

HOW MUCH SHOULD BE INVESTED TO BEAT CLIMATE CHANGE?



Climate conference in Lima ended with countries agreeing to a framework for setting national pledges to be submitted next year. Although viewed by some as a compromise, the Lima agreement sets the stage for a global deal when the Paris climate conference is held in 2015. How much investment would be needed to hold off the rise in earth's temperature to a less polluting, generally accepted 2 degree Celsius range?

The International Energy Agency (IEA) tries to provide answers in a recent report which looks at investments needed in the energy sector to replace existing assets as well as for fresh assets to meet growing demand. The report outlines two different investment scenarios. The first is carbon-intensive and leads to 3.6 degree

centigrade rise in earth's temperature in the long-term, and the other is less polluting and manages to hold off rise in temperatures to within the 2 degree range. Under the first scenario, energy sector investments would total \$48 trillion over 2014-35. But the less polluting scenario would require just 10% more or \$53 trillion. These numbers are inflation adjusted for 2012.

The fundamental difference in both scenarios is where the money must be allocated. The less polluting scenario requires over a quarter of the money to be spent on increasing energy efficiency. On the other hand, the climatically damaging approach would require only one-sixth of total investments in efficiency measures. Noticeably, the share of investments in electricity generation from nuclear energy would need to shoot up fourfold from the current 3% if the mitigating scenario targets are to be met. This seems unlikely given the global crusade against nuclear energy.

Given the US-China climate deal and India's position as the third largest carbon emitter in the world, all eyes are on India to make similar commitments to cut emissions. The international pressure increases when one considers that India, together with China, would be the biggest driver of the nearly \$1 trillion expected to be invested in coal till 2035. The report estimates that India would need a minimum of \$2.5 trillion in energy investments over the next two decades, and

preventing catastrophic climate change would require another \$700 billion. Worryingly, this additional sum is equal to the total energy investment made by India between 2000 and 2013.

In India too, one-fifth of energy investments would have to be allocated to improving energy efficiency in the less polluting scenario. Only improvement in energy efficiency will allow India to continue on the path to economic expansion while limiting its emissions. Currently, India generates only \$0.76 worth of gross domestic product (GDP) for every tonne of CO₂ emitted, which is less than half the global average. India needs to ramp up this number for a fast expanding, clean economy.

Most critically, to curb emissions, the share of coal in the primary energy sector (excluding electricity) needs to drop from 18% now to 10% by 2035. To make up for sharply reduced coal use, the share of gas is expected to rise under IEA projections. Given the recent poor experience with this fuel in India, it makes for an unlikely scenario. The electricity sector is another crucial area to focus on. Here, India currently makes a little under half of all investments on renewable energy. This number would have to increase to 64% between 2014 and 2035, for the environmentally cleaner scenario to materialize.

Despite developed nations being overwhelmingly responsible for pollution, the onus has now fallen on the developing world to make the biggest investments to

mitigate climate change. To curb emissions, the report predicts that the developing world would have to make over 65% of global investments by 2035. At 6% of overall investments, India needs to be the third largest contributing nation after China (16.5%) and the US (15%).

These numbers lend more weight to the principle of common but differentiated responsibility, which states that developed nations, owing to their historical responsibility for pollution, must dedicate greater resources towards fighting climate change. This principle was explicitly stated in the Lima agreement as well. For any realistic emission curbs, developed nations must use their superior financial resources to assist developing nations meet their targets. The Green Climate Fund (GCF) is one such vehicle used to redistribute money from the developed to the developing world. Despite the pledge made by developed nations at the Copenhagen conference in 2009 to provide developing nations \$100 billion annually by 2020, so far the total contribution to GCF is a pittance of \$10 billion.

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