# German Sustainable Transition: Governance Enablers and Constraints

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New Thinking For Energy





## Summary

- Phase II longer history of action (renewables/R&D)
- Learning (what policies/regulations/infrastructure change at what stage)
- Policy and institutional change: coordination
- Finance: KfW, greater public support
- Greater distributed authority and local differences
- Culture of anti-centralised power/big companies and of municipalities/community (and of angst)
- Growing security, pricing (who pays) and grid concerns
- Market structure and efficiency policy being reworked
- Political recognition that miss emissions target (DS)

### **German Sustainable Energy Transition**

- Renewable growth 18% target on track
- Distributed generation
- Greater efficiency in homes
- 2050 long-term targets: renewables, efficiency and emissions
- Leaders in technological design/production
- New electricity storage facility commercial scale
- Stood up to Big 4 but listening now...
- Start on re-structure of transmission grid to reflect changes
- Phase II and nuclear phase out = focus renewables
- CHP greater size of market

### Less Success...

- Energy intensive industry still supported: pays less for electricity and gas – politically more difficult now
- Demand reduction and DSR not a focus DSR a requirement because of renewable (nuclear) policy
- Wholesale market needs redesign to allow for greater flexibility: looking at capacity and capability market designs (to encourage more DSR)
- Transmission grids
- Less achieved in transport

#### Early Enablers – pre 2000s

- Politics:
  - 1970s oil crises: Germany as importer and interest in renewables and energy efficiency: 1974 key date
  - 1886: Chernobyl
  - Green Party: popular support and political power and organised renewables lobbies: Eurosolar,
  - MPs stood up to incumbent electricity companies (1997)
  - Renewables policy in Environment Ministry
- Policy:
  - Federal Ministry of Research and Tech 1981: 5 year study
  - R&D: technology and policy:
    - 1977-1989: 18 universities, 39 firms and 12 research institutes received federal funding; 1983-1991: 14 Germany suppliers of turbines received funding for 124 turbines

#### Early Enablers – pre 2000s

- Policy cont...
  - Risk free FiT (Ministry Economic Affairs: objected) incumbents not to receive FiT = distributed generation
  - Priority access to grid and pay rate = 90% of cost passed on
  - Further Länder subsidies varied
  - 100/250MW programme
  - 100,000 roofs programme (1999) low interest loans
  - 2000: Renewable Energy Sources Act (rates guaranteed 20 yrs)
- Organisations:
  - KfW bank: finance for home efficiencies and technological development
  - Advocacy coalitions: universities, new/small firms, research institutes, green movement/NGOs: coordination
  - Idea for the FiT developed by research institute Förderverein Solarenergie (a cost covering payment)

#### **Current Enablers – 2000s**

#### • Politics:

- New political constituencies:
  - Those employed in renewable and construction/efficiency industries (800,000 workers construction/efficiency; 370,000 renewables versus auto industry at 700,000);
  - Users as producers in distributed generation
  - Universities; institutes...
- Solar, wind, construction companies as a strong lobby
- Distributed generation distributed interests
- Policy: transmission grid adaption to renewables/new sources
- Organisations:
  - Accumulation of learning (policy and technical)
  - New business models in non-incumbent energy markets
  - Organised, knowledgable lobbies with greater influence

#### **Current Enablers of Transformation**

- New Markets:
  - Germany both producers and user of new technologies (boosts economic argument for support)
  - Flexible supply is causing change to wholesale markets now look to make **demand** more flexible/reduce peak
  - ESCOs in some areas in large numbers, make money out of efficiency and renewables
  - Choice for consumers in gas and elec supply
  - Nuclear phase out simplifies choices (trans/distrib)
  - Solar and wind costs falling less FiT required (cheaper than nuclear)

### **Obstacles**

- Objections to power lines (grid North to South)
- Renewable policy now in Economics Ministry:
  - Historically main supporter of incumbent utilities
  - Focused on economics/competition
  - More 'market oriented'
- Coal usage up in 2012-3 but less now
- Emissions up 2012-3
- Reduced FiT but priority access remains and technology costs have reduced