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Two recent developments have brought India's reliance on fossil fuel into sharp focus. The Russia-Ukraine conflict and the consequent surge in crude oil prices roiled the economy. Separately, the most recent IPCC report on climate highlighted the energy sector's large contribution to global warming. Both these developments need to be located in the context of India's pledge to get to net zero carbon emissions by 2070. Meeting this pledge requires an overhaul of both the logistics and electricity sectors to reduce reliance on fossil fuels.

Transitioning to renewables in energy is an important part of the solution. Within renewables, solar energy has been lavished with policy support. However, it won't be enough to meet the targets. Anil Kakodkar, former chairman of Atomic Energy Commission, had written in these pages that India can't meet its net-zero commitment without nuclear power. He's right. It's an area where India was off to an early start, developed relatively high indigenous capabilities in relation to other sectors, but subsequently let the ball drop. Today, nuclear power contributes a mere 3% of the total electricity generated, and has a capacity of 6780 MW.

After the early euphoria of the 2008 India-US civil nuclear deal, progress has been disappointing. The deal did open the pathway to a stable supply of uranium ore from Kazakhstan and Canada. However, the design of the subsequent bill on civil liability for nuclear damage killed the prospect of participation of Western firms. India's main partner today is Russia, which sidestepped the bill through inter-government agreements. The Kudankulam nuclear plant, which supplies about 26% of the electricity from this source, operates in partnership with Russia. Going forward, the geopolitical situation makes it challenging to depend on just Russians.

Nuclear energy is cost effective, avoids emission problems and has an acceptable level of risk. Unlike solar energy, it doesn't create challenges of grid stability. Moreover, recent progress on creating small modular reactors (up to 300 MW) makes the possibility of rapid scale-up feasible. SMRs will offer enhanced safety and simpler designs at lower capital costs. These improvements will be harder to achieve with India's workhorse pressurised heavy water reactors. Therefore, if nuclear energy's potential is to be exploited, India should begin by amending its nuclear liability legislation in a way that encourages investment by companies that are at the vanguard of SMRs, which promise to lower the chance of unsafe release of radioactivity. The deadlock needs to be broken.