

Policy Brief: Policy Mix for Sustainable Energy Transition - Case in China (1981-2020)

Highlights

- China has implemented a diverse and evolving policy mix to transition to sustainable energy between 1981 and 2020.
- Key strategies include reducing CO₂ emissions, controlling air pollution, and promoting renewable energy technologies.
- Lessons from China's experience include enhancing transparency, diversifying policy instruments, and redesigning approaches to address emerging challenges.

Summary

China, the world's largest carbon emitter, has embarked on an ambitious energy transition to achieve carbon neutrality by 2060. Over four decades, the country has developed a dynamic mix of policy instruments tailored to its evolving energy challenges. The adoption of innovative tools, such as the Emission Trading System (ETS), and the recalibration of policy designs through Five-Year Plans (FYPs), have been critical. Despite successes, challenges remain, such as inadequate transparency and ecological impacts from renewable energy infrastructure. Policymakers in China and other nations can draw valuable lessons to support similar transitions.

What's the issue?

Energy-related carbon dioxide emissions remain critically high, threatening global efforts to mitigate climate change. China's coal-dominated energy system has posed significant barriers to reducing emissions while meeting rising energy demands. Transitioning to renewable energy sources is imperative to address these challenges.

Why is this important?

China accounts for 40% of global renewable energy capacity expansion and is crucial to global climate mitigation efforts. The success of China's energy transition provides a roadmap for other developing nations facing similar challenges. Moreover, achieving carbon neutrality will play a pivotal role in limiting global temperature increases to 1.5°C above pre-industrial levels, as per the Paris Agreement.

What should the policymakers do?

1. **Enhance Transparency:** Strengthen mandatory information disclosure on emissions to bridge gaps between polluting firms, governments, and consumers. Improved transparency will increase the effectiveness of instruments like ETS.
2. **Diversify Policy Instruments:** Adopt a mix of command-and-control measures, market mechanisms, and subsidies tailored to specific stages of the transition.

3. **Sequence Instruments Strategically:** Incremental changes achieved long-term energy transition goals by relaxing barriers and building up the supporting coalition.
 - a. First, environmental stringency needs to be ratcheted up (e.g. gradually tightening emission limits) to make coal-based energy technology face increased costs.
 - b. Second, gradually decreasing policy intensity on subsidising renewable energy technologies (e.g. reducing rates of FITs) lowers government cost and expenditure.
 - c. Third, supporting low carbon technologies before kicking off an ETS will enhance the implementation effectiveness of the latter by building up related interest groups.
4. **Redesign Policies for Emerging Issues:** Regularly recalibrate policy instruments in response to new challenges, leveraging FYPs to address technological advancements and unintended consequences.
5. **Address Broader Concerns:** Tackle socio-technical and environmental impacts, such as those from hydropower projects and electricity infrastructure, to sustain long-term energy transitions.

By adopting these strategies, policymakers can accelerate the shift to renewable energy, mitigate climate change, and ensure a sustainable future.

Citation

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