

The Innovation of Wind Energy in Germany: Interplay of Different Driving Forces

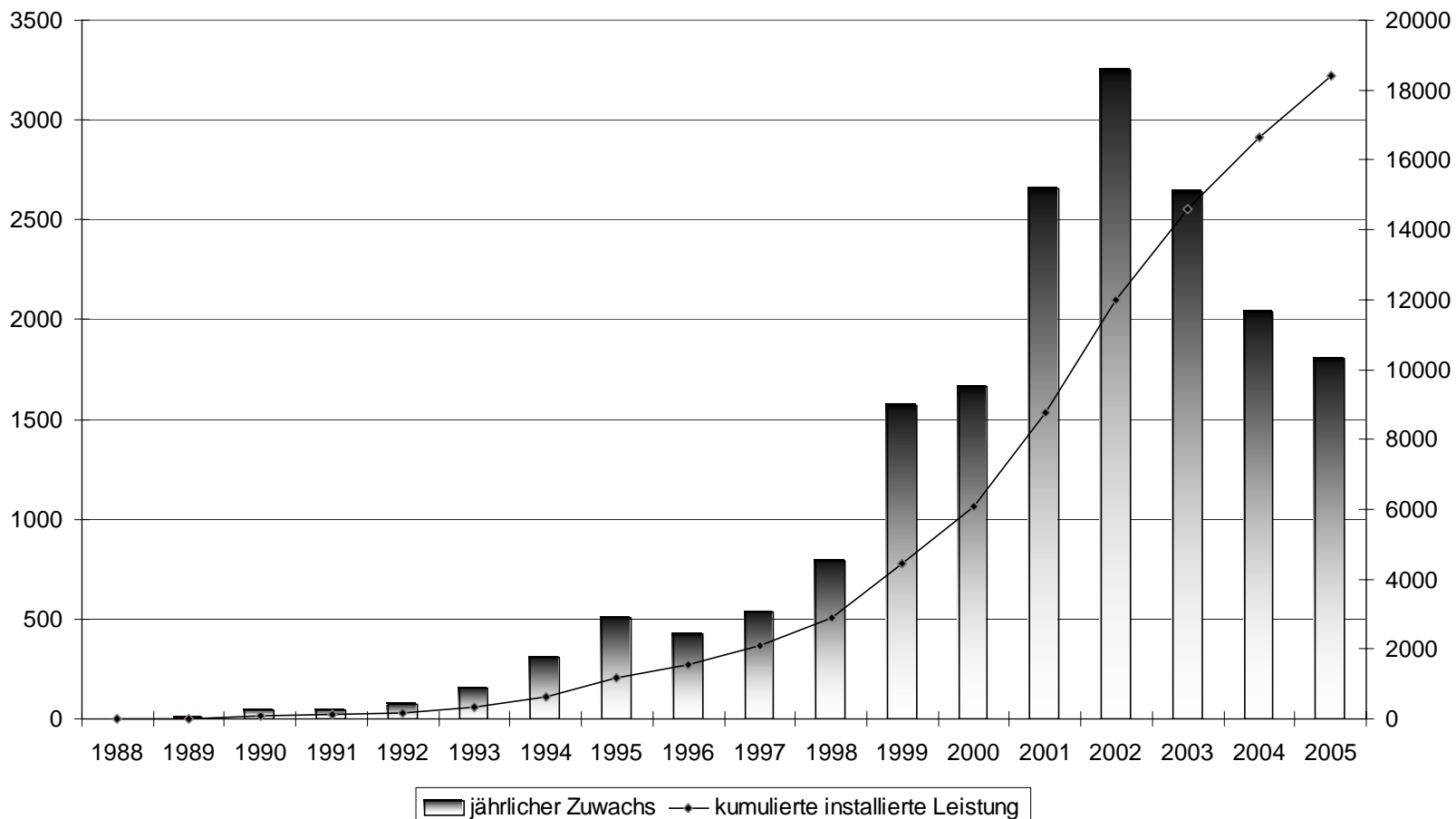
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“Wind Energy in Western and Eastern European Countries – the interaction of driving forces
in the process of innovation“.

University of Technology Berlin, 23./24. November 2006

Development of Wind Power Deployment in Germany

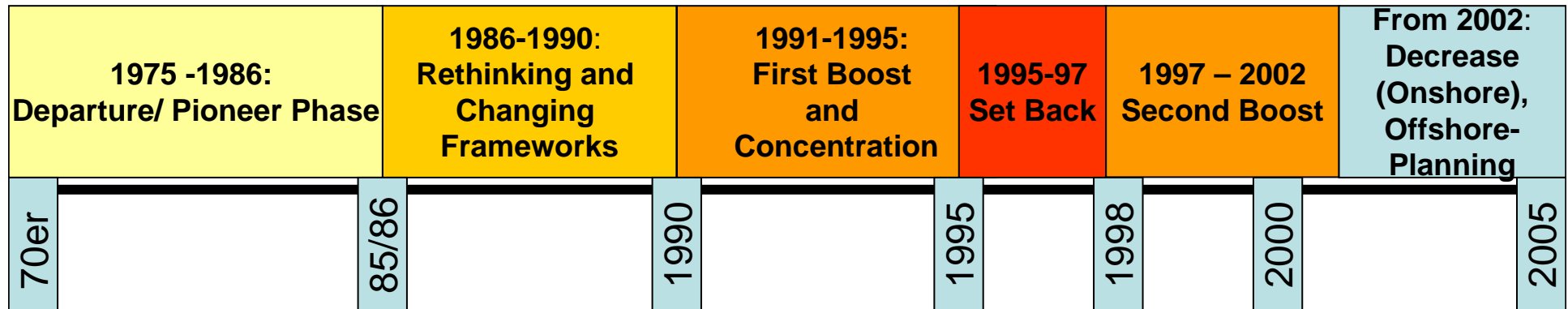


Quelle: Bundesverband Windenergie; der Spiegel 14/2004; BMU Energieindikatoren Deutschland

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Process devided in phases



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Key problems

- What are the pivotal forces in the development? How are they related to one another?
- Which effects have the governmental interventions?
- Is the development process dominated by a (governmental) key actor or through multiple, interacting actors and elements?
- Which meaning have the structure of the constellation, their “principles of operation” and the contextual events for governance?

1975-1986 Departure/ Pioneer Phase

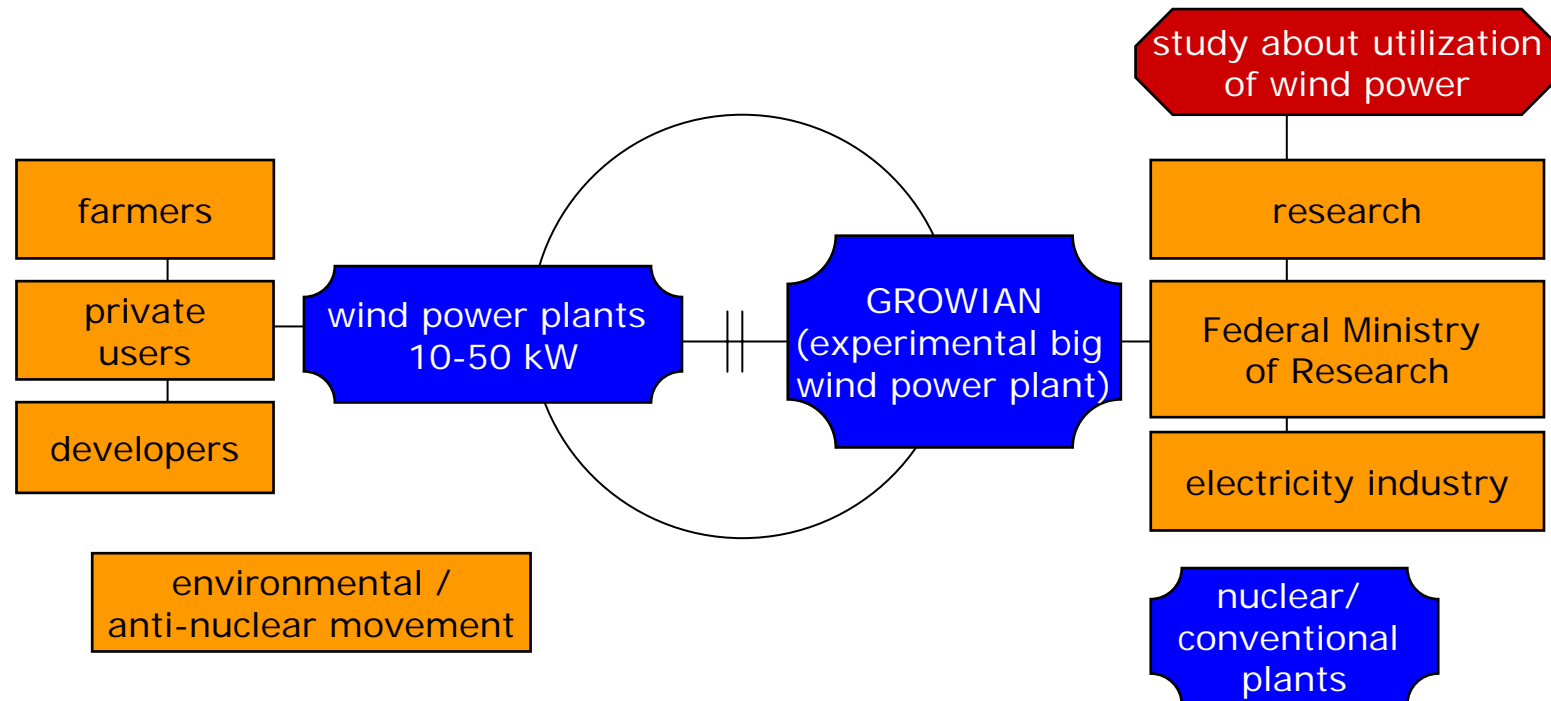
Principle of operation of the niche constellation: concept of an environment-friendly and decentralized energy supply

oil crisis/
rising oil prices

DK and
California

„limits of growth“

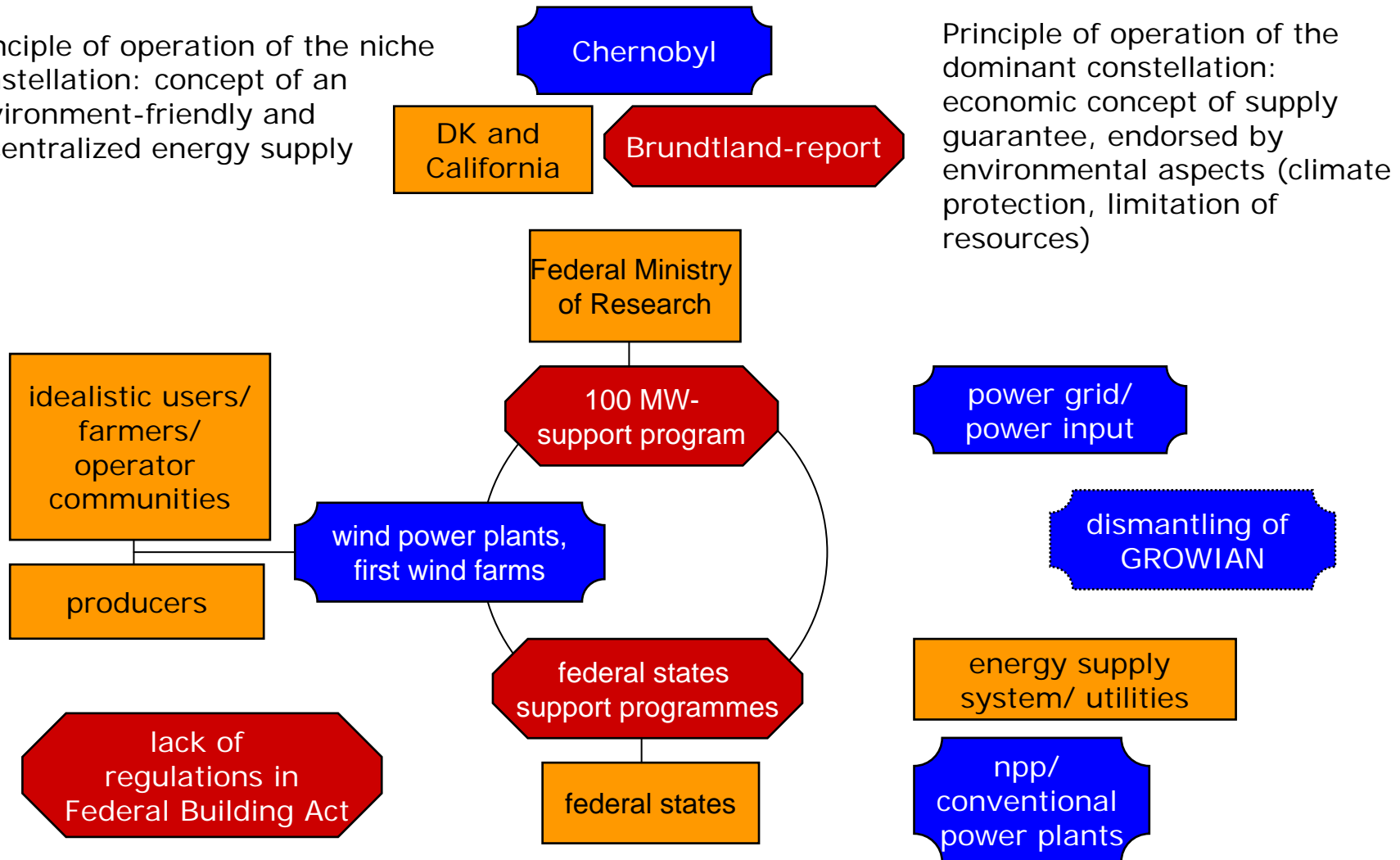
principle of operation of the dominant constellation: economic concept of supply guarantee



The circle symbolizes the core of the constellation.

1986-1990 Rethinking And Changing Frameworks

principle of operation of the niche constellation: concept of an environment-friendly and decentralized energy supply

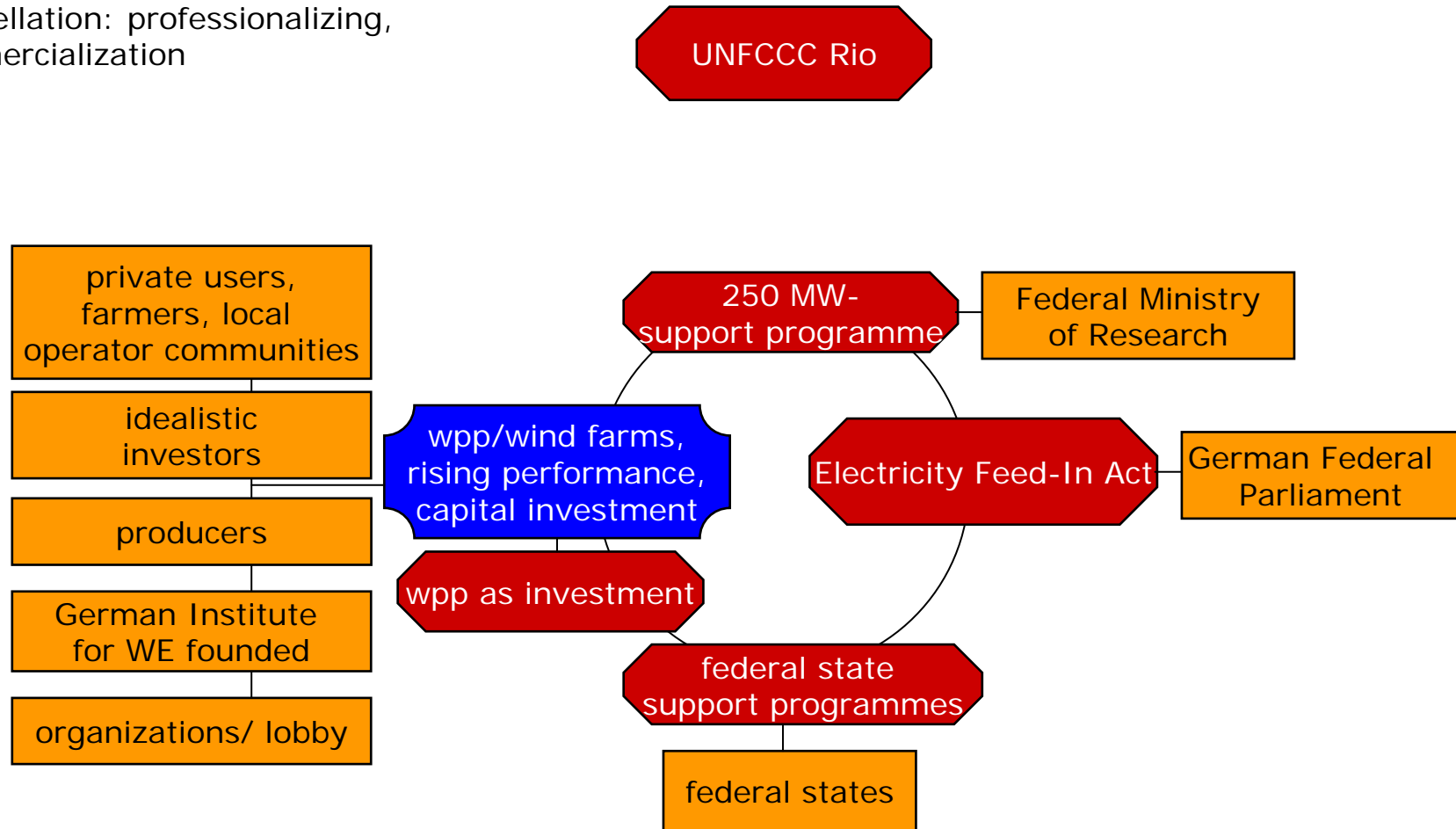


Principle of operation of the dominant constellation: economic concept of supply guarantee, endorsed by environmental aspects (climate protection, limitation of resources)

GROWIAN = experimental big wind power plant

1991-1995 First Boost And Concentration

principle of operation of the niche
constellation: professionalizing,
commercialization

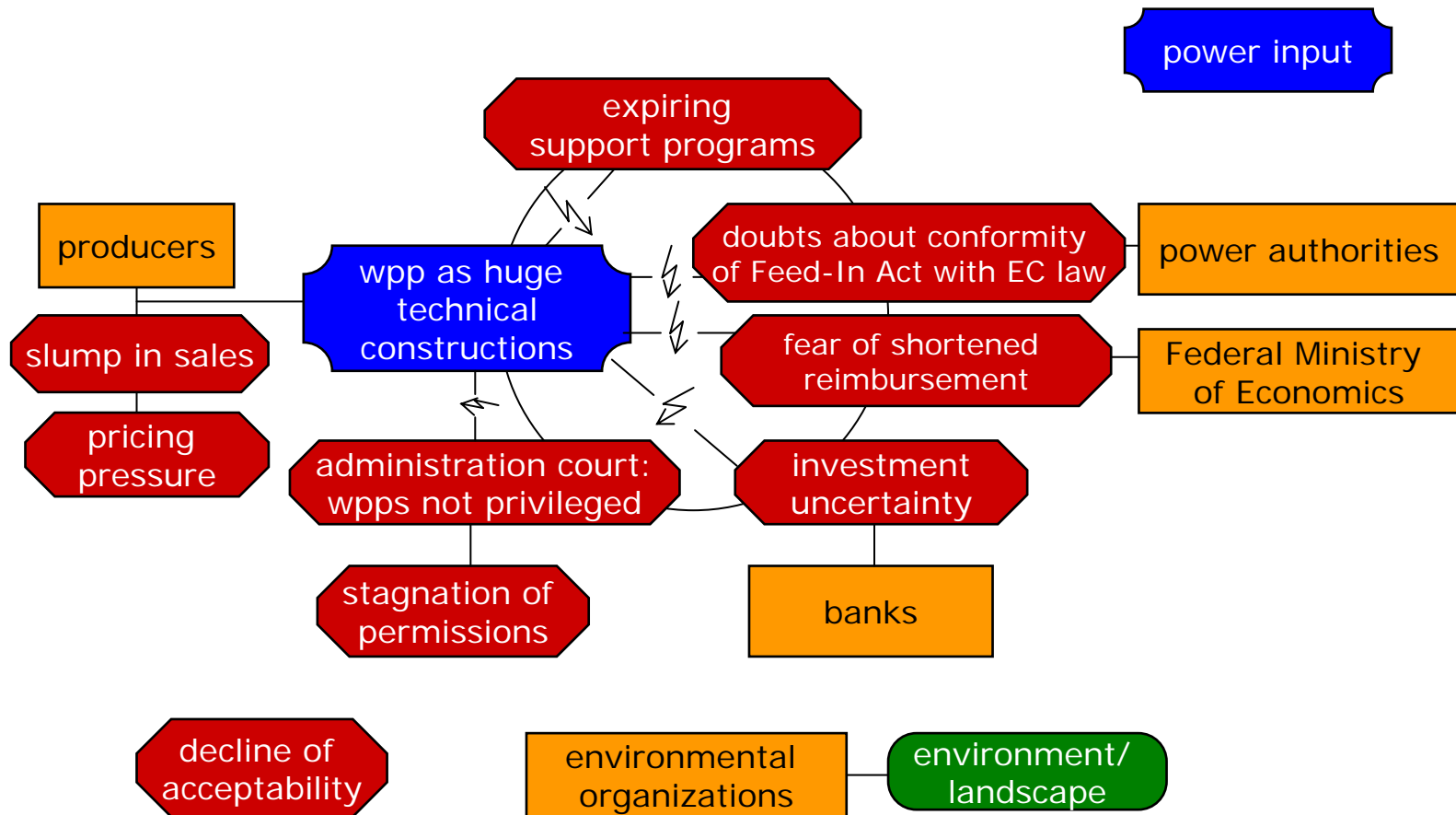


wpp = wind power plant
WE = wind energy

1995 - 1997/98 Set Back

principle of operation of the niche constellation: economic and judicial struggle for survival

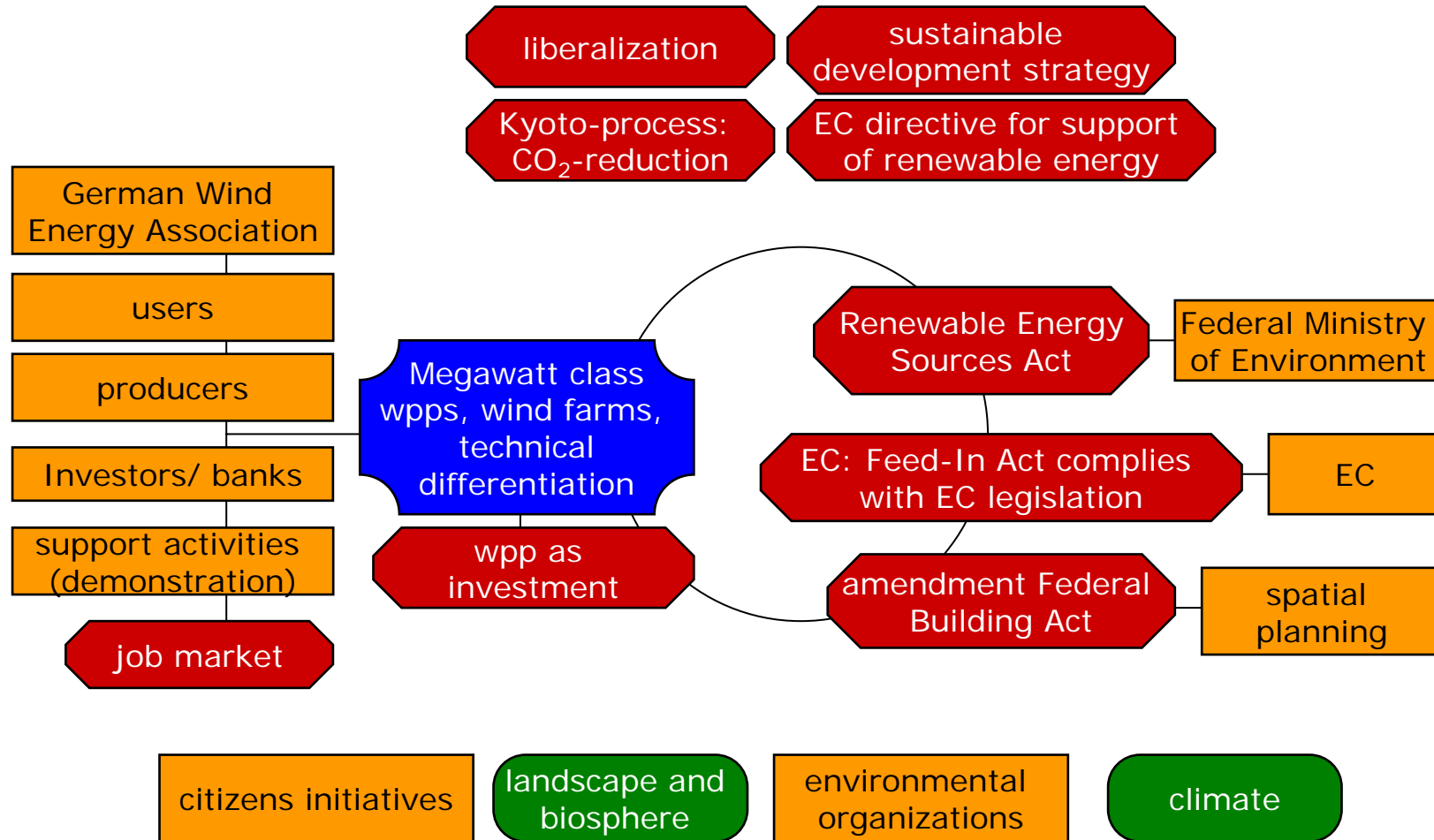
principle of operation of the dominant constellation: economic and judicial slow down



wpp = wind power plant

1997/98 - 2002 Second Boost

emancipated niche constellation:
climate policy through growing wind energy supply

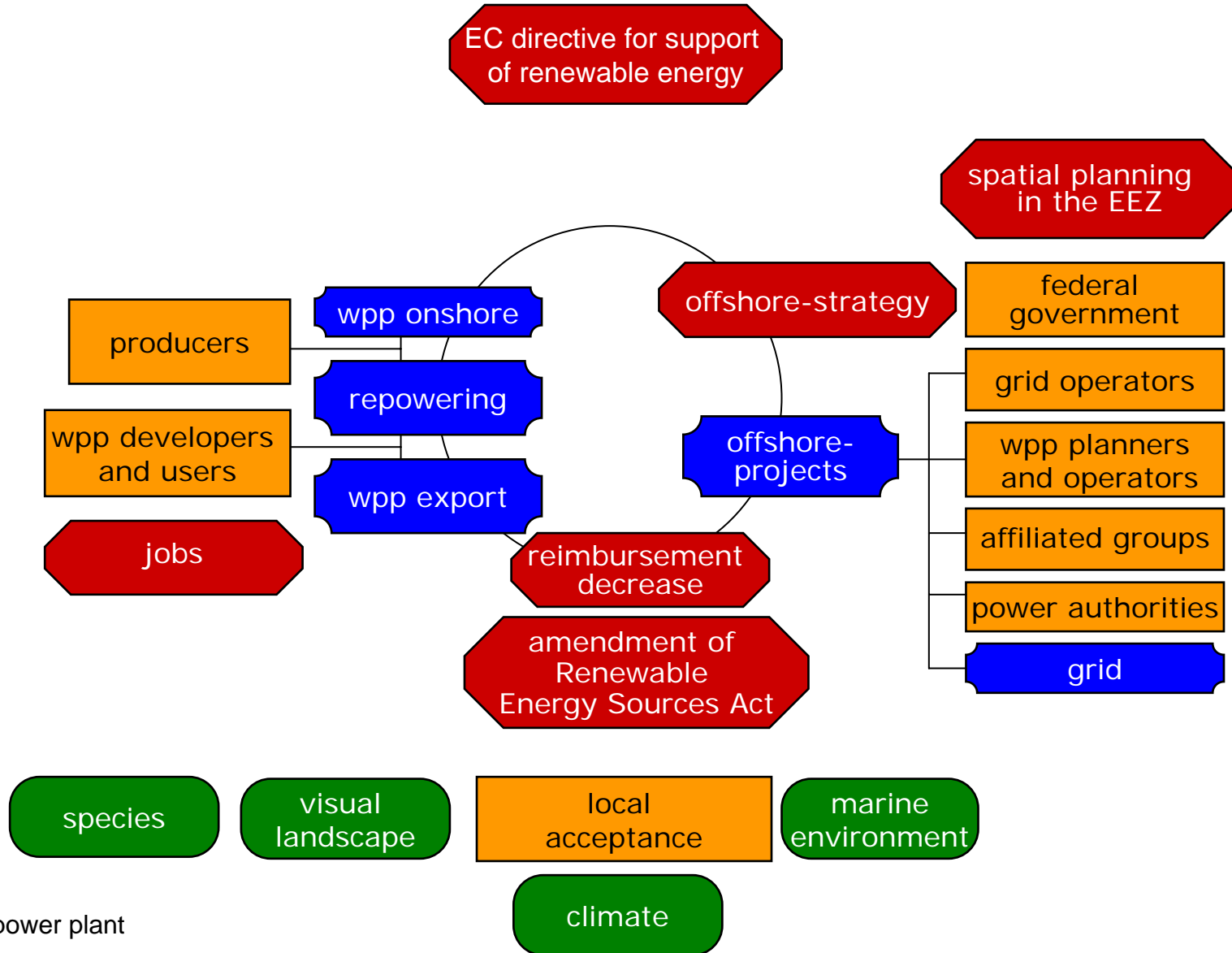


Sub-constellation of heterogeneous wind energy critics

wpp = wind power plant

Since 2002 Decrease (Onshore) and Departure (Offshore-Planning)

wind energy as an economic factor and contribution to the energy supply guarantee



Conclusion



- The effects of governance is evolving in the interplay of the elements.
- The more consistent governmental interventions blend in a constellation the bigger is the possibility of success.
- The more a constellation is supported by context elements, the merrier is the chance of a successful regulation.
- Governance of technical innovations is interdependent with technical development.
- The successful implementation of technical innovation require innovations and continuous modification (corrective action) of governance at multiple levels.

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Thank you for your attention!

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