## No point pursuing coal over renewables

From Paris Agreement to International Solar Alliance, India sends a reassuring signal to the global community of its commitment to increasing the share of non-fossil fuel energy, particularly through greater use of renewables—solar and wind—in its power-generation capacity.

Yet, India's Economic Survey 2016-17 dampens hopes about the role of this renewable energy in resolving India's energy deficit. Estimating social costs of coal- and renewables-based power on undisclosed assumptions and calculations, the survey reports that renewables' cost at Rs11/kWh (kilowatt-hour) is three times higher than that of coal in 2017. Further, it predicts a decline in renewables' social cost as well as the gap between renewables' and coal's social costs. The survey concludes that renewable energy investments are crucial but emphasizes that meeting India's socioeconomic developmental goals also means tapping non-renewable cleaner energy sources.

In a lecture at The Energy and Resources Institute (TERI), Arvind Subramanian, chief economic adviser (CEA) to the government of India, takes the last point a step further. He argues that in the narrow window before renewables' costs decline to the level of coal, India should maximize the use of the black resource, focusing on accelerating coal expansion. While renewables may be the future, he contends that so-called "clean" coal will and should remain India's primary source of energy. Slamming advanced countries for "carbon imperialism", he calls upon the world to form a global green and clean coal coalition.

Subramanian raises important questions. However, his arguments supplementing the survey's black box calculations are superficial in economic reasoning, biased in supporting the case of coal against renewables. Consequently, policy recommendations are vague and exaggerated, and the government should exercise caution before adopting them.

For instance, the government should exercise caution when being advised to expand coal in the "narrow window" before renewables become cost-effective. Assuming that with increasing carbon concerns, coal costs increase over time, the narrow window where coal would be cost-effective would have to end in the late 2020s, by when Economic Survey numbers for mean renewables costs would have fallen below coal costs. However, coal plants tend to keep running for many decades. Hence investing in them in the 2020s would lock India into the wrong technology for the foreseeable future.

Moreover, new coal power plants and mines not only entail a long-term economic lock-in to coal, but also a logistical and political lock-in of the entire grid system and market policies—a complex system that can only slowly evolve. Therefore, CEA's advice further locks India into coal, only exacerbating India's worry of unaffordable coal closure costs. Coal expansion—upgrading existing or building new—is a doubtful prescription.

The government should be careful of the suggestion that coal be maintained as a measure of economic redistribution, helping poorer states. Resource curse makes it highly doubtful whether higher coal endowments at all improve development in areas with the weakest political institutions dealing with coal revenue redistribution and pollution issues. Undeniably, coal is on the very top of polluting businesses and allegedly associated with corruption at all political levels. Consideration should be given to alternative policies helping inter-regional economic redistribution before sustaining coal for this cause. For example, decentralized renewables technologies could have better redistributional impact than king coal, which is more likely to cause deadly diseases than healthy redistribution.

On the one hand, it is being suggested that the government reduce support for renewables to avoid what Subramanian calls a "double whammy", while on the other, the government is being advised to invest heavily into developing clean coal technologies to render coal less polluting. A "double whammy" for the government is particularly associated with clean coal. First, transitioning to clean coal still leads to irrecoverable sunk costs of existing coal assets. Second, it would be very costly. In the CEA's own words, developing reasonably clean coal technology would be an endeavour akin to the "Manhattan Project" that produced the first nuclear bomb. Given the colossal scale of the physical challenges of cleaning coal, the comparison has its point. It is ignored that for the Manhattan Project there was a clear target and known physics ready to be exploited to solve what seemed the single most urgent problem to secure liberty of an entire hemisphere against another. The effort suggested for cleaning coal, on the other hand, is for an unknown, limited gain in the use of an outdated technology—a desperate attempt to keep a to-be-overcome technology alive as newer and cleaner alternatives rapidly mature.

The government should exercise caution when William Nordhaus' social costs of carbon estimates are employed. Such estimates are controversial, stemming from highly stylized models with strong assumptions, not necessarily paying careful attention to individual regions' particular situations, using discount rates that may place too low a weight on damages that occur in the future.

India should be wary of superficial economic arguments that can undermine global harmony and collaboration, especially when all parties already have their own opportunistic biases. Putting all bets on yet-to-be-invented clean coal energy at a time when renewables projects start to become cheaper than the fuel-based alternatives means investing in long-lived coal plants and infrastructure based on a to-be-phased-out technology. It also means a country, particularly vulnerable to climate changes, sending wrong signals to a carbon-concerned world. Ultimately, a more balanced assessment is the need of the hour, a necessity if growing economies like India want to ever be able to enjoy abundant energy without frying our planet.

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