

# DEEP ELECTRIFICATION FORUM

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India has recently updated its Nationally Determined Contributions (NDCs) where it has committed to reducing the Greenhouse Gas (GHG) emission intensity of its Gross Domestic Product (GDP) by 45% below 2005 levels by 2030.<sup>1</sup> In addition, it has committed to attaining 50% of its total electric power installed capacity through non-fossil fuel-based energy resources (renewable energy, including hydropower) by the year 2030. Furthermore, it aims to achieve the net-zero target by 2070. A key initiative that is also added as part of the updated NDC is LiFE- Lifestyle for Environment.

Recognizing that lifestyle has a big role in climate change, PM Narendra Modi last year at COP 26 introduced Mission LiFE by saying *“Today, there is a need for all of us to come together and take Lifestyle for Environment forward as a campaign. This can become a mass movement towards an environmentally conscious lifestyle”*. The mission was recently launched on October 20<sup>th</sup> by PM Narendra Modi and United Nations Secretary-General Antonio Guterres on transitioning from a linear to a circular economy. Between 2022-28, at least one billion Indians and other global citizens are expected to be a part of the global network named ‘Pro-Planet People’ (P3). Within India, at least 80% of all villages and urban local bodies are aimed to become environment-friendly by 2028.<sup>2</sup>

India has been making significant strides in adding large-scale renewable energy and decarbonisation of its power sector. Furthermore, India has embarked on a path of adding new initiatives in renewable energy, electric mobility, ethanol-blended fuels, and green hydrogen as alternative energy sources.

It is well understood that electricity (direct or indirect) as an energy vector is the fastest way to integrate renewable energy and hence becomes the most efficient option for the decarbonisation of other sectors. Hence, deep electrification of sectors is being considered the most favourable option to accelerate decarbonisation efforts.

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<sup>1</sup> <https://pib.gov.in/PressReleaseframePage.aspx?PRID=1847812>

<sup>2</sup> <https://pib.gov.in/PressReleasePage.aspx?PRID=1869550>

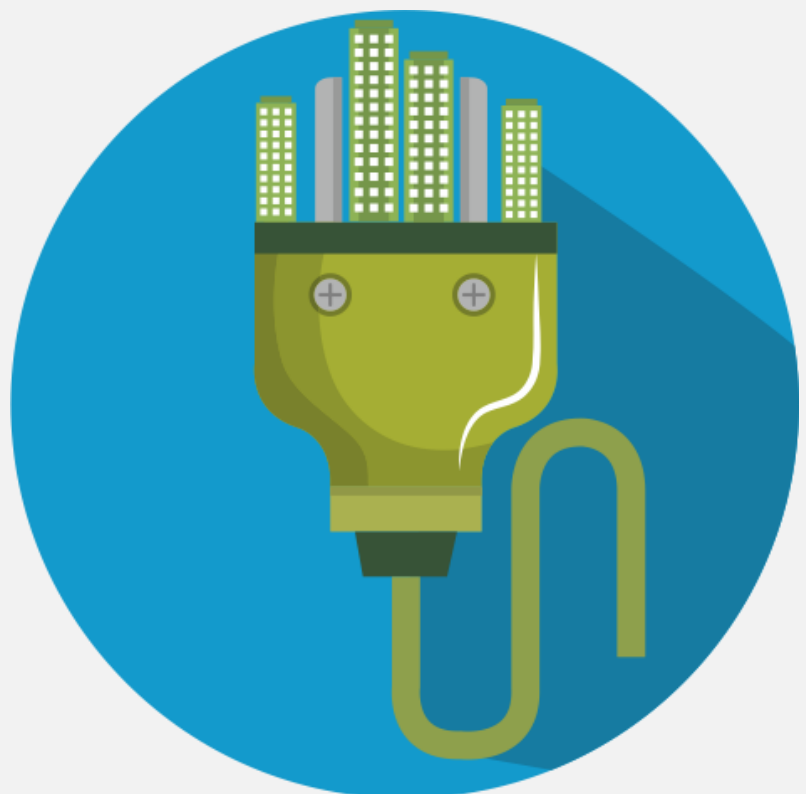


## What is Deep Electrification?

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Deep electrification refers to the process of replacing any non-electric energy source using fossil fuels with technologies that use electricity as a fuel source. The idea is that 'deep electrification' will help lower greenhouse gas emissions and combat climate change by reducing emissions at the final consumption. However, this will increase the need for electricity from renewable energy resources. Major strategies which help in achieving it are the following:

- Increase renewable energy capacity and restrict the use of fossil fuels
- Improve energy efficiency
- Focus on low-hanging fruit sectors such as transport, buildings, and industry for direct electrification
- Indirect electrification by use of renewable energy in hydrogen production for utilization in hard-to-abate sub-sectors such as aviation and shipping
- Demand response to make the grid flexible and resilient to variable renewable energy
- Grid renovation and modernization
- Power market reforms
- Fiscal incentives





## How is it being done in other countries?

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The net-zero strategy policies of the USA, France, and Germany mention deep electrification strategy as an integral process to achieve decarbonization targets. Especially in buildings, transport, and industries.

The European Parliament and Council recently agreed on October 2022 to ensure all new cars and vans registered in Europe will be zero-emission by 2035 under its “Fit for 55” package to reduce net GHG emissions by at least 55% by 2030. Similar initiatives on reaching Zero Emission Vehicles (ZEV) by 2030 are being taken by the Federal and State governments of the USA.

Steel production using conventional blast furnace-basic oxygen furnace (BF-BOF) is being replaced with electrified processes such as scrap-based Electric Arc Furnace (EAF), Hydrogen Direct Reduced Iron (DRI) based EAF, and electrolysis in the USA.

Different decarbonization strategies across sectoral value chains have been established in Germany. Direct electrification is employed to a large extent in heat generation applications across various processes. Large industrial heat pumps, electric furnaces, and electric boilers are being used.

## Why is it relevant for India?

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Deep electrification is favourable considering the following:

- Vast renewable energy resource potential
- High import dependence on oil and gas
- NDC and global emission reduction commitments
- Shift towards a circular economy
- One Nation, One Grid
- Consolidate carbon mitigation efforts and allow policymakers to focus on decarbonizing the electric grid

Indian Railways recently announced its plan to completely electrify its network by 2030 to reduce pollution and simultaneously expand network capacity to accommodate an increase in the overall land-based freight transport from the present 36% to 45% by the year 2030.<sup>3</sup>

*However, for India to scale up deep electrification in other sectors, it is crucial to mainstream deep electrification strategy in its energy policy.*



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<sup>3</sup> <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1865754>



## About the Forum

The Deep Electrification Forum has been conceptualised by Vasudha Foundation with support from SED Fund to engage in consensus building and policy discourse around deep electrification as a sustainable energy transition pathway to achieve India's net-zero targets.

The Forum will delve into the impact and feasibility aspects of sectoral deep electrification programs. It will be hands-on and participatory in nature, broadly brainstorming based on themes cross-cutting across technology, finance, and policy.

Vasudha Foundation will function as the Secretariat to facilitate the implementation of the deep electrification strategy for major energy demand sectors in India.

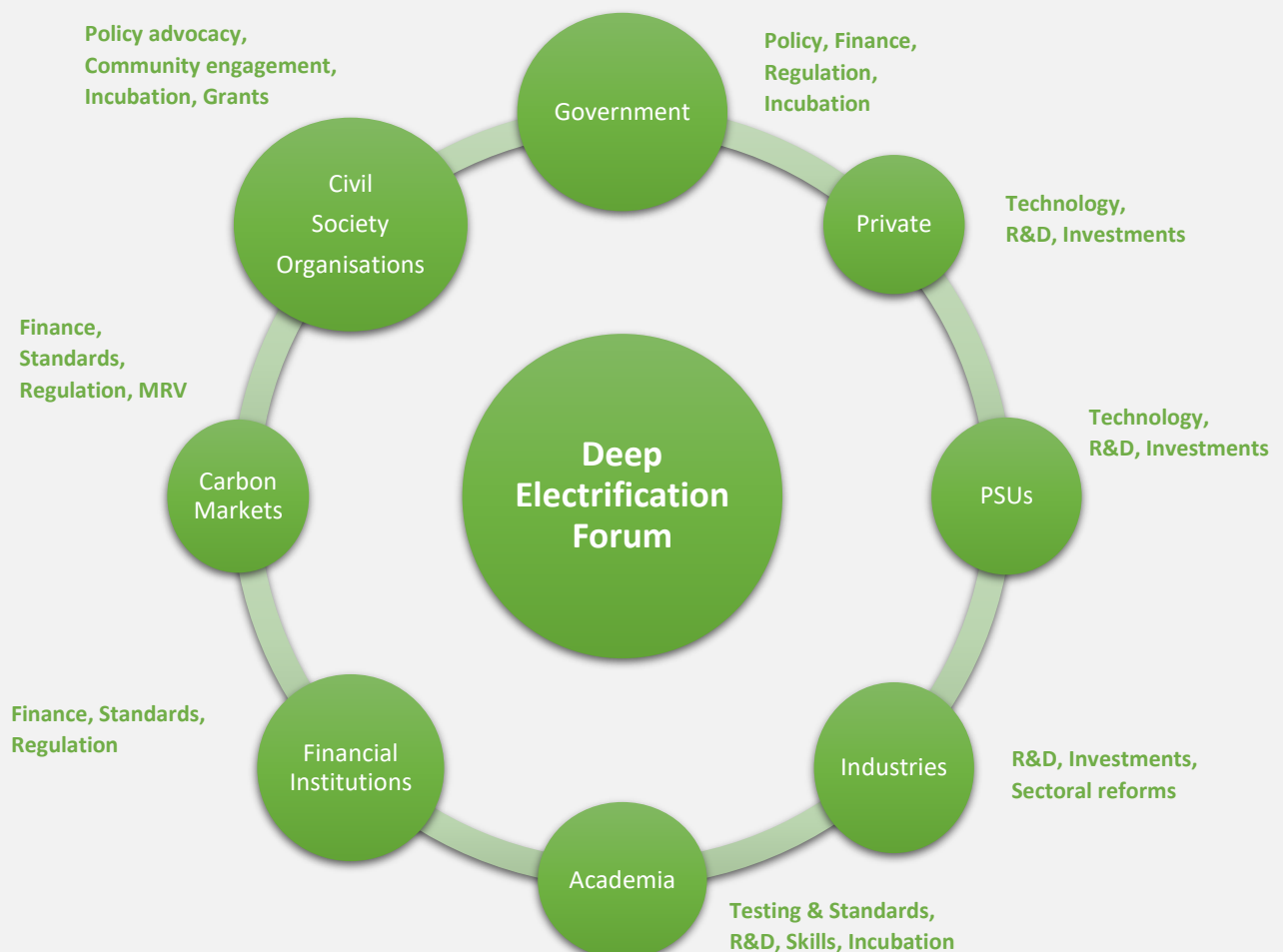
## Vision

Mainstreaming deep electrification strategy in India's energy policy.

## Mission

Our mission is to evolve the discourse on deep electrification in India and fast-track its implementation.

## Constitution of the Forum





## Objectives

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- Facilitate discussion on possible solutions across sectors, the role and relevance of different actors involved, and modes of implementation.
- Promote knowledge and experience sharing and assist the participants on themes discussed in the Forum.

## Roles and Responsibilities of the Secretariat

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- Identify the right set of themes and questions that need to be addressed by engaging continuously with stakeholders.
- Develop discussion notes on the shortlisted themes including relevant national and international experiences and thought processes.
- Consolidate findings and discussions to form an outlook needed for policy engagement.

## Time frame

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Quarterly convenings would be held to brainstorm solutions to identify key challenges and provide possible solutions along with building consensus amongst the concerned stakeholders.

Finally, an outlook on Deep Electrification for policy engagement would be shared based on the findings and discussions from the convenings.

## Registration

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Vasudha Foundation cordially invites you to join the forum. Kindly request you to confirm by replying to this mail or [clicking here](#). The agenda will be shared once the registration details have been confirmed.

For any queries, please write to us at

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