

# India's Ambitious 'Net Zero Emission' Plan and the Way Forward

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## ABSTRACT

The environmental degradation has been, by far, the most challenging issue faced by the mankind ever since the nuclear holocaust. The dimension and the menace it imposes on the universe is frightening. United Nations, therefore, took upon itself to address the issue comprehensively. A lack of consensus among the members of the World Forum, however, failed to achieve any significant outcome, thus far. Suffice to say, achievement in controlling the climate change has been left much to be desired.

Recently, a United Nations Climate Change Conference was held from 06 Nov to 20 Nov 2022 at Sharm El Sheikh, Egypt. The twenty seventh meeting of the Conference of Parties, acronymed as COP 27, held at Sharm El Sheikh, was slated to be a pioneering event that would trigger a significant scale-up in the initiatives towards reduction in global warming. The COP is the apex decision making authority that comes under the United Nations Framework Convention on Climate Change (UNFCCC) which was formed in 1994. The UNFCCC has the aim of stabilizing greenhouse gas generations in the atmosphere. The UNFCCC has 198 parties. Ever since 1994, the COP members meet annually to review the progress achieved. The presidency of the COP normally rotates among the five United Nations regional groups.

Aim of this research paper is to map the voluntary commitments made by India at this prestigious world forum with reference to its own debilitating economy and enormous clean energy-needs in the decades ahead.

**Keywords:** United Nations Framework Convention on Climate Change (UNFCCC), Conference of Parties (COP 27), Clean Energy, Sustainable Energy.

## I. INTRODUCTION

According to World Meteorological Organization (2021)<sup>1</sup> meteorological disasters in the world in the last 50 years account for human tragedy in terms of 1,341,668 deaths and the destruction of assets worth 636 US \$ billion due to climate and weather changes. The miseries inflicted by draught, storm, extreme temperature and flood have not distinguished between the rich and poor nations. Sufferers included

the countries like Bangla Desh, Ethiopia, Sudan, Mozambique, Venezuela, Myanmar, Russian Federation, United States and the latest sufferer being Pakistan which suffered damage and losses of 30 US \$ billion due to floods during 2022. Its impact was felt across the globe. No wonder, it was a warning signal that continued becoming louder with potential to threaten the very existence of some nations. The world came together to address the issue albeit too late.

## II. BACKGROUND

**2.1 The Paris Agreement<sup>2</sup>:** A comprehensive, and first time a legally binding Framework, was prepared by 196 parties at COP 21. The Framework included three nodal areas of support – financial, technological and capacity building, keeping in view the need and responsibility of under developing, developing and developed nations. The objective set forth was to keep global warming below 2 degree Celsius, preferably under 1.5 degree Celsius, compared to pre-industrial levels. To achieve this goal, countries needed to strive for limiting green house gas emissions to net zero level by mid-century.

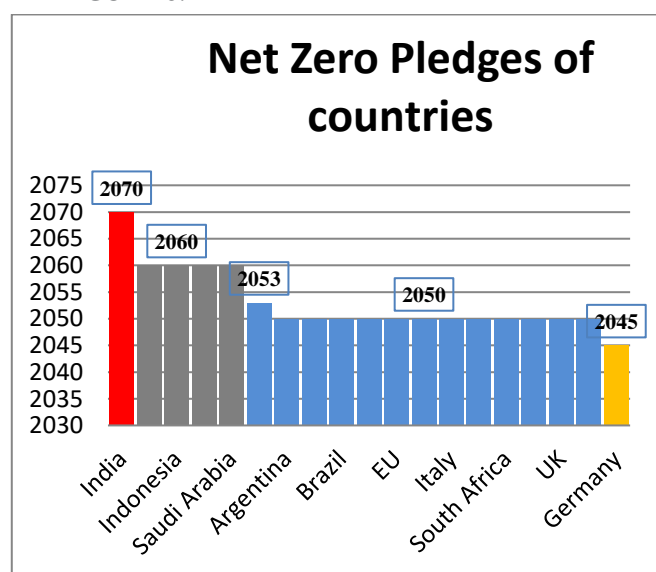
**2.2 The Period from COP 21 to COP 27.** The intervening period of COP 21 to COP 27 witnessed a dithering United States, Administration, from its solemn commitments to climate control; to a determined India well poised to establish a new world order in the Global Climate Control regime, echoing from the rich cultural heritage of India- “Vasudhaiv Kutumbkam”.

**2.3 Sharm El Sheikh, Summit of 2022** The 2022 United Nation Climate Change Conference, also known as COP27, held in Sharm El Sheikh, Egypt was attended by over 92 heads of state and 35000 representatives from 190 countries and was the first climate submit in Africa since 2016. The conference aimed to limit global temperature rises and address issues related to climate change, led to the creation of the first loss and damage fund. The conference was sponsored by Coca-cola ,which faced criticism from environmental activists for its role in plastic pollution.

Africa was the most vulnerable continent to the effects of climate change and there were hopes that the conference would improve the visibility of the priority demands of African states and civil society.

The Conference was focused on topics such as Climate finance, Decarbonization, Adaptation and Agricultural. During the summit, United States proposed a system of Carbon credits for low-income countries to deal with climate change impacts. Germany and United States announced over \$250 million in resources to support Egypt’s clean energy economy. Negotiations over loss and damage were also expected to continue.

**2.4 Glasgow Summit of 2021:** At the United Nations Climate Change Conference held from 31<sup>st</sup> October to 12<sup>th</sup> November 2021 at Glasgow, Scotland, United Kingdom, the Indian Prime Minister Shri Narendra Modi had unilaterally announced India’s national goal to achieve net zero emission of greenhouse gases by 2070. The target was slated to be achieved through a major reform already underway in power sector by discarding coal-based thermal power plants and increasing installed capacity of renewable-energy-based power plants. Considering the enormous cost involved in reducing greenhouse gas emissions, technological constraints, and its energy needs, a realistic view seems to have been taken by India in resetting the desired timelines of limiting greenhouse gas emissions to net zero level, from mid-century to 2070, at COP 26.



Ambitious Goals<sup>3</sup>

### III. INDIA'S CHALLENGES

India's primary challenge remains in achieving balance between economic growth and environment, while negotiating through global politico-environment milieu without compromising on its developmental needs.

#### 3.1 Greenhouse Gas Emissions

"Greenhouse gas emissions by India are the third largest in the world and the main source is coal. India emits about 3 gigatonnes (Gt) CO<sub>2eq</sub> of greenhouse gases each year; about two tons per person, which is half the world average. The country emits 7% of global emissions."<sup>4</sup>

Keeping in view, the India's constraints in terms of its access to cutting edge technology, financial resource allocation, energy needs, its commitment to reduce greenhouse gas emission to net zero level by the year 2070 seems to be realistic.

#### 3.2 Resource Limitations

India's "total installed capacity at the end of November 2021 was 392 GWe, of which nuclear accounted for 6.78 GWe (1.7%),. The government's 12th five-year plan for 2012-17 targeted the addition of 94 GWe over the period, costing \$247 billion. The OECD's International Energy Agency predicts that India will need some \$1.6 trillion investment in power generation, transmission and distribution to 2035."<sup>5</sup>

#### 3.3 Technological Challenges

##### 4.1 Transport Sector

Electric vehicles will pave the way for clean environment, however an exhaustive ecosystem needs to be put in place for a meaningful outcome. The much needed initiatives would include domestic manufacturing of Li-Ion batteries, ubiquitous availability of High Power Electric Vehicle Charging Stations for modern passenger carrying vehicles

(PCVs) and Load carrying Vehicles (LCVs), chips manufacturing infrastructure, and disposal of used batteries. Thus, it may be seen that India is still way behind in decarbonising the emission intensive surface transport sector.

##### 4.2 Semiconductors

There is an urgent need to reduce India's dependence on import of semiconductor chips from China and Vietnam. An accelerated growth of ecosystem for manufacturing of semiconductors under 'Make in India' programme, by extending production linked bonuses to the manufactures, is an imperative, India can least afford to brush aside. It will provide an impetus to the India's ambitious programme of rolling out electric vehicles on Indian roads in a big way and phasing out of fossil fuel vehicles as "modern car can use between 1,500 and 3,000 semiconductors"<sup>6</sup>.

##### 4.3 Political Constraints

Recently, India witnessed a major supply chain disruption with China due to Ladakh standoff. Geo-strategic consideration will therefore continue to play a major role in the industrial production of any country. Importance of supply of critical components to various industries therefore assumes greater significance than ever before. This is in addition to the embargo imposed by various power blocks, treaties, frameworks, agreements, and conventions in a dynamic, complex and uncertain inter-governmental geo-political relationship.

### IV. INDIA'S GREEN ENERGY INITIATIVES

India has, thus far, taken numerous initiatives to focus on carbon neutral regime, however, keeping in view its huge clean energy needs, India has to keep both the options- an incremental one and transformational open to achieve its goal.

##### 4.1 Productivity Linked Incentives (PLI).

Budgetary provisions for Productivity Linked Incentives will address the manufacturing of

high efficiency modules, and battery storage projects, for solar energy as well as semiconductors chips for electric vehicles leading to clean energy and reduced emissions of green house gases.

- 4.2 Sovereign Green Bonds.** Issue of Sovereign Green Bonds has been designed to help mobilising resources for green infrastructure. The proceeds of Sovereign Green Bond framework is set to be deployed in public sectors projects with a view to reduce emissions.
- 4.3 National Green Hydrogen Mission.** The ambitious goal set forth is likely to catapult India as a leading global market leader in the realm of clean energy as India can leverage Green Hydrogen to move from Low Carbon to No Carbon Framework across the sectors.
- 4.4 Green Credit Programme.** Introduction of Green Credit Programme under Environment (Protection) Act, 1986 is meant to incentivise corporate who adopt environment friendly and responsive measures. The step seeks to introduce behavioural shift amongst various stakeholders towards environment protection.

## V. THE WAY FORWARD: REDUCING GREENHOUSE GAS EMISSIONS

### 5.1 Phasing Out the Coal-fired Power Plants

India needs to reduce its current dependency on coal-based power plants from current 65% to complete cessation of operation of these power plants in the near future. Discarding the coal-based power plants will also reduce its dependency on imported coal needed currently to reduce the emission.

### 5.2 Establishing New Solar Power Plants

In future, India needs to establish solar power plants to harness clean, affordable and sustainable energy. This calls for need to manufacture indigenous solar

panels at competitive rates prevalent in the global market.

### 5.3 Nuclear Power Plants

Nuclear power plants need nuclear fuel for which India is dependent on nod from countries of Nuclear Supply Group who often raise the issue of India's non-signing of Nuclear Non Proliferation Treaty which has direct bearing on its national security needs. Notwithstanding obstacles in supply of uranium, India's civil liability law, impact of radioactive waste on environmental degradation, embargo on provision of advanced technology due to international conventions, treaties, and high cost of construction prohibits the country to go for a cheap, affordable and sustained source of electric power. Nevertheless, as the operational cost of nuclear plant is very low, it remains a viable option of clean energy provided indigenous technology is developed to avert disruption of supply chain of nuclear fuel.

### 5.4 International Solar Alliance (ISA)

On 30 Nov 2015, India and France launched this initiative. Currently, it has 121 countries mostly located between Tropic of Cancer and Tropic of Capricorn. The object of the alliance is to harness solar energy and reduce dependence on use of fossil fuel, a conventional source of energy. Under its ambitious programme of 'One Sun One World One Grid' it proposes to establish common grid among the member countries to transfer the solar power to the member countries in need of clean, affordable and sustainable energy.

### 5.5 Public Awareness

More public awareness is needed to avert future environmental disasters in the world. This could be achieved by trendy taglines and 'moment marketing' by the countries across the globe.

## VI. CONCLUSION

Reducing the emission of greenhouse gases and reaching to net-zero emission stage is not only an obligatory but an inescapable need for all the countries in the world. Reducing air pollution in India alone, would have far reaching impact on its health infrastructure bringing down the cost on health services, considerably. Impact of climate control on agricultural sector, in terms of crop yield alone has the prospect of alleviation of hunger and poverty from the planet. Its positive impact on pharmaceutical, fertilizers and transport sectors, including irrigation, drought and flood control will have the potential to save the countries across the globe from eminent catastrophe.

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