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Economics and Policy in Transition Phases

Adoption and sustainability

- There is a fairly widespread view that the fundamental problem for sustainability is to encourage adoption of available renewable energy technologies

Adoption and diffusion economics

- Adoption occurs:

(a) when the fixed and variable costs of the new technology are lower than the variable costs of the current technology

(b) At the end of the replacement cycle, when total costs are lower

- Diffusion occurs:

(a) When a technology is superior, and when information spreads or adoptee characteristics change

Slow diffusion

- Even where an innovation is ultimately superior it can diffuse slowly because it requires post-innovation improvements (very often a long sequence of changes)

System transitions

- Recent theory stresses system transitions often in the presence of lock-in and path dependence.
- Does not deny the economic dimensions, but looks at the complex of changes that secure economic viability
- These include changes in infrastructure, training, complementary assets and regulatory frameworks.

States and system transitions

State action has played significant roles in many system transitions:

Rail – compulsory purchase of land, massive city reconfigurations

Automobiles – highways, regulatory systems

Generally – creation of networks and infrastructures, management of risk (reduction, allocation, sharing, bearing)

Governance

Why are states so often involved?

States are unique in governance systems because they can compel compliance.

Within system transitions there are domains of state action that need more detailed work – not just in development of technologies but in procurement, regulation etc.