

India and the International Energy Agency

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Abstract

The International Energy Agency (IEA) was set up in 1974 as a collective response to major disruptions resulting from the 1970s oil crisis when an embargo by major oil producers pushed prices to record-high levels and exposed the vulnerability of the global energy system. While energy security is still central to the IEA's work, the institution has evolved to have a greater focus on clean energy transitions in response to the current global energy landscape and climate crisis. Today, while taking an all-fuels, all-technologies approach, the IEA provides analysis, data, and practical solutions to countries and advocates policies that make energy more reliable, affordable, and sustainable.

IEA's founding members included the major economies of that time, including the United States, United Kingdom, Japan, and Germany. As the global energy market evolved, India assumed a greater role in global energy affairs, leading to the IEA redefining its relationship with India. In 2015, the IEA introduced an "open door" policy to deepen collaboration with many emerging economies through the special status of "Association". This was in line with their new focus on engaging with the emerging world, as well as their commitment to clean energy transitions, which were supported by activities under IEA's flagship Clean Energy Transitions Programme. India officially joined the IEA in 2017 as an association country, and this bilateral cooperation now constitutes one of the IEA's largest programmes, covering a broad range of work on energy, including energy efficiency, critical minerals, renewable energy, energy data, power-sector reform, and clean-energy technologies.

In the next 30 years, India will have the largest energy demand growth in the world. Its critical challenge will be to ensure secure and affordable energy for growth while advancing its energy transition. Today, India's increasing influence in global energy affairs makes it a vital partner in the IEA's work and efforts to continue to be a leading actor in the global energy dialogue. This brief looks at the progressive deepening and broadening of the relationship between India and the IEA and aims to provide insight into the future of this relationship.

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1. Introduction

India became the world's most populous country in 2023 and is poised to emerge as the world's third-largest economy by 2027. There is no doubt that India is playing an increasingly prominent role on the international stage, which is of strategic importance for the global energy and climate conversation. This brief will set out the origins of the International Energy Agency (IEA) and the timeline of its engagement with India. Even as the institutional relationship between India and the IEA continues to evolve, it is pertinent to review the emerging importance of the IEA and India in recent years to provide vital insight into the future of this critical collaboration.

The IEA, the rationale for its initial structure, and its focus are a result of the 1973–74 oil crisis. In 1973, a few members of the Organization of Arab Petroleum Exporting Countries (OAPEC) collectively imposed an oil embargo on the United States and several other countries in response to their support of Israel during the 1973 Arab-Israel War. The embargo banned petroleum exports and introduced cuts in oil production. These actions led to a dramatic increase in global oil prices, with some spot transactions increasing by up to six times the original value. The impact of these market disruptions was massive. Oil-consuming countries were caught unprepared, consumer costs skyrocketed, and countries experienced economy-wide impacts. Without adequate information or means for coordinated action, the vulnerability of many countries to the oil shocks was evident.

As a result of the 1973–74 oil crisis, industrialised countries joined together to establish the IEA to take rapid, decisive, and remedial action through organised international cooperation. Some of the largest economies of that era, primarily major energy importers that were already working together through the Organisation for Economic Cooperation and Development (OECD), came together to cooperate on energy policies and ensure energy security through a

shared emergency response system. The first constituent document of the IEA, adopted on November 15, 1974, was a *Decision of the [OECD] Council Establishing an International Energy Agency of the Organisation* (OECD, 1974a). The second was a treaty in the form of the *Agreement on an International Energy Program* (referred to as the IEP Agreement), which was signed on November 18, 1974 (OECD, 1974b).

2. From Oil Security to New Energy Imperatives and Emerging Economies

Oil and energy security at large were at the centre of the IEA's mission and continue to remain at the core of its activities even today. The IEP Agreement established provisions for an oil emergency response system, including a stockholding system, and provided the framework for cooperation on a range of energy issues. Currently, each IEA member country is required to hold oil stocks equivalent to at least 90 days of their net oil imports. These stocks can be released to global oil markets through coordinated IEA collective actions in the event of a major supply disruption to mitigate the negative impact of such disruptions on the global economy. The mandate and vision of the Agency have enabled members to respond to energy crises that could not have been anticipated in 1974. It has also provided the basis for a focus on technology, innovation, and global collaboration to ensure members' energy systems are sustainable, secure, and resilient. This proved to be useful in the Agency's response to oil supply disruptions and, in more recent years, it has allowed the IEA to consider new energy imperatives, such as the need to transition to clean energy and energy efficiency to meet the needs of climate crises and increase access to energy.

As global energy markets have evolved, emerging and developing economies have begun to play a stronger role in the global energy debate. In 2015, the IEA established the Association framework and adopted an "open

door” policy to deepen collaboration with key emerging economies such as India (IEA, 2015b). Enhancing collaboration with key countries within the Association framework has been a concerted step towards making the IEA a truly global agency. To signal the new course embarked on by the IEA, the newly elected executive director at that time, Dr Fatih Birol, made his first official visit to Beijing and New Delhi in 2015. Currently, IEA members, along with accession and association countries, together account for 80% of global energy consumption.

The IEA has worked with India since 1998. In 2015, it published a special report, *India Energy Outlook 2015*, which focused on how Indian policies such as the “24x7 Power for All” or the “Make in India” campaign have impacted India’s energy outlook (IEA, 2015a). This relationship became deeper and was formalised with the IEA welcoming India as an association country in 2017, thereby beginning a new era in the IEA-India relationship (IEA, 2017a).

3. India's New Energy Initiatives

India’s energy trajectory has been remarkable in recent years, moving from a focus on energy for development to quickly becoming a clean energy leader at the centre of global energy affairs. Since its independence, energy has played a crucial role in India’s developmental journey. From providing access to electricity, fuel for transport, and clean cooking fuels such as liquefied petroleum gas (LPG), India has leveraged energy to further the country’s growth. India’s robust economic growth has also been fuelled by the scaling up of power generation, coal mining and oil refining capacity, and the strengthening of energy infrastructure and distribution networks. Most notably, in 2018, India achieved universal village electrification, which involved bringing electricity to over 500 million Indians during the preceding decade (Dutta, 2018). The IEA called this feat “one of the greatest achievements in the history of energy” (Murphy & Daly, 2018). The ambition and

complexity of India’s energy policies and their potential global consequences have made India an indispensable partner for the IEA.

India has the world’s fastest-growing energy demand. The share of Indians living in urban areas will rise from 35% in 2021 to over 50% by 2050 (IEA, 2022b). This rapid pace of urbanisation will also add to the robust growth in demand for energy and materials. According to the IEA’s Announced Pledges Scenario (APS)—which assumes all targets announced by governments are met on time—this growth in energy demand will increasingly be met by clean energy. Meanwhile, India is also greatly exposed to climate shocks. This combination of circumstances informs India’s energy and climate diplomacy priorities. Alongside its focus on clean energy technology and finance, India has spearheaded several international initiatives supporting climate action worldwide. For instance, the International Solar Alliance (ISA), which India co-founded with France, is one of the leading agencies on solar power, with a special focus on promoting energy access and transitions. In addition, the Coalition for Disaster Resilient Infrastructure (CDRI), a global partnership that was first proposed by Prime Minister Modi, aims to promote disaster-resilient infrastructure and has been hosted by India and has over 30 member countries. India has also been an active partner in other international initiatives, including Mission Innovation (MI) and the Clean Energy Ministerial (CEM), advocating for the interests of emerging and developing countries in international fora. At COP27, India succeeded in its historic proposal for the creation of a global loss and damage fund.

At COP26 in Glasgow, India laid out its bold ambition of achieving net-zero emissions by 2070. This was underpinned by a host of policies focused on achieving the clean energy transition. India is already the third-largest national market globally for renewables and has recently seen the growth of consumer-centric solutions, such as the spike in the distribution of solar photovoltaic (PV) cells, with rooftop solar growing 30 times in less

than a decade (IEA, 2023). As part of its policy vision, India is pioneering a new development model, one where robust economic expansion is wholly compatible with emissions reductions. This is uncharted territory, one that developing countries and emerging economies around the world can use as a blueprint for the development of their own countries. Challenges remain for India on this front, including tackling air pollution, reducing fossil fuel imports, and ensuring reliable electricity supply, among others.

4. An Evolving IEA–India Partnership

Since becoming an association country in 2017, India and the IEA have increased their collaboration on a range of energy issues, the focus of which has been informed by India's own energy and climate goals. The collaboration serves not only to support India's domestic energy priorities but also to boost India's greater role in global energy governance and international cooperation to address climate change. To this end, the IEA has developed knowledge partnerships, collaborative frameworks, and joint work programmes with Indian ministries, government agencies, industries, think tanks, and other international agencies in India, including the ISA and CDRI. Several IEA reports have a special focus on India, covering topics such as clean energy investment, renewables integration, rooftop solar, transport decarbonisation and climate policy.

As a sign of the significance of the relationship between the IEA and India, the IEA undertook two major analytical deep dives into India's energy policies in recent years to support India prioritise its future energy policies. In 2019–20, the IEA conducted an in-depth review of India's energy policy in partnership with NITI Aayog, following the same process as the in-depth energy policy reviews that the IEA regularly conducts of its member countries. The ensuing report, *India 2020: Energy Policy Review*, examined the entire energy sector of the country and offered recommendations for

strengthening India's energy policies (IEA, 2020). These recommendations have served as the foundation for joint work programmes between the IEA and the Government of India in subsequent years. The report also welcomed India's efforts to progressively build dedicated emergency oil stocks as part of India's strategic petroleum reserve to supplement the commercial storage available at refineries. Secondly, as part of the IEA's flagship *World Energy Outlook* report series, the IEA published *India Energy Outlook 2021*, which explores the opportunities and challenges ahead for India's energy sector, pathways out of the crisis following the COVID-19 pandemic, and other longer-term energy trends until 2040 (IEA, 2021b).

Table 1. India's evolving engagements with the IEA

Year	India's Engagements with the IEA
2015	<i>India Energy Outlook 2015</i> is released as part of IEA's flagship World Energy Outlook series
2017	India becomes an IEA association country; Clean Energy Transitions Programme established
2019–2020	IEA conducts an in-depth review of India's energy policy
2021	<i>India Energy Outlook 2021</i>
2022	IEA ministers agree to a path to IEA membership for like-minded countries such as India
2023	IEA supports India's G20 presidency

Source: Authors' compilation based on various sources

One of the main channels for IEA–India cooperation is the Clean Energy Transitions Programme (CETP), which was established in 2017 and is funded primarily by IEA member countries (IEA, 2017b). Through the CETP, the IEA works closely with Indian stakeholders to support India in achieving its ambitious clean energy transition goals. As highlighted earlier, India's energy and development trajectory has shaped the focus of its climate and energy strategy on technology and innovation,

investment, renewables, and climate resilience. The IEA provides support to India through CETP funding in various areas, including policy issues that will support India in the new phase of its energy transition, such as clean energy technology manufacturing, hydrogen and other low-emission fuels, and critical minerals.

Some recent examples of the ongoing cooperation between the IEA and India include the following:

- Accelerating clean energy transitions through workshops, analysis, and capacity-building on distributed solar PV, hydropower, biofuels, power-market reforms, clean energy investments, and hydrogen. This involves collaboration with the Ministry of New and Renewable Energy to expand knowledge on policy solutions that accelerate renewable energy deployment, including critical emerging technologies that will support India in attaining its goal of achieving net-zero emissions by 2070.
- Supporting energy security by working with the Ministry of Petroleum and Natural Gas to improve the country's energy resilience in terms of emergency response measures and improved oil and gas data quality. In addition, under the new statement of intent with India's Petroleum Planning and Analysis Cell, the IEA has been providing policy advice on natural gas, biofuels, and other alternative fuels in India's energy economy.
- Strengthening data through exchanges and data validation exercises, supporting the implementation of recommendations from India's cross-ministerial data working groups and training key stakeholders, including future energy leaders and state-level officials.
- Improving energy efficiency by providing comprehensive support, including regular policy training for officials on efficiency in buildings, cooling, industry, electric vehicle charging infrastructure, energy services, and smart grids.

- Encouraging a people-centred transition by sharing insights from international best practices with the Indian government and stakeholders from civil society.
- Supporting innovation in clean energy technologies, particularly energy storage, batteries, biofuels, hydrogen, and road transport. The IEA tracks spending on energy research, development, and demonstration. It also analyses India's innovation policy framework and provides policy advice on specific technologies, including hydrogen, carbon capture usage and storage (CCUS), and energy storage. India also participates in 11 technology collaboration programmes hosted by the IEA that work to advance the research, development, and commercialisation of a wide range of energy technologies.

In 2023, a major focus of the IEA has been supporting India in its presidencies of the G20, the Clean Energy Ministerial (CEM), and Mission Innovation (MI), drawing on the IEA's long-running experience in these fora. The IEA has been involved in every G20 process since the Pittsburgh Leaders' Summit in 2009, particularly the creation of dedicated energy and climate working groups and the G20 Energy Ministerial; the IEA has contributed to all energy work streams of the G20. Further, the IEA hosts the CEM Secretariat and is a contributor to multiple CEM initiatives ranging from e-mobility to hydrogen to people-centred transitions.

During India's first G20 presidency, the IEA contributed to each of the six energy policy priorities of the Energy Transition Working Group. It also supported two further areas in the Sherpa Track. The first was the Development Working Group, where the IEA provided insights on green development and analysis of the potential global benefits of India's "Lifestyle for Environment" initiative. The second was the Disaster Risk Reduction Working Group, a new G20 group established by India as a global leader in disaster and climate resilience, to which the IEA contributed its expertise, emphasising the importance of energy infrastructure in climate and disaster

risk reduction. Further, the IEA has made significant contributions to the Finance Track of the Indian G20 presidency, in particular, the Framework and Sustainable Finance Working Groups, by providing insights on the macroeconomic impact of energy security and energy transition pathways and finance for clean energy transitions, respectively.

These examples establish that the relationship between the IEA and India is continuously evolving. Even as the IEA responds to India's priorities, India is emerging as an ever more powerful global energy player. In tandem, the institutional relationship between the IEA and India has equally developed. It took a new direction in 2021 when they signed the Framework for a Strategic Partnership, committing to strengthening their collaboration across a range of areas, including energy security and clean energy transitions (IEA, 2021a). This collaboration was further endorsed by IEA member countries at the 2022 IEA Ministerial Meeting, where IEA ministers agreed on the need for a pathway for opening up IEA membership to likeminded countries willing to commit to the mission and objectives of the IEA (IEA, 2022).

The development of the relationship between the IEA and India over nearly a decade illustrates a progressive deepening and broadening in strategic engagement. For both sides to reap the full benefits of this relationship, the current partnership with the IEA should be further deepened. As outlined in this policy brief, India faces formidable challenges to its ambitious energy transition. It is extremely vulnerable to the risks of climate change; it remains heavily dependent on imported energy; and it is the world's most populous country, with a significant proportion of its population increasing its energy demands to support a higher standard of living. These challenges cannot be solved without a positive global environment of innovation, technology, finance, and cooperation. The collaborative international forum and the expert policy advice that the IEA offers can support India in its important energy transition. Equally, for the IEA, a growing partnership with India will be crucial to achieving its mandate to lead the global energy sector's fight against climate change and to ensure energy security during the energy transition.

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