Renewables: The Politics of a Global Energy Transition

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Renewable Energy Pessimism

“Other renewables ... are expected to be the fastest growing primary energy sources. Despite this rapid growth, the share of renewables climbs to only 3% by 2020 from the current 2%. Power generation in the OECD countries accounts for most of this increase.”

— World Energy Outlook 2000
Motivation

- Climate negotiations: gridlock
- Overcoming carbon lock-in
- Promoting sustainable energy technologies
- Domestic-international interactions
Theory

1. External Shock
   - Response by forerunners
   - No Response (France)

2. Politicization
   - 3. Lock-In (Germany, Denmark)
   - Decline, Stagnation (United States)
   - Rest of the world (China, etc.)
1. International Shocks

Sudden change in the relative costs and benefits of traditional energy sources

- Carbon lock-in (Unruh 2000)
- Window of opportunity for experimental renewable energy policy
- No political opposition due to limited stakes
- Response depends on domestic pre-conditions:
  - Denmark, United States, Germany
  - France, Finland, United Kingdom
2. Politicization

The process whereby the arguments in favor of renewable energy policies become contested and renewables became the object of a divide between opponents and supporters.

- Sustain pro-renewable consensus?
- Contesting renewables due to rising costs and challenge to establish interests
- Supporters and opponents of renewables in conflict
- Outcome depends on domestic conditions:
  - Denmark, Germany
  - United States
Determinants of Opposition

1. Waning of initial shock, effectiveness of initial policy (+)

2. Partisan shifts to the right, weak green parties (+)

3. Politically influential heavy industry, fossil fuel producers (+)

4. Public concern about nuclear power and climate change (-)

5. Politically influential clean technology industry, environmental groups (-)
3. Lock-In

- Rapid spread of renewable energy across boundaries:
  - Investment
  - Policy

- Diversity of countries:
  - Portugal, Spain
  - United States, United Kingdom
  - China, India, Brazil
  - Kenya, Thailand
Renewables in the United States: Early Years

“The energy crisis has not yet overwhelmed us, but it will if we do not act quickly ... Because we are now running out of gas and oil, we must prepare quickly for a third change, to strict conservation and to the use of coal and permanent renewable energy sources, like solar power.”

— President Jimmy Carter, 1977-04-18
Renewables in the United States: Early Years
## Renewables in the United States: Politicization

<p>| Year | Issue                                                                        | Vote Gap |
|------|                                                                             |          |
| 1973 | Creation of Energy R&amp;D Administration (yes)                                 | -8       |
| 1974 | Increase spending for solar demonstration project (yes)                      | 5        |
| 1976 | Amendment to remove funding for solar (no)                                   | 31       |
| 1979 | Motion to increase funding for wind energy (yes)                             | 9        |
| 1980 | Amendment to increase funding for solar energy (yes)                         | 17       |
| 1981 | Amendment to increase funding for solar R&amp;D (yes)                            | 67       |
| 1983 | Disapprove Reagan deletion of money for solar (yes)                          | 55       |
| 1984 | Amendment to move money from nuclear to solar (yes)                          | 37       |
| 1992 | Motion to kill effort to require alternative fuels (no)                      | 40       |
| 1994 | Motion to table shift from nuclear to renewables (no)                        | 51       |
| 1996 | Amendment to restore money for renewables (yes)                              | 40       |
| 2002 | Amendment to require 20% renewables by 2020 (yes)                            | 37       |
| 2007 | Renewable Fuels, Consumer Protection Act of 2007 (yes)                       | 44       |</p>
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Renewables in the United States: Politicization

- Reagan’s conservative energy policy, nuclear notwithstanding
- Beginning 1989, strong heavy industry and fossil fuel lobby
- Weak clean technology lobby (access and resources)
- Lackluster public opinion, especially in regard to climate change
Renewables the United States: Early Years
Renewables in the United States: Toward Lock-In?
Renewable Energy for China

- 2016: 25% of electricity generation capacity in renewables
  - 5% solar, wind
  - Wind alone more important than nuclear now
- World’s leading solar panel manufacturer, major wind turbine producer

Key challenges: cost and grid penetration
- Technical performance of solar, wind installations still below OECD countries
- Intermittency: need grid improvement, agile policy and regulation
- Policy should shift from rapid expansion to cost containment, quality control
- On production side, gradual subsidy reduction beneficial
Renewable Energy for India

- 2014: 16% of electricity generation capacity in renewables
  - 5% solar, wind
  - Wind alone more important than nuclear now
- Target: 175 GW of renewable power capacity by 2022
- Key challenges: finances and grid penetration
  - Financing for renewables remains a serious challenge
  - Intermittency: need grid improvement, agile policy and regulation
  - Uncertainties concerning taxation, import duties
Conclusion

- A political history of renewable energy
- Understanding sustainable energy transitions
- Improving national policy and promoting international cooperation