



POLICY PULSE

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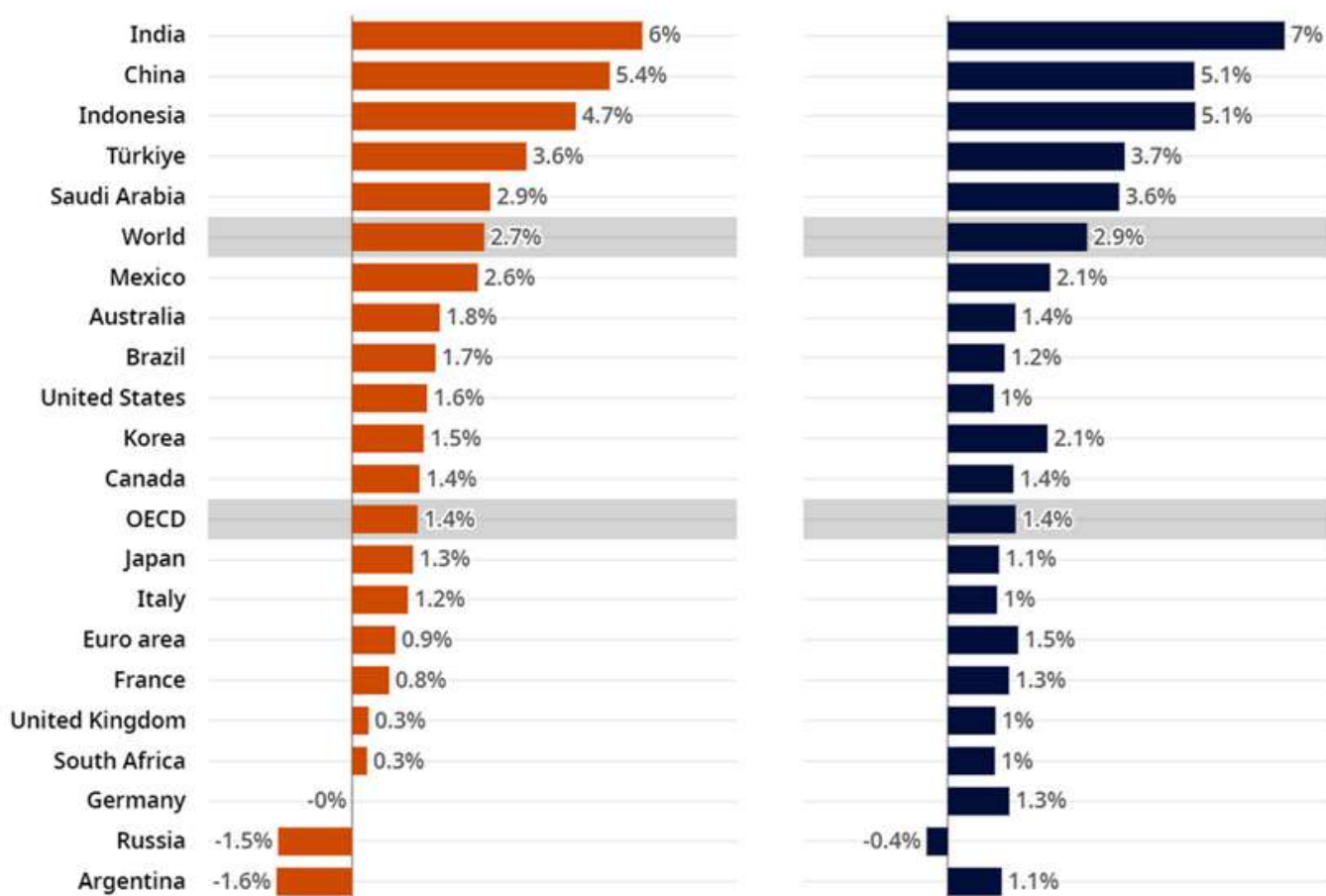
ECONOMY

GLOBAL ECONOMY

As per the recent projections by the OECD, the global economy has begun to improve, but the recovery will be weak. The Economic Outlook projects a moderation of global GDP growth from 3.3% in 2022 to 2.7% in 2023, followed by a pick-up to 2.9% in 2024. Lower energy prices are easing the strain on household budgets, business and consumer sentiment are recovering, albeit from low levels, and the re-opening of China has provided a boost to global activity. Headline inflation in the OECD is projected to decline from 9.4% in 2022 to 6.6% in 2023 and 4.3% in 2024. The decline in inflation is due to tighter monetary policy taking effect, lower energy and food prices and reduced supply bottlenecks.

Real GDP growth projections for 2023 and 2024

%, year-on-year

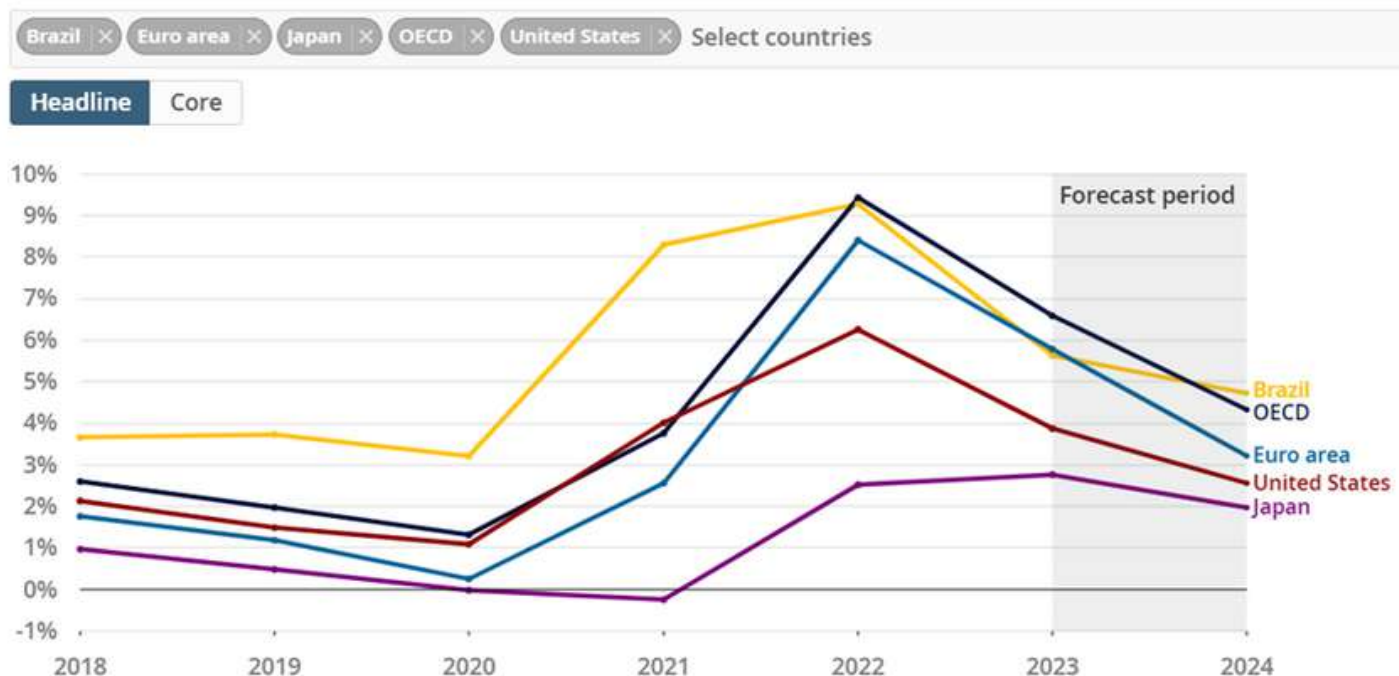


Source: [OECD Economic Outlook, Report June 2023](#)

GDP growth in the United States is projected to be 1.6% in 2023, before slowing to 1.0% in 2024 in response to tight monetary and financial conditions. In the euro area, declining headline inflation will help to boost real incomes and contribute to a pick-up in GDP growth from 0.9% in 2023 to 1.5% in 2024. China is expected to see strong increases in GDP growth in 2023 (with 5.4%) and 2024 (with 5.1%), due to the lifting of the government's zero-COVID policy.

Headline inflation has started to fall, but core remains persistent

%, year-over-year



Note: Headline inflation concerns all commodities, services, and goods. Core inflation is headline inflation excluding food and energy. OECD inflation aggregate relies on different country-level definitions of inflation.

Source: [OECD Economic Outlook, June 2023](#).

"This projected recovery, while almost unchanged from our interim projections in March, maintains the slightly more optimistic outlook that had been predicted and which we are now seeing materialise," OECD Secretary-General Mathias Cormann said. "Policy makers must get inflation durably down to target and unwind broad fiscal support by better targeting fiscal measures. While continuing to respond to the immediate economic challenges, it remains important to prioritise structural reforms to boost productivity, including by promoting competition, reviving investment, increasing female workforce participation and alleviating supply constraints, while securing our economies' green and digital transformations."

The upturn remains fragile and risks are tilted to the downside. Uncertainty over the evolution of Russia's war of aggression against Ukraine and its global impact remains a key concern. Some of the favourable conditions that helped to reduce energy demand this year, like a mild winter in Europe, may not be repeated next year. The persistence of inflation is another key downside risk. Core inflation is proving sticky, on the back of strong service price increases and higher profits in some sectors. The impact of higher interest rates is increasingly being felt across the economy, and restrictive monetary policy, while necessary, risks further exposing financial vulnerabilities, in particular in countries with high debt.

ECONOMY

GLOBAL ECONOMY

Against this backdrop, the Outlook lays out a series of policy recommendations, underlining that the need to lower inflation, adjust fiscal policy and promote sustainable growth entails significant challenges for policy makers. Monetary policy should remain restrictive until there are clear signs that underlying inflationary pressures are durably reduced. Fiscal support, which has played a vital role in helping the global economy through the pandemic and the war in Ukraine, should be scaled back, becoming more targeted and calibrated toward future needs. Broad energy-related support should be withdrawn as energy prices fall and minimum wages and welfare benefits are being increased to take account of past inflation in many countries.

“Fiscal policy should prioritise productivity-enhancing public investments, including those driving the green transition and boosting labour supply and skills,” OECD Chief Economist Clare Lombardelli said. “Renewed reform efforts to reduce constraints in labour and product markets and to reignite private investment and productivity growth would improve sustainable living standards and strengthen the recovery from the current low growth outlook.”

ECONOMY

INDIAN ECONOMY

As per OECD, weak global demand and the effect of monetary policy tightening to manage inflationary pressures will constrain the economy in FY 2023-24, limiting real GDP growth to 6%. Moderating inflation and monetary policy easing in the second half of 2024 will help discretionary household spending regain momentum. This, along with improved global conditions, will help economic activity to accelerate, with growth of 7% in real GDP in FY 2024-25. Despite an impressive growth and development record, daunting challenges remain. Creating good jobs is the most promising pathway to reduce poverty, which is particularly high in the female population. Increasing investment in education and vocational training, and updating labour laws, would help to achieve this objective. India is particularly vulnerable to extreme heatwaves and must make progress in mobilising resources for investment in the green economy.

FY 2022-23 ended on a positive note, due to higher-than-expected agriculture output and strong government spending. However, high inflation, in particular for energy and food, and the ensuing monetary tightening to anchor expectations are weighing on purchasing power and household consumption, particularly in urban areas. The merchandise trade deficit was 40% larger in FY 2022-23 than in FY 2021-22, with trade in petroleum accounting for over two-fifths of the deterioration. Although services export growth remains brisk and the sectoral surplus rose by 35%, it is insufficient to offset the imbalance in goods' trade. Low labour productivity is affecting the competitiveness of "Made in India" goods and participation in global value chains.

After reaching 7.2% in FY 2022-23, real GDP growth is expected to slow to 6% in FY 2023-24, before rising to 7% in FY 2024-25. While indicators suggest that India's growth is stable for now, headwinds from the impact of rapid monetary policy tightening in the advanced economies, heightened global uncertainty and the lagged impact of domestic policy tightening will progressively take effect. With slower growth, inflation expectations, housing prices and wages will progressively moderate, helping headline inflation converge towards 4.5%. This will allow interest rates to be lowered from mid-2024. The trade restrictions (including export bans on various rice varieties) imposed in 2022 to fight inflation are assumed to be withdrawn. The current account deficit will narrow, reflecting abating import price pressures.

Reducing global greenhouse gas emissions, including in India, will help limit losses in the long term. However, measures that can immediately reduce the impact of extreme weather events are also needed, such as improved infrastructure to prevent flooding. Sustainable development also requires further progress in gender equality across many dimensions, including access to health, education and capital. Impressive results have been attained, for instance in financial inclusion, but substantial gaps remain. Policy formulation and execution should fully incorporate gender considerations and specific indicators. Enhanced policy efforts to increase childcare assistance, vocational training and life-long education for working women would also be welcome. Better enforcement of the land rights of women would strengthen their economic position and, by making it possible to use this asset as collateral, may also facilitate investments in climate mitigation and adaptation.

ECONOMY

INDIAN ECONOMY

Performance of Key Indicators

The combined Index of Eight Core Industries (ICI) increased by 3.5 per cent (provisional) in April 2023 as compared to the Index of April 2022. Fertilisers, steel, cement and coal production increased in April 2023 over the corresponding month of last year.

Coal production increased by 9.0% in April 2023 over April 2022. Its cumulative index increased by 14.9% during 2022-23 over the corresponding period of the previous year.

Crude oil production declined by 3.5 % in April 2023 over April 2022. Its cumulative index declined by 1.7% during 2022-23 over the corresponding period of the previous year.

Natural Gas production declined by 2.8% in April 2023 over April 2022. Its cumulative index increased by 1.6% during 2022-23 over the corresponding period of the previous year.

Petroleum Refinery production declined by 1.5% in April 2023 over April 2022. Its cumulative index increased by 4.8% during 2022-23 over the corresponding period of the previous year.

Fertiliser production increased by 23.5% in April 2023 over April 2022. Its cumulative index increased by 11.3% during 2022-23 over the corresponding period of the previous year.

Steel production increased by 12.1% in April 2023 over April 2022. Its cumulative index increased by 8.9% during 2022-23 over the corresponding period of the previous year.

Cement production increased by 11.6% in April 2023 over April 2022. Its cumulative index increased by 8.7% during 2022-23 over the corresponding period of the previous year.

Electricity generation declined by 1.4% in April 2023 over April 2022. Its cumulative index increased by 8.9% during 2022-23 over the corresponding period of the previous year.

As per data released by Ministry of Statistics, India's factory output based on the Index of Industrial Production (IIP) rose 1.1% in March, according to official data released on Friday. In contrast, factory output measured in terms of the IIP had grown 2.2% in March 2022. According to many economists, the decline in Industrial production growth declined to 1.1 per cent in March from 5.6% in the previous month mainly on account of a 1.6% contraction in power output and a feeble 0.5 per cent growth in manufacturing. "The month-on-month data of IIP for FY 2023, industrial production was up 5.1 per cent YoY and given that RBI has now more maneuvering headroom, this can significantly improve in FY-24," added Mohit Ralhan - Chief Executive Officer, TIW Capital.

As per Ministry of Finance, India's gross Goods & Services Tax (GST) collections grew 11.5% in May, the slowest uptick in six months, to cross ₹1.57 lakh crore, with revenues from domestic transactions rising 11% and imports yielding 12% more taxes than a year ago. Sequentially, May's revenues, for transactions undertaken in April, the first month of the new financial year, were the lowest in three months, and 16% below the record ₹1.87 lakh crore collected in April. This was the 14th successive month that GST revenues were over ₹1.4 lakh crore and the fifth occasion that they surpassed the ₹1.5 lakh crore mark.

FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

INDIA

Discussions on UK, Australia and Canada FTAs in Focus



The 10th round of **India-UK FTA** negotiations was recently concluded on 9th June 2023 in New Delhi. Similar to previous rounds, this round was also held in a hybrid fashion. The main topics that may get discussed are Rules of Origin (RoO), Environment, Labour, Disputes and Trade Remedies, etc. For the past few rounds, it appears that discussions on tariff have been put into a backburner as both parties are discussing rigorously the rules of origin. However, tariff on goods and discussion on services remains the main asks from both the sides.

According to the report released by UK parliament, the UK rice-milling industry raised concerns about the potential removal of the tariff on milled rice; steps taken to ensure that trade liberalisation with India does not lead to "preference erosion"; safeguards to avoid or minimise potential adverse effects of trade liberalisation on Micro, Small and Medium Enterprises and rural communities in India. There are presently no arrangements in place between the United Kingdom

and India for the reciprocal recognition of professional qualifications. The question is whether both countries will have reciprocal recognition of professional qualifications. Other provisions in a UK-India trade agreement that will require close scrutiny include those concerning: digital and data; intellectual property; investment; government procurement; human rights, labour standards and gender equality; environment and climate; and animal welfare.

Discussions for a full-fledged **India-Australia FTA** has also kick started in June 2023. The first Joint Working Group meeting on wines took place on 1st June 2023 and another joint working group meeting on whiskey is slated for end of June 2023.

Similarly, **India-Canada FTA** discussions have also started. During the sixth Ministerial Dialogue on Trade & Investment (MDTI) in Ottawa on May 8, 2023, both India and Canada recognized the need for a comprehensive trade agreement to create vast new opportunities for boosting trade and investment flows between India and Canada, and formally re-launched the India-Canada Comprehensive Economic Partnership Agreement (CEPA) negotiations.

FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

OTHERs

OTHERs

UK-Australia Enforced from May 2023



The UK and Australia signed a free trade agreement (FTA) in December 2021. This is the first 'new' UK trade deal signed since Brexit; the UK's other trade agreements have largely rolled over previous EU deals. The agreement was entered into force on 31st May 2023.

In 2021, the UK exported £1.5 billion of goods and services to New Zealand (0.2% of UK exports). Significant UK exports to New Zealand are machinery and transport equipment (£418 million in 2020), insurance and pensions (£149 million) and miscellaneous manufactures (£105 million). The UK imported £0.9 billion from New Zealand (0.1% of UK imports) in the same year. Significant UK imports from New Zealand are food and live animals (£332 million in 2020), beverages and tobacco (£273 million) and machinery and transport equipment (£115 million).

The FTA consist of commercial commitments that will create new export opportunities and reduce input costs for business, strengthen trade diversification and help ease cost-of-living pressures for consumers. During the negotiation, key principles were trade and sustainable development (including environment, climate change and labour) and inclusive trade, gender and small and medium enterprises.

The FTA has eliminated tariffs on over 99% of Australian goods exports to the UK. These include some of our key exports, such as wine, short and medium-grain rice, sugar, honey, nuts, olive oil and food supplements. On the other side, Australia has dropped all tariffs and quotas on all UK goods, with the exception of some steel coils and pipes and some UK cheeses; both will need to wait for 5 - 6 years before Australians can import them completely tariff-free. Further, the agreement strengthens people-to-people links with the UK. Australian professionals have the same access to the UK job market as nationals from the European Union, except the Republic of Ireland.

US-Taiwan Trade Initiative on 21st-Century Trade

The United States and Taiwan have concluded negotiations on a trade agreement to deepen economic ties amid growing tensions between Washington and Beijing.

FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

OTHERs

The first agreement made as part of the programme addresses small and medium-sized businesses, good regulatory practices, domestic regulation of services, anticorruption, customs administration and trade facilitation. With the help of these provisions, American companies will be able to sell more goods to Taiwanese consumers while streamlining and improving regulatory processes that can promote investment and business opportunities in both markets, especially for small- and medium-sized businesses. To foster innovation and inclusive economic growth for workers and businesses, the agreement will strengthen the commercial connection and improve trade flows between the United States and Taiwan.



The negotiated chapter covers -

- **Customs Administration and Trade Facilitation:** The administration of customs and trade facilitation will simplify border processes and cut red tape, making it simpler, quicker, and less expensive for American enterprises to export their goods to Taiwanese consumers.

- **Good Regulatory Practices:** With the greater transparency tools and mechanisms created by the text on good regulatory practices (GRP), small and medium-sized businesses will better comprehend the regulatory processes in Taiwan and U.S. markets. This includes public consultations on proposed regulatory actions, which can help create better, more knowledgeable regulations. Agriculture: The United States and Taiwan intend to explore provisions to facilitate agricultural trade through science and risk-based decision-making and through the adoption of sound, transparent regulatory practices.
- **Anticorruption:** The Parties seek to develop strong anti-corruption standards to prevent and combat bribery and corruption.
- **Small- and Medium-Sized Enterprises (SMEs):** The SMEs will promote trade and investment prospects between the US and Taiwan through training initiatives, trade education, trade financing, trade missions, and enhancing SME access to cash and credit.

Logistics and warehousing policy



The Goa state cabinet approved the logistics and warehousing policy 2023, which aims to boost logistics-led investments. Earlier, 14 states like Assam, Gujarat, Haryana, Maharashtra, Rajasthan and others have already approved the logistics policy.

Goa is among the 15 states, and UTs categorised as achievers in the logistics index chart 2022, according to the LEADs report released by the Ministry of Commerce and Industry.

The Goa Logistics and Warehousing Policy sets forth several key objectives, including promoting eco-friendly transportation methods and establishing logistics as a common goal across various government departments. It also seeks to create a conducive environment for logistics players by generating warehousing and container logistics opportunities.

The policy incentivises construction enterprises, such as interest and capital subsidies of up to 15% on yearly loan interest payments. Companies operating in underdeveloped areas will be eligible for incentives if they invest in structures, plants, and machinery for integrated

logistics parks, large warehouses, cold storage facilities, and testing centres.

In addition to encouraging investments, the policy intends to increase agricultural produce transportation by improving connectivity from farms to markets. This includes improving interior river channels and refurbishing jetties for waterborne cargo movement.

Moreover, the policy emphasises skill development and employment generation within the state. During the first two years, the government intends to reimburse 50% of the expenses related to skill upgrading and training for local workers, up to a limit of Rs 5,000 per person, for a maximum of 1,000 individuals per business unit.

The state government will assist in developing logistics infrastructure by granting developers of logistics units and warehouses a 50% discount on land conversion expenses. The guidelines will be designed to enhance the Floor Space Index (FSI) of logistics and warehousing units by up to 200% and to expand ground coverage for such facilities.

Furthermore, according to the Town and Country Planning (TCP), Department set guidelines, logistics parks and warehouses may operate 24 hours a day, seven days a week. It also depends on fire department capability and road width availability; the maximum height limit for structures within logistics and warehouse units may also be expanded to 24 metres. For the first two years, startups in the logistics sector may be supported by a specific innovation fund of Rs 1 crore.

POLICY/ REGULATORY UPDATES

INDIA

By the principles provided in the 2022 Goa Industrial Growth and Investment Promotion Policy, the policy also encourages environmentally responsible practices, such as using solar-powered vessels.

National Electricity Plan (Volume-I: Generation)



Since 2006-07, India has made significant progress towards renewable energy sources, with a notable growth in installed capacity. The contribution of renewable energy sources (including large hydro) to installed capacity increased from 5.8% in 2006-07 to 39% in 2021-22 until 31.03.2022 and further increased to 41% as of 31.12.2022, and its energy contribution to total generation increased from 1.5% in 2006-07 to 21.54% in 2021-22.

The plan document, includes a review of the last five years (2017-22), a detailed plan for the next five years (2022-27) and a prospective plan for the next five years (2027-32).

v The document has described the planning approach for generation expansion planning during the period 2022-27 and 2027-32. The planning strategy focuses on using clean generation technologies such as solar, wind, and others. With this, clean technologies will become more cost competitive with conventional technologies. The best generation capacity mix would strike the correct balance between cost economics and grid stability.

According to the NEP document, the projected All India peak electricity demand and electrical energy requirement is 277.2 GW and 1907.8 BU (billion units) for the year 2026-27 and 366.4 GW and 2473.8 BU for the year 2031-32 as per 20th Electric Power Survey (EPS) Demand projections.

Projected capacity vs Generation Planning scenario 2022-2027 for conventional & RE sources

i. The projected capacity addition requirement during the period 2022-27 to meet the peak demand and energy requirement for the year 2026-27 is 211,819 MW comprising 31,880 MW of Conventional capacity (Coal-25,580MW and Nuclear-6,300MW) and 179,939 MW of Renewable based Capacity (Large Hydro- 10,462 MW, Solar-131,570, Wind-32,537 MW, Biomass-2,318 MW, Small Hydro352MW PSP-2700 MW) excluding likely Hydro based Imports of 3720MW. The likely BESS requirement is 8,680MW/34,720 MWh during this period.

Based on generation planning studies carried out for the period of 2022-27, the likely Installed Capacity for the year 2026-27 is 609,591 MW comprising of 273,038 MW of

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Conventional capacity (Coal- 235,133MW, Gas-24,824MW, Nuclear-13,080MW) and 336,553 MW of Renewable based Capacity (Large Hydro-52,446 MW, Solar-185,566 MW Wind-72,895 MW, Small Hydro-5,200 MW, Biomass- 13,000MW, PSP-7446MW) along with BESS capacity of 8,680MW/34,720 MWh.

The total fund requirement for 2022-2027 is estimated to be Rs. 14,54,188 Crores, including the likely expenditure for the projects expected to be commissioned during 2027-2032.

As mentioned in the document, sources available for debt funding are Scheduled Commercial Banks, financial institutions like Power Finance Corporation (PFC), Rural Electrification Corporation (REC), Life Insurance Corporation (LIC), commercial banks and bonds (domestic as well as overseas), External Commercial Borrowings, foreign currency loan from World Bank, ADB, KfW, EXIM Bank and also Buyer's credit from foreign equipment manufacturers.

Further, as recommended by the NEP document, efforts shall be made to identify potential research groups working on the same areas and initiate joint projects and start-ups to achieve specific targets. Also, to promote a culture for research, IPR creation and commercialization within the CPSUs/ research organizations under the MoP through the conduct of 'In-house' Awareness Programmes, Workshops, etc

OTHERS

Japan has adopted an agricultural policy to ensure the food security



The Japanese government approved a proposal to restructure its agricultural policy in order to secure Japan's food security, including a plan to reduce the country's reliance on food imports. The new policy direction for food, agriculture, and rural areas was adopted at Prime Minister Fumio Kishida's task force meeting on ways to ensure a stable food supply.

During the meeting, PM Kishida suggested that the government will work to increase the domestic production of wheat, soybeans and feed grains, or items for which Japan currently relies heavily on imports. In 2021, Japan imported US\$ 1.6 billion of wheat and US\$ 1.86 billion of soybeans. The government also aims to make farmers pass on production costs adequately to prices and promote agricultural technologies.

As the formal statement by Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF), 'In order to ensure that Japan maintains a stable food supply given that the country's import a large amount of food, it is important to increase not only domestic agricultural production and improve food-self-sufficiency but also collaborative measure.'

Smart Manufacturing Akriti Kumari

Industry Trend- Energy
Management



The industry is tightening its belt; it knows that the days of cheap gas are over. As you are very much aware of, Europe becoming a cold turkey, it's hurting and impacting prosperity. PV systems are in short supply, as are storage systems, of course. The situation is tense, most companies are still trying to find a way ahead, and only a few decision-makers have evolved a strategy. The rest is down to the complexity of the energy system itself.

However, Energy management is not that complex, but is the proactive, organized, and systematic coordination of procurement, conversion, distribution, and use of energy to meet the requirements, taking into account environmental and economic objectives. It includes minor actions such as monitoring monthly energy bills and upgrading to energy-saving lightbulbs. It can mean more extensive improvements like adding

insulation, installing a reflective roof covering or improving HVAC (heating and cooling) equipment to optimize energy performance.

The important levers of the energy management strategy are:

- **Structure, measurements and knowledge**

The first step for many companies is to set up an energy management system in accordance with ISO 50001 or ISO 50005 for small and medium-sized enterprises. First of all, energy flows in the plant and the associated sources of energy are recorded and analyzed. Based on this, ideas for improvement are then developed, evaluated for economic viability and subsequently implemented. Energy management thus helps in the decision-making process for investments in energy efficiency. Savings of up to 10 percent can be achieved even in the first step, according to many experts. It's about recognizing energy flows and then taking action. The solution is integrated into existing systems such as MES or ERP, and provides key figures for energy management.

- **Saving on converters**

Many companies still use uncontrolled motors to drive pumps or fans. Almost two-thirds of the electricity consumed by industry is due to electric motors. Frequency converters control the speed of a motor (and pump or fan), and in many applications they can reduce energy consumption by 30 to 50 percent; in extreme cases, according to the suppliers, as much as 90 percent can be saved. Energy management requires

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ransparency, data and electrical engineering.

- **Networking of machines**

For years now, machine builders have been discussing the IIoT and connected machines. This primarily involved the exchange of production data. The next step is to integrate the machines into the company's energy system.

Why energy management?

- **Energy Management saves costs**

Now we already know this, using an EMS in a building may bring up to 29% savings on total energy consumption costs. Secondly, even a small measure undertaken, like replacing old CFL bulbs with more energy-efficient LED lights, can reduce the lighting energy consumption by more than 50% over a long period of time.

- **Reduces the risk of energy scarcity**

Though energy is just converted from one form to another, it's still susceptible to its scarcity. As per a study conducted by the US Energy Information Administration (EIA), the world's energy consumption is expected to grow by 48% by 2040. If not taken adequate steps, a sudden surge in energy demand may cause energy scarcity in the future.

- **To reduce greenhouse gas emissions**

38% of the world's total electricity is produced via coal power plants. The burning of coal and other fossil fuels release Greenhouse gases like CO₂, CH₄, CO, CFC, etc. that poses the threat of global warming and its induced climate change.

- **Renewables have overhead costs too**

Even the energy obtained from renewable sources has substantial overhead costs and capital costs attached to them. So, we need to consider this factor also.

- **To maintain energy price**

A balance between demand vs supply is essential to manage the cost of any commodity and the same goes with energy too. The fluctuations in energy prices will also affect the prices of electrical appliances. So, proper energy management will ensure the affordability of energy and its appliances in the present and future.

(The writer is an Senior Research Analyst at VeKommunicate)

Environment Equity

Saloni Goyal

Green Hydrogen Effect on Water Resource



Green hydrogen is created with zero carbon emissions when water is electrolyzed using renewable energy (RE) sources. In order to decarbonize heavy sectors, including steel mills, fertiliser factories, and oil refineries, green hydrogen is anticipated to play a significant role. Across the globe, different aspects of green hydrogen are funded to cut down production costs. On the other hand, the issue of water requirement needed to achieve the target production is not being addressed.

Water-Energy Nexus

Water electrolysis is an electrochemical process that splits water into hydrogen and oxygen. Less than 0.1% of dedicated hydrogen production globally comes from water electrolysis, and the hydrogen produced by this means is mostly used in markets where high-purity hydrogen is necessary (for example, electronics and polysilicon).

A report by the IEA claims that it needs nine litres of water for every kilogram of green hydrogen produced. The report said that freshwater access is a concern in water-stressed areas for producing green hydrogen. Estimates claim that if solar energy is used as an electricity source for electrolysis, then the

total water requirement for the energy source and water needed for electrolysis will come to around 32 kgs of water to produce each kg of green hydrogen. In contrast, if wind energy is used, the cumulative water requirement per kg of green hydrogen comes to 22 kg of water. According to the same estimations, when natural gas is utilised to manufacture hydrogen (grey hydrogen), it takes 22 kg of water to produce one kg of hydrogen.

Situation in India

In India, the Union Minister of Finance, Nirmala Sitharaman, earmarked Rs. 197 billion for the Green Hydrogen Mission in her last budget, which was tabled on February 1. Earlier in January 2023, the government of India (GOI) released a strategy for the Green Hydrogen Mission.

The Ministry of New and Renewable Energy (MNRE) has designated municipal and industrial wastewater as its feedstock wherever possible. However, it admits 'water' as a barrier to creating green hydrogen in its National Hydrogen Mission roadmap. As water is a state issue, it asked governments to identify the best resource to promote green hydrogen.

Water treatment challenge

Globally, efforts are being made to use seawater or contaminated water to produce green hydrogen. These efforts, however, are merely at the experimental stage.

Countries like Spain have conducted preliminary studies on using treated

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freshwater in electrolysis to produce fresh water. However, analysts argue that the majority of these technologies are still in the pre-commercial stage and will incur additional costs. Recently, a Chinese scientist team developed a membrane-based seawater electrolyzer device. This device is able to split salty seawater for hydrogen production.

The future of Green Hydrogen depends on which water resource countries use to produce it, and need to re-think acceptance in terms of energy.

(The writer is an Account Executive at VeKommunicate)



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