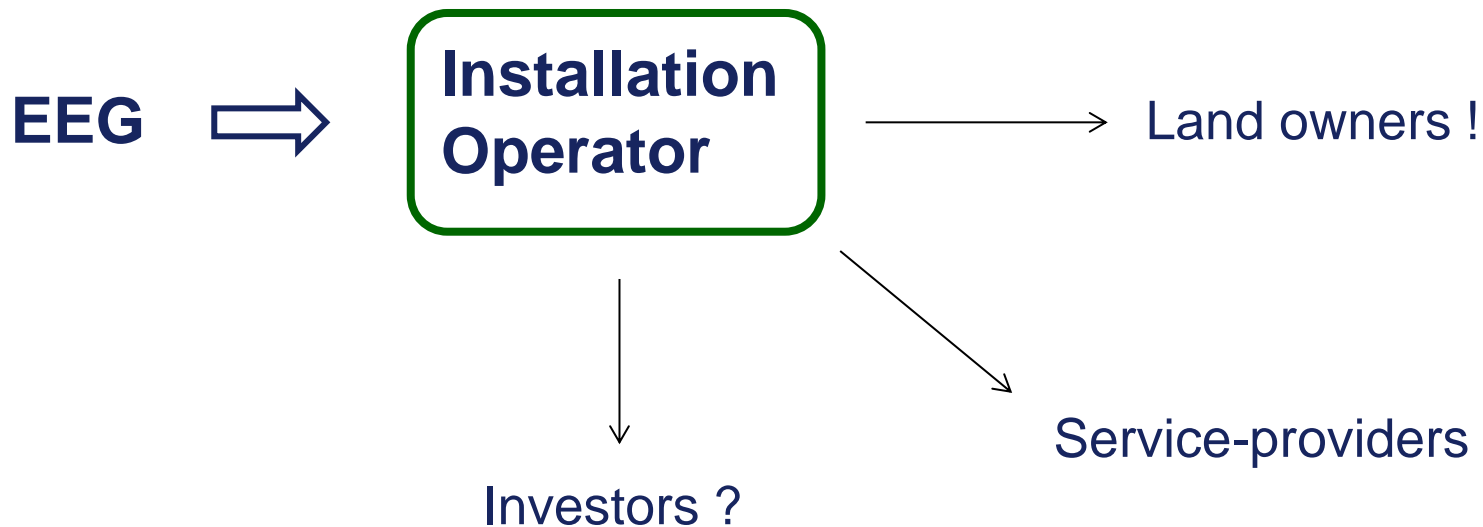
- Should the right to exploit natural resources be regulated by public authorities or should everyone be free to do so?
- Should the public benefit financially from the use of natural resources?
- What examples concerning the allocation of exploiting rights can be found?
 - Are these examples referring to a certain kind of resource?
- How could that be designed for RES?

- **If certain materials (e.g. coal) are found in private ground, they are explicitly excluded from the private property (§ 3 Abs. 2 S.2 BBergG)**
- **Aims of the „Bundesberggesetz“ (§ 1 Abs. 1 BBergG)**
 - precautions, especially in consideration of mining
 - regarding danger to life, health, and private assets
 - regarding dangers to the mining companies and the employees
 - securing the raw material supply regarding that the mining of soil resources is tied to the locations of their deposit
- **Lump-sum participation of public authorities (federal state)**
 - „*Feldesabgabe*“ between 5 and 25 Euro per km² or part thereof (§ 30 Abs. 1)
 - „*Förderabgabe*“ to the amount of 10% of the current value of the mined resources (§ 31 Abs. 1, 2)

Example for financial participation: Water

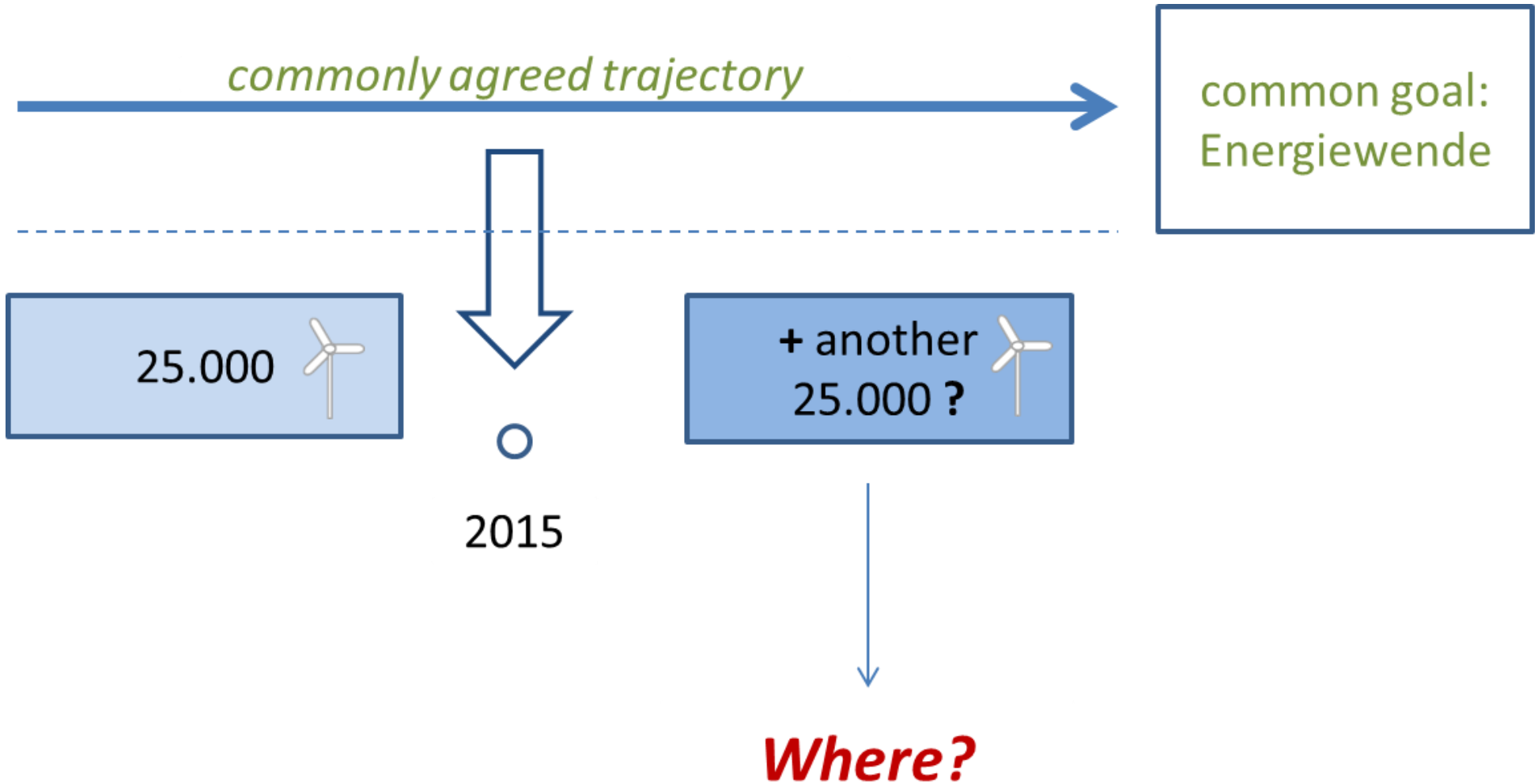
- **The right to make use of ground water on private property is severely restricted. In several federal states of Germany, among these Berlin, there is a submission for the use of groundwater to be paid (“Wasserpfennig”, § 13a Abs. 2 BerlWG)**
- *Further examples from abroad ?*
- **What about other natural resources: Wind and Sun?**

- **German EEG prescribes primarily the remuneration of the installation operator:**



⇒ ***so far, direct public participation in the value-adding process of wind & PV power generation is not mandatory***

- **No specific licence or commission is needed, no special submission has to be paid**
- **General permissions concerning immission control and construction law are largely based on planning documents**
 - During the Planning Process a lot of stakeholders, among these the residents, are consulted/heard
 - Aim is to prevent violations of private rights and to minimize disturbances for residents
- **Everybody has the right to exploit wind and sun power – but not everywhere: it is depending on the spacial planing**



- **Option 1: Create Space**

- Offshore wind farms

- **Option 2: Increase acceptance for wind energy plants in critical areas**

- Provide more possibilities of codetermination
f.e. “10H-Rule” in federal state of Bavaria



conflict with the agreed trajectory is to be feared

- *Provide Possibilities for financial Participation*

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Problems associated with RES Projects

- Germany has very ambitious RES targets and plans to deploy especially onshore wind farms and photovoltaic (PV) power plants
- Local opposition against new RES projects (mainly wind) due to negative external effects (disamenities) and other reasons; this may lead to an increase of costs
- Lack of specific rules regarding the coordination between property owners and investors may also lead to an increase of costs
- Questionable distribution of rents between locally affected people (residents), investors and property owners as well as consumers
- No specific mandatory policies in Germany to tackle above-mentioned problems, however the implementation of such is discussed

Problems associated with RES Projects

(Potential) Negative external effects of wind turbines:

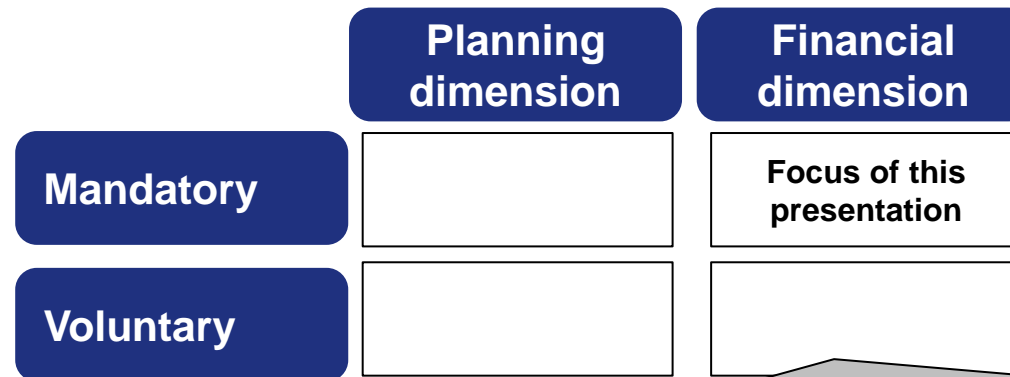
Negative external effect	Evidence of Existence	Examples of Literature / Comment
General disamenity	✓	Krekel/Zerrahn 2015
Not-in-my-backyard (NIMBY)	?	Wolsink 2005
Noise nuisance	✓	Huebner/Pohl 2015, Pedersen et al. 2009
Loss of property value	?	Jensen et al. 2014, Atkinson-Palombo/Hoen 2014
Loss of land	✓	Definitively exists, but owners of suitable land are usually (over)compensated
Disadvantages for nature (e.g. death of birds, bats)	✓	Lehnert et al. 2014
Negative effects on tourism	x	Huebner/Pohl 2014

Questions regarding Local Participation

Questions

- In which ways and to what extent can a higher degree of local or public financial participation in RES projects help to overcome above-mentioned problems?
- Which instruments exist to achieve local or public financial participation?
- How could they be implemented?
- How to reduce coordination costs?

Classification of instruments for participation



There are various instruments for financial participation and coordination rules applied voluntarily:

- Examples for financial participation: Contribution of capital (external equity, loans), donations to public institutions
- Examples for coordination rules: Pooling contracts with property owners; payments for land not used

Shift of Power to the People

Observed Types of Financial Participation in RES Projects

Contribution of capital:

- As above-mentioned heavily applied in Germany
 - in order to attract new capital
 - in order to increase acceptance
- To consider: risk-rent-profile of investors (citizens)

Direct Payments to municipalities/public bodies and citizens:

- Legal regulation
- Voluntary payments (in order to increase acceptance)

Senftenberg

30. Oktober 2014, 02:56 Uhr

 Vorlesen |  Drucken |  Kommentare (0)

In Schipkau gibt es Kohle für den Wind

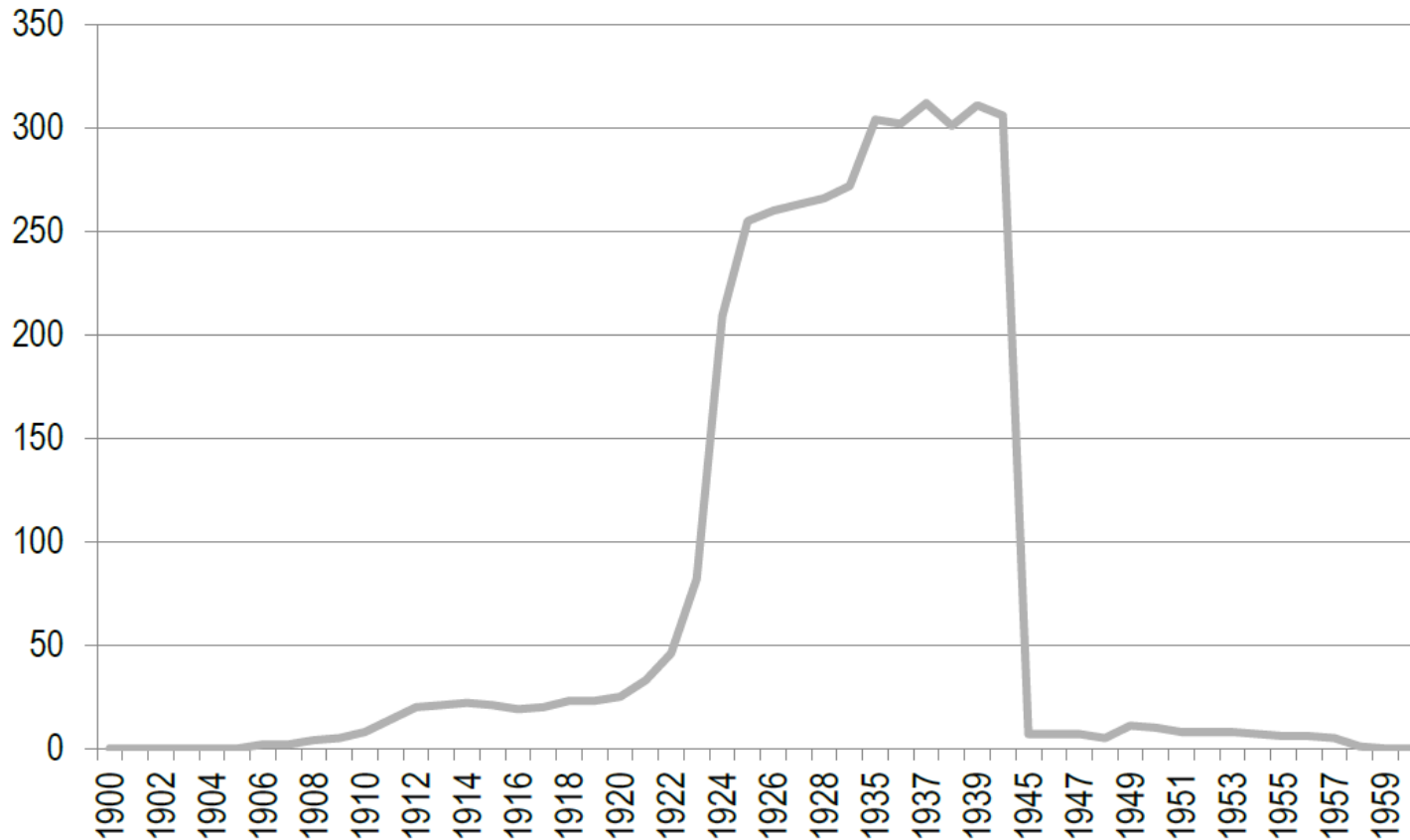
Anträge für Auszahlung des Bürgerbonus am Wochenende in allen Briefkästen

SCHIPKAU Schipkau ist am Ziel. Der Bürgerbonus wird ausgezahlt. Gemeindeväter und Investor lassen die 6900 Einwohner am Windgeschäft vor ihren Haustüren ordentlich mitverdienen. Schipkau liegt damit landesweit hart am Wind. In ganz Brandenburg gibt es nichts Vergleichbares.

Shift of Power to the People History – from 1900 to 2000

Cooperatives at the beginning of the electrification:

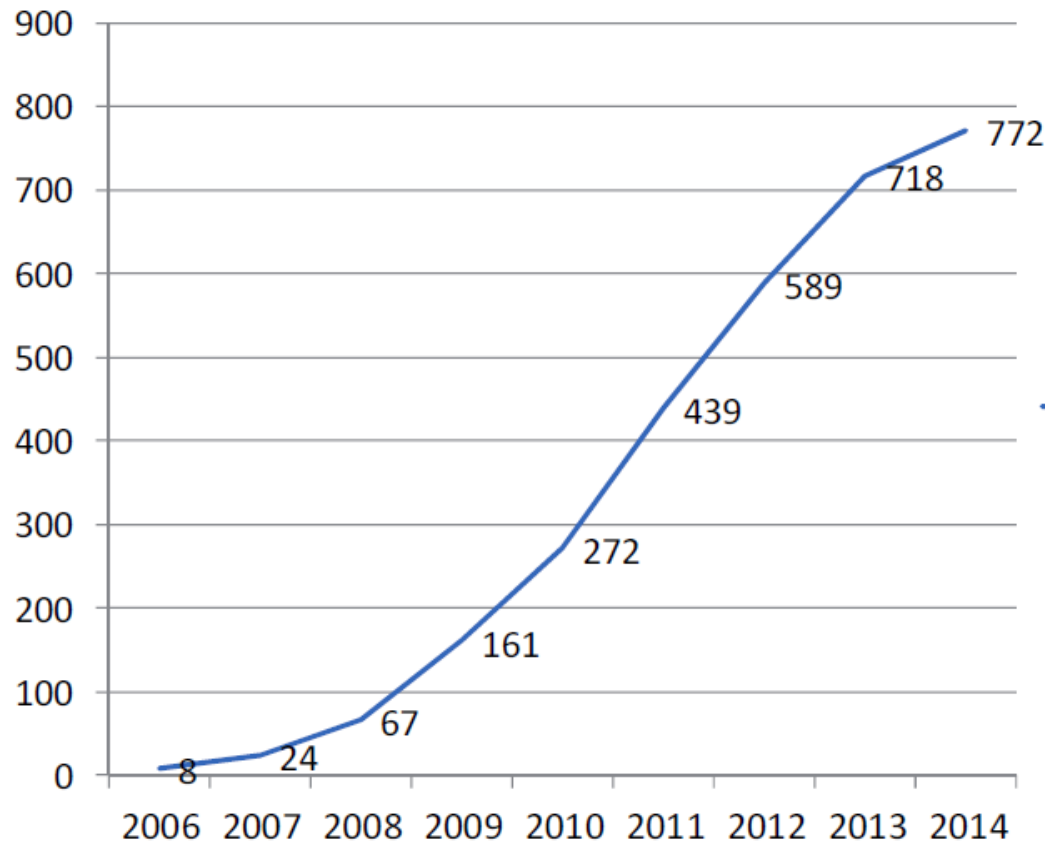
The example of Schleswig-Holstein



Source: Holstenkamp (2015) - MOTIVE & POTENZIALE ZIVILGESELLSCHAFTLICHEN ENGAGEMENTS IN GENOSSENSCHAFTEN

Shift of Power to the People History – from 1900 to 2000

**Cooperatives at the start of renewable energy electrification:
*The example of so-called „energy cooperatives“ in Germany***

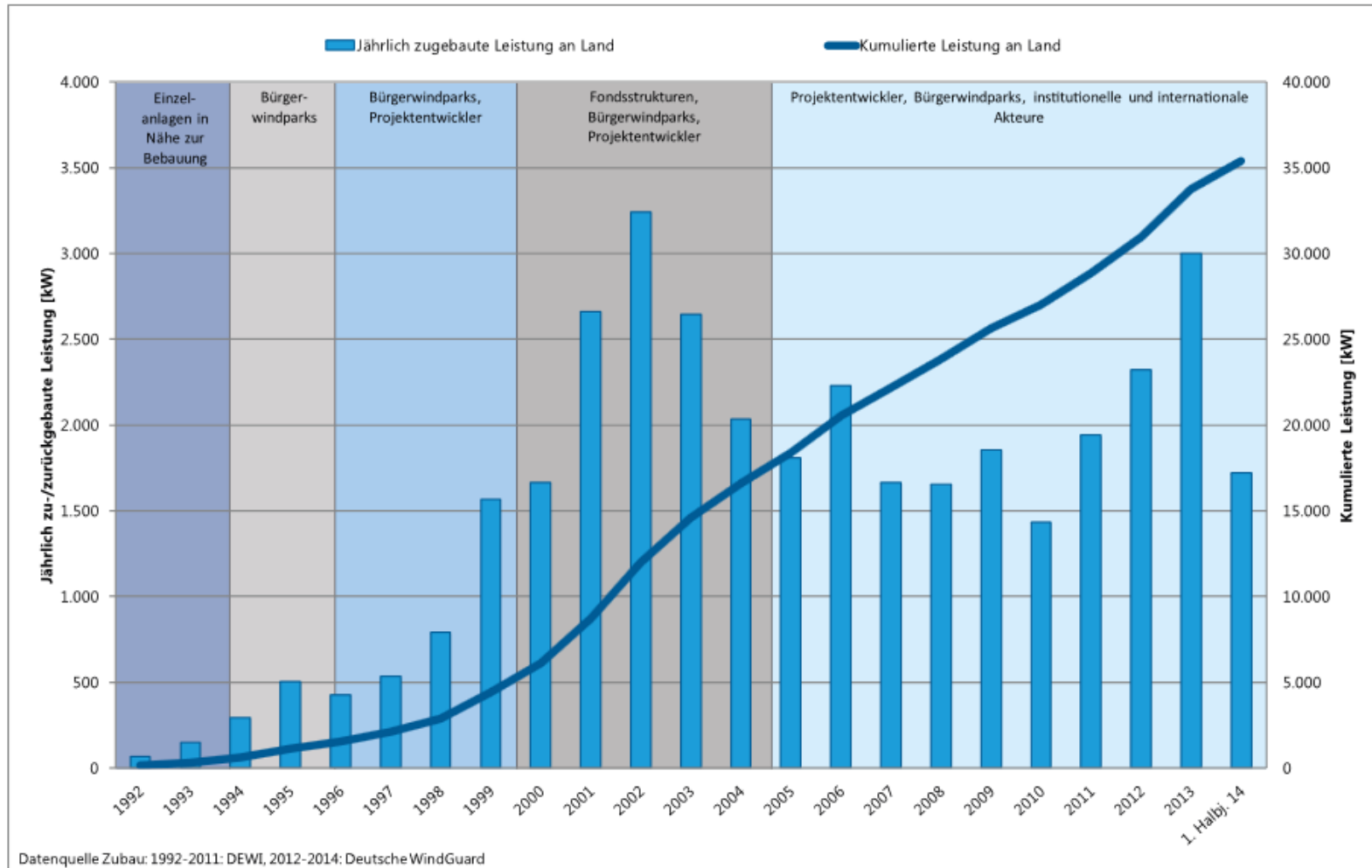


Source: Wieg (2015): Die Entwicklung der Energiegenossenschaften im Spannungsfeld von Energierecht, Finanzmarktregulierung und Genossenschaftsgesetz

Shift of Power to the People

Financial Participation in the Energiewende

Development of ownership structure of onshore wind projects:



Source: BWE/Deutsche WindGuard (2015): Akteursstrukturen von Windenergieprojekten in Deutschland

Shift of Power to the People

Financial Participation in the Energiewende

Ownership structure of RES projects (the role of citizens and cooperatives)

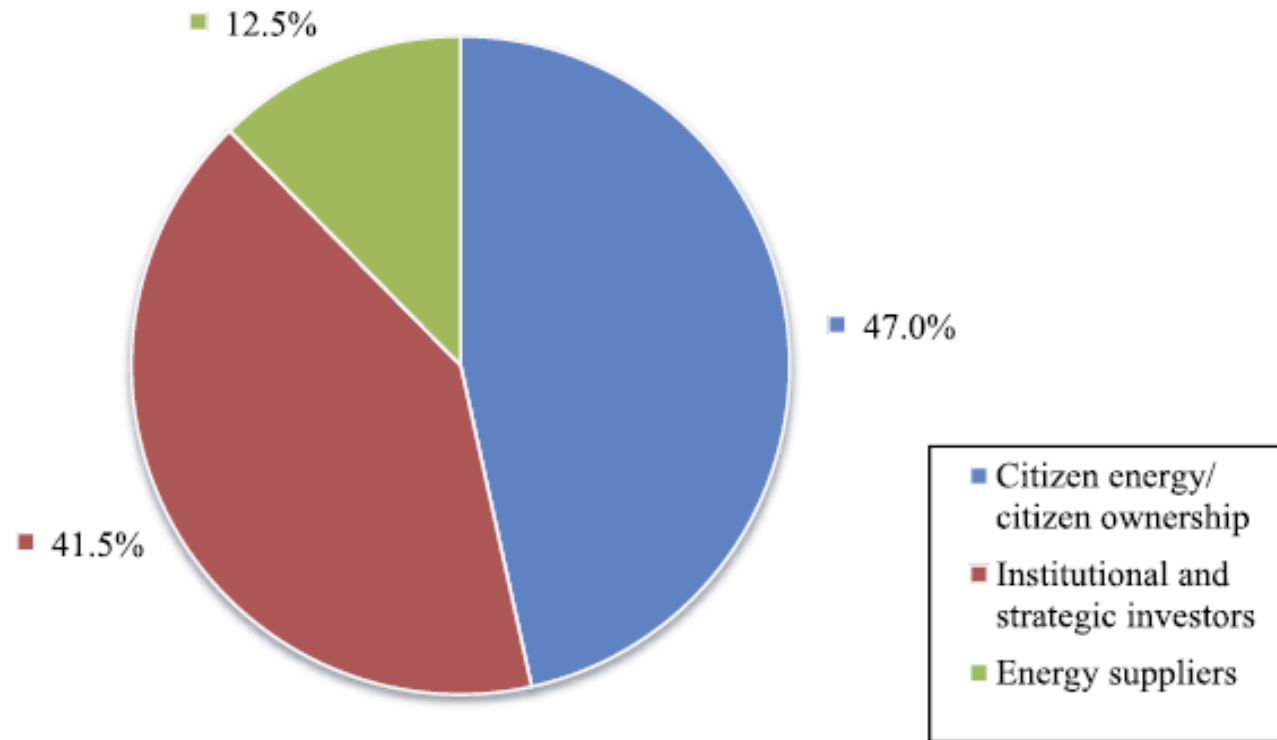


Fig. 1. Ownership shares (in percent) of the total installed renewable energy capacity in Germany in 2012 (data source see Ref. [17]).

Source: Yildiz (2014): Financing renewable energy infrastructures via financial citizen participation: The case of Germany

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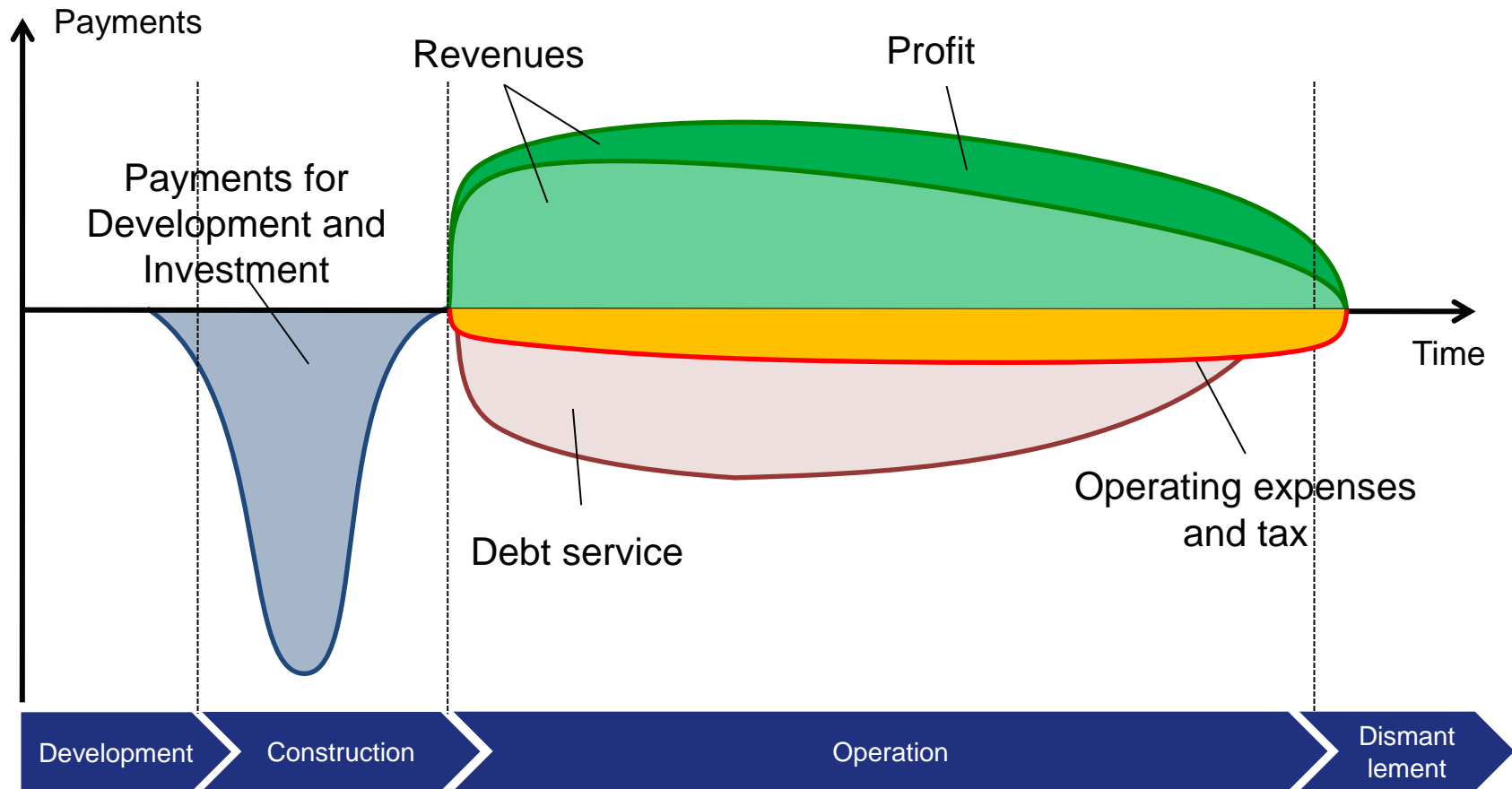
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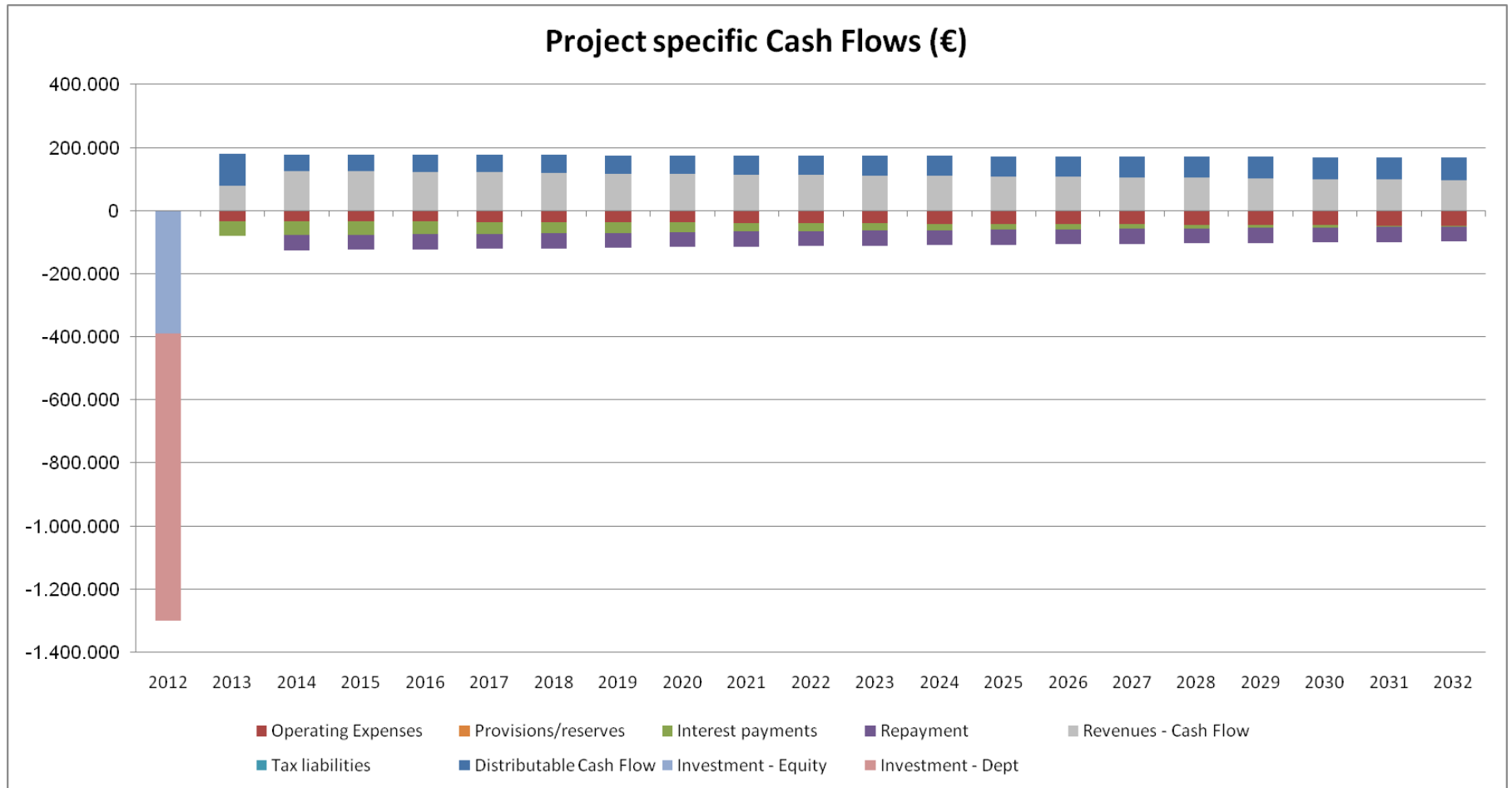
Characteristics of PV and Wind Projects



PV and wind energy: capitalization of fuel costs

Source: Ott (2012)

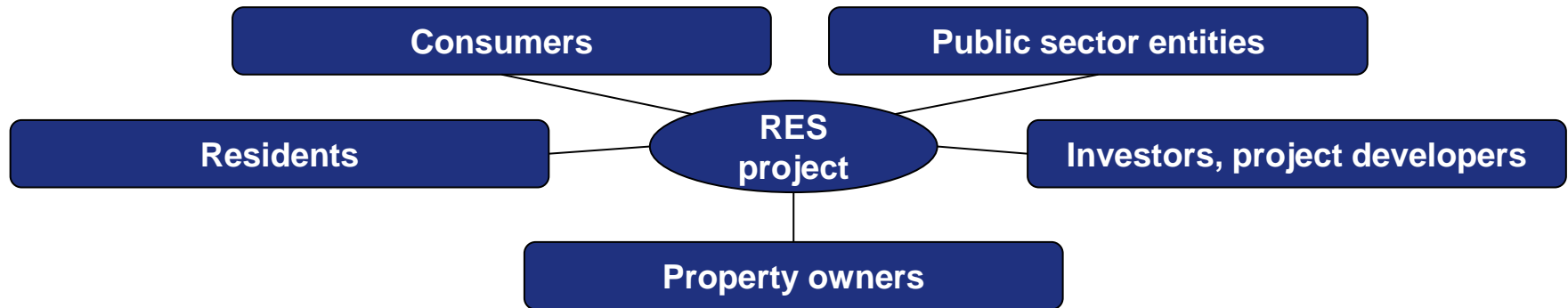
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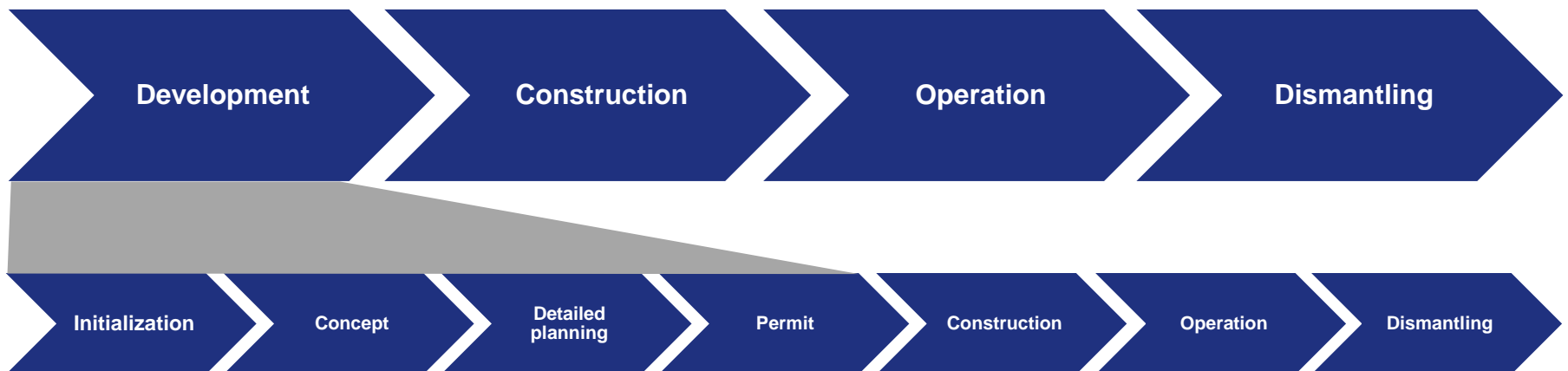
Source: Ott (2012)

Relevant Characteristics of Markets, Transactions and Actors

Stakeholders considered in the analysis:



Overview over the stages of a wind energy project:



Capacity Mechanisms for refinancing RES-projects

Possibilities to refinance investments in RES capacities

- Energy-only market (“EOM”) → Not advisable for intermittent RES capacities
- Capacity mechanisms:
 - Basics:
 - Capacity mechanisms in order to refinance investments in renewable energy capacities and thus reducing production and transaction costs
 - Objective: Reducing production and transaction costs, in particular capital costs
 - Design options:
 - Energy (kWh) or capacity (kW)
 - Full cost-covering or partial cost-covering
 - Special case: quota system/certificates (→ not advisable for intermittent RES)
 - Types: Feed-in tariff (FIT); market premium (FIP; ex ante, ex post)

Current capacity mechanism in Germany for RES

- Modified FIT (sliding market premium) ensuring predictable revenues - with possible excess return
- Auction system for ground-mounted PV installations in place, implementation for wind is being discussed

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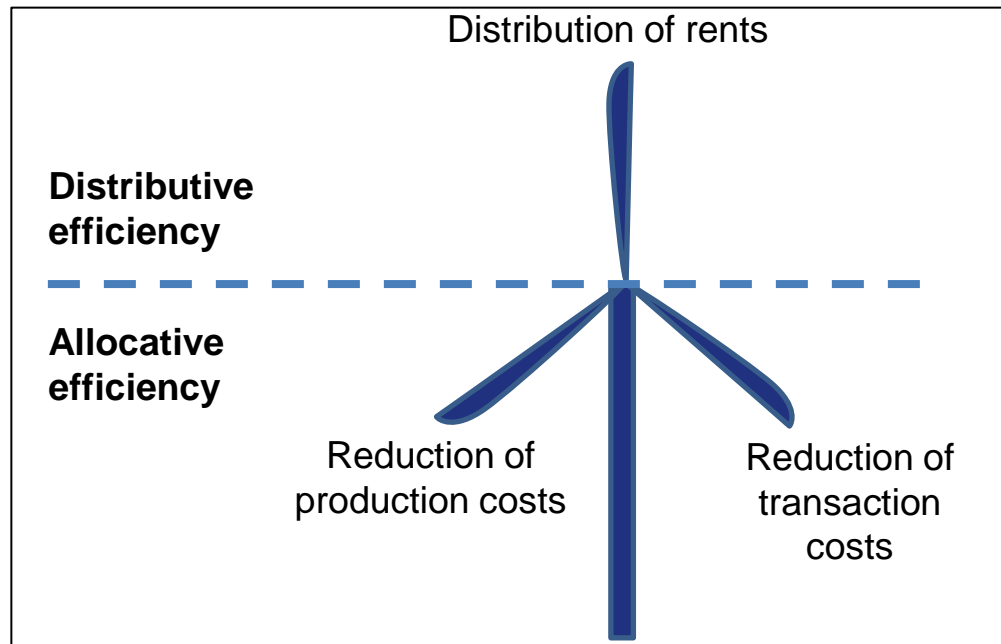
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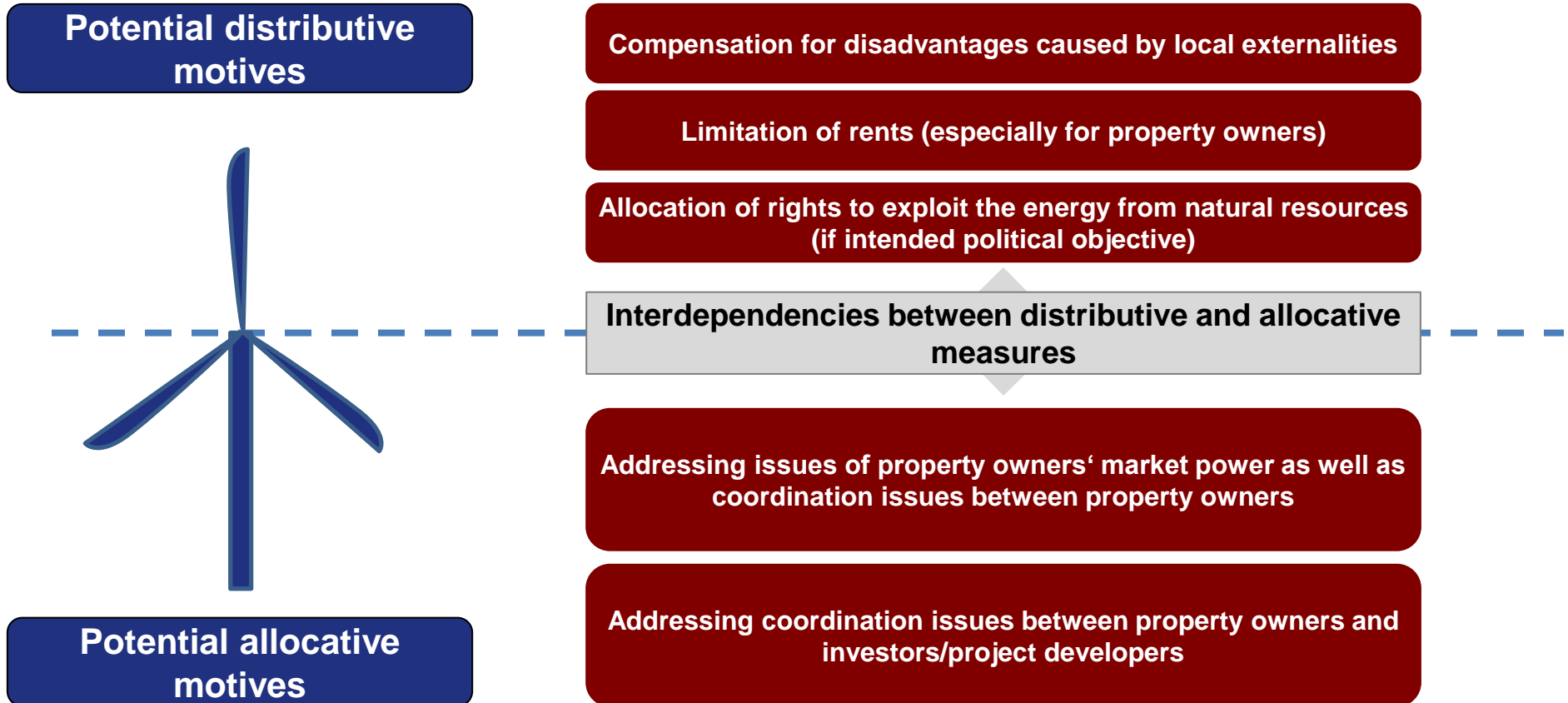
Possible System of Objectives

System of objectives

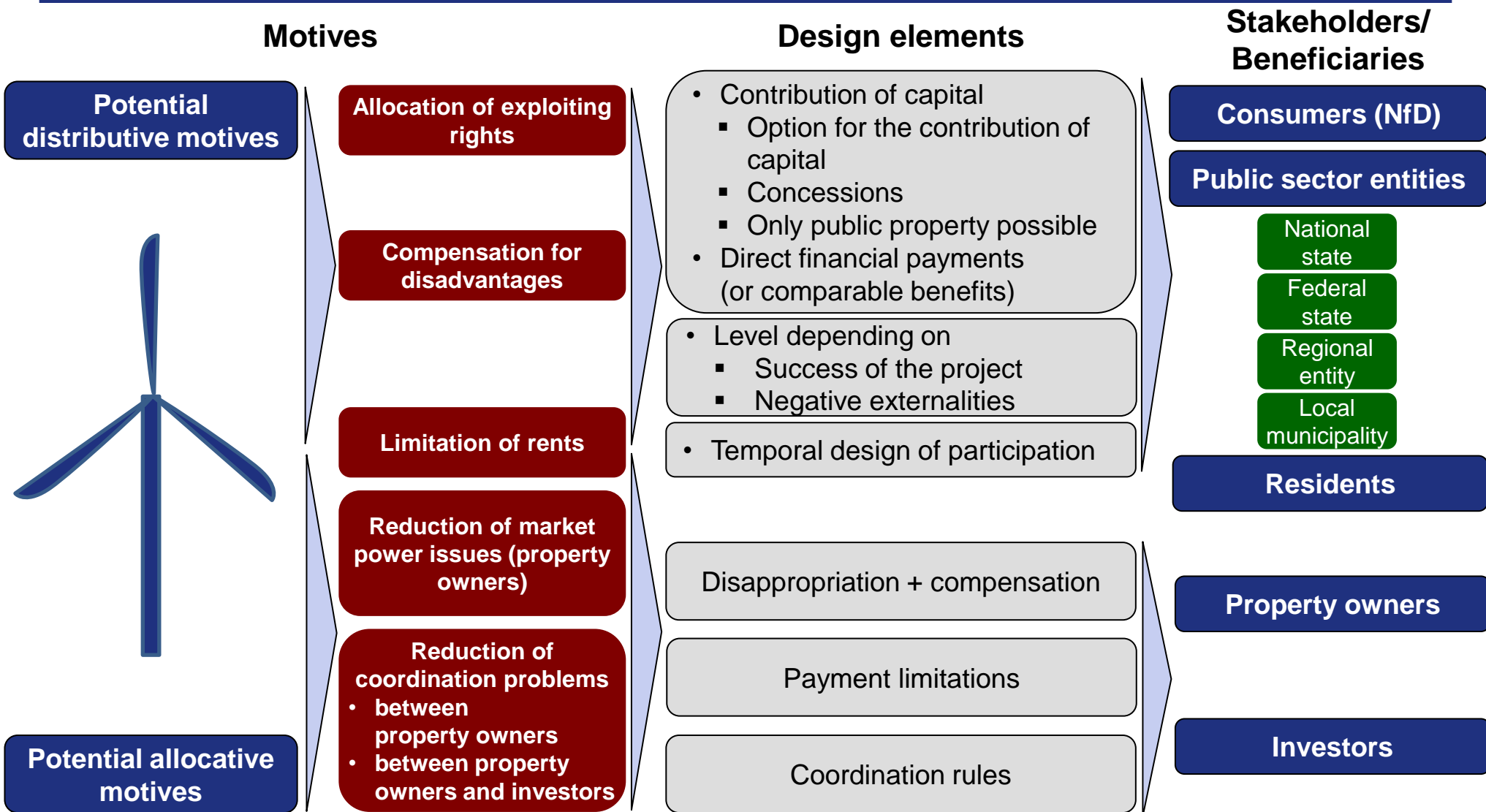
- Effectivity (achievement of RES targets)
 - Cost efficiency
 - Consumer perspective
 - Welfare perspective
- Distributive and allocative dimensions



Motives for Financial Participation

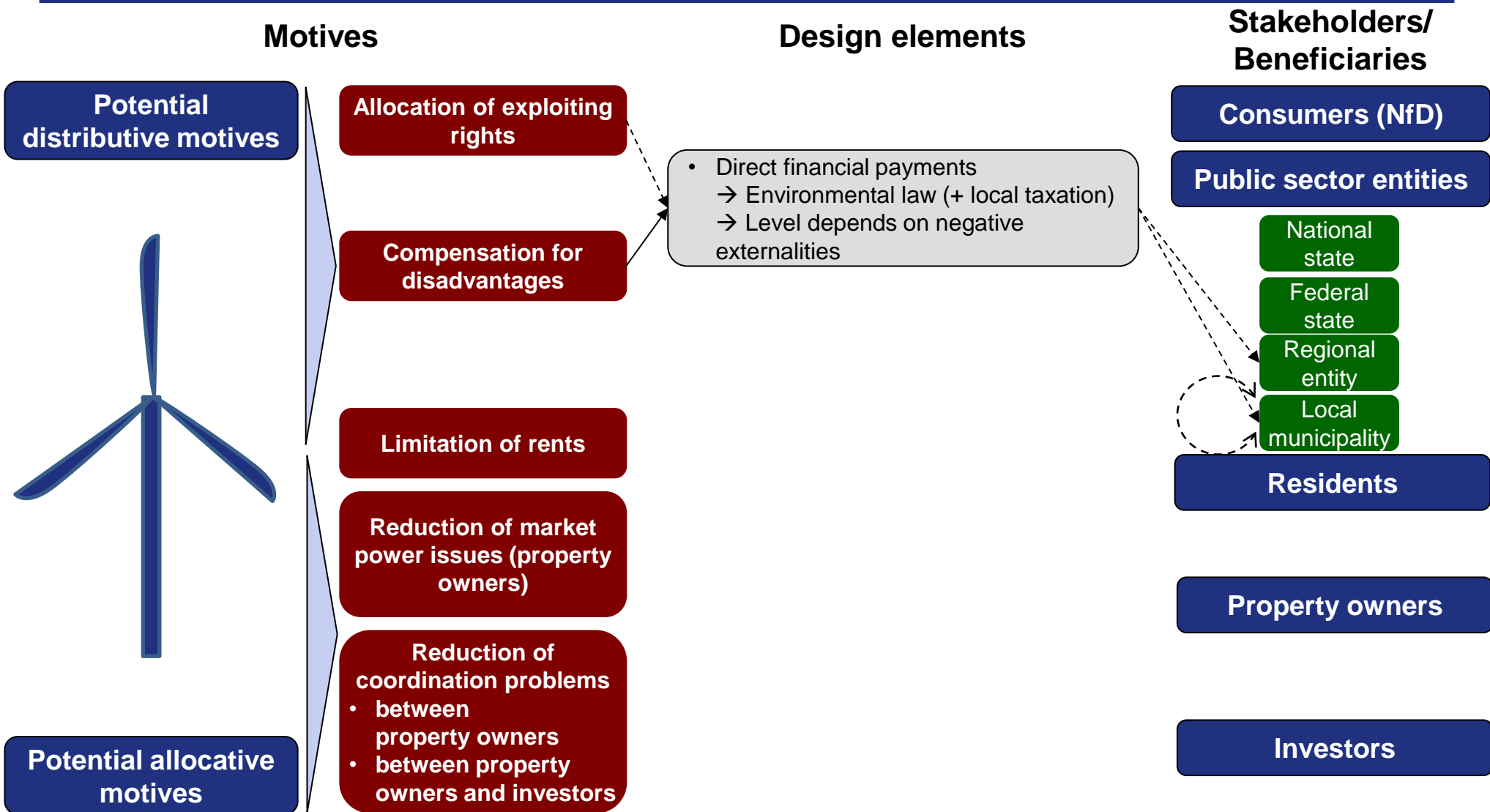


Overview of Motives, Options and Stakeholders



National and International Examples

Mandatory rules for Financial Participation in RES projects in Germany



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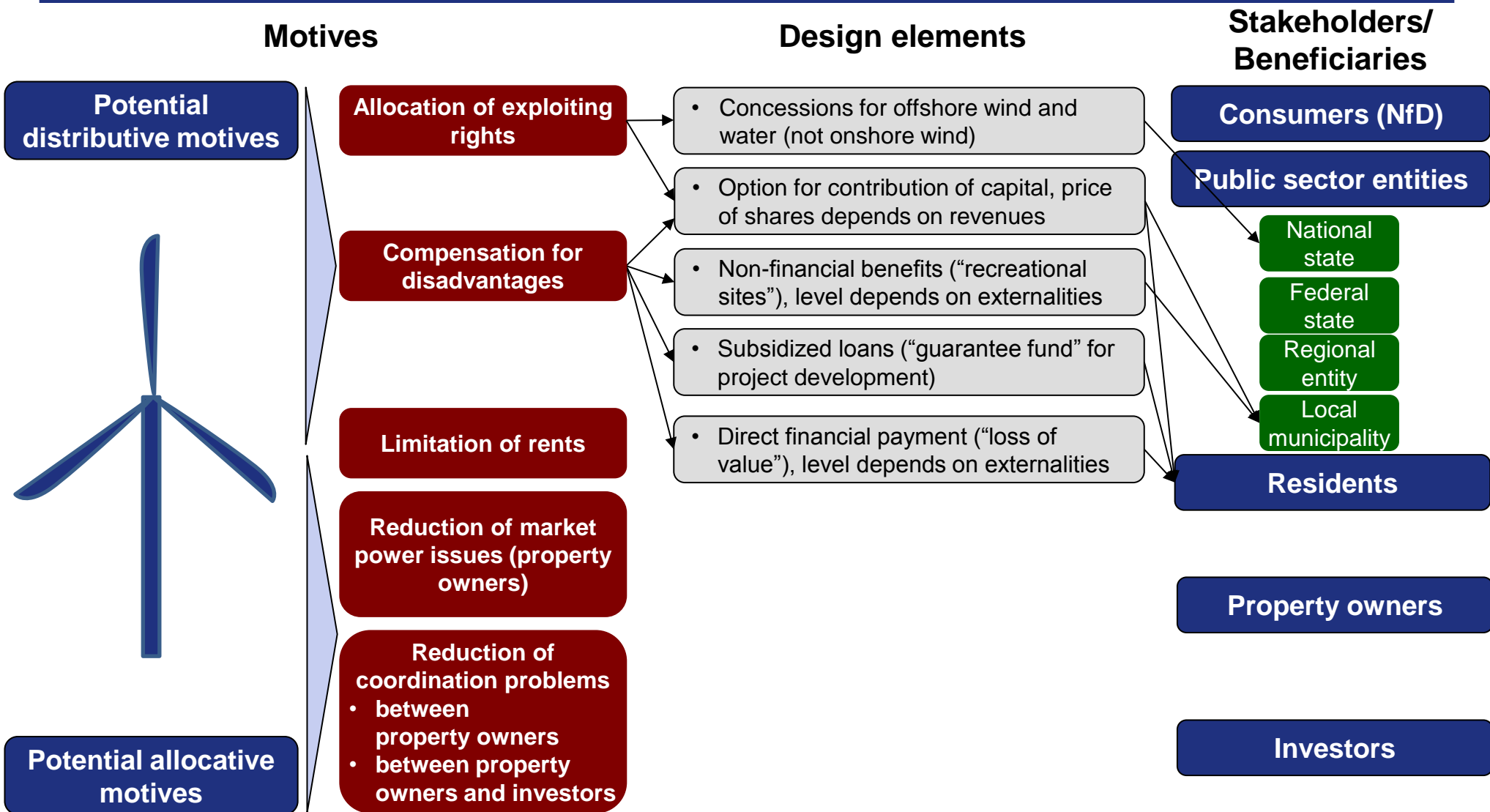
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National and International Examples

Mandatory rules in Danish Renewable Energy Act



- **Explicit objective is to increase the acceptance of WE-plants**
- **Obligation to separate a subcompany for each single project of building or repowering WE-plants**
- **This subcompany is obliged to offer 20% of its shares (max. 500 EUR per share) to residents and local municipalities**
 - System of Rules for the calculation of value for the shares and control mechanisms
 - Discrimination of the shares is prohibited
 - The offer is due directly before the WE-plant is brought into service (3 mo.)
 - Potential buyers: only residents within 5 km distance and the municipality
 - Alternative offers of equity participation are possible (f.e. reduction of power prices)

- **impairment of the guaranteed freedom to exercise a profession (Art. 12 GG: „Berufsfreiheit“)?**
 - 1. extent of protection: every professional practise, which is not socially destructive (+)
 - 2. violation: every action, which affects the professional practise either directly or indirectly with a certain impact (+)
 - 3. justification: reasonable considerations of general well-being (?)
 - As far as polls show, participation of the residents might actually reduce the conflict potential around wind power
 - Weighting of the general profit and the individual impact of the violations

- **impairment of European investors (Art. 63 TFEU: freedom of movement of capital)?**
 - 1. extent of protection: every cross-border investment within the EU (+)
 - 2. violation: every action, which restraints the free movement of capital directly or indirectly, actually or potentially, is prohibited (+)
 - 3. justification: general public`s interest urgent reasons (?)
 - The regulation of land-use is of general public interest
 - Dealing with the resolving conflicts might well be considered as a urgent (social) reason

- **Responsibility of the national legislator?**
 - energy law (Art. 74 Abs. 1 Nr. 11 GG – dual responsibility, national priority): the national legislator did not yet regulate financial participation – on purpose?
- **Responsibility of the federal state legislator?**
 - Federal government: the law aims to solve conflicts in land-use and is thus covered by Art. 74 Abs. 1 Nr. 31 GG („*raumordnerisch bedeutsamer Konfliktausgleich*“)
 - Stated reply: the law does not provide terms for land-use, it provides special terms of how to finance a certain type of land-use (OVG Schleswig, Urt. v. 4.4.2013 1- LB 7/12 in a somewhat similar case)

- **If public acceptance is recognised as a determining factor, reliable procedures to “open up” critical space must be found.**
- **The upcoming law in Mecklenburg–Vorpommern is an attempt to do so and could thus indeed be regarded as a part of the regulation of land-use.**
- **But: With its compensational effect, it might provoke a broad discussion about the need of compensations in connection with other infrastructure projects (airports, highways)**

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Conclusion

- **There exists a potential to reduce overall costs of the deployment of RES projects by implementing instruments for financial participation and coordination rules.**
- **Distribution of rents could be considered as “unfair”. There are many reasons for financial participation of residents and public entities from a distributive perspective.**
- **There are several forms of financial participation and coordination rules with various design features.**
- **The compensation of stakeholders affected by negative externalities might be very difficult due to the question whether to transfer it to other infrastructure projects as well.**

Thank you for your Attention!

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