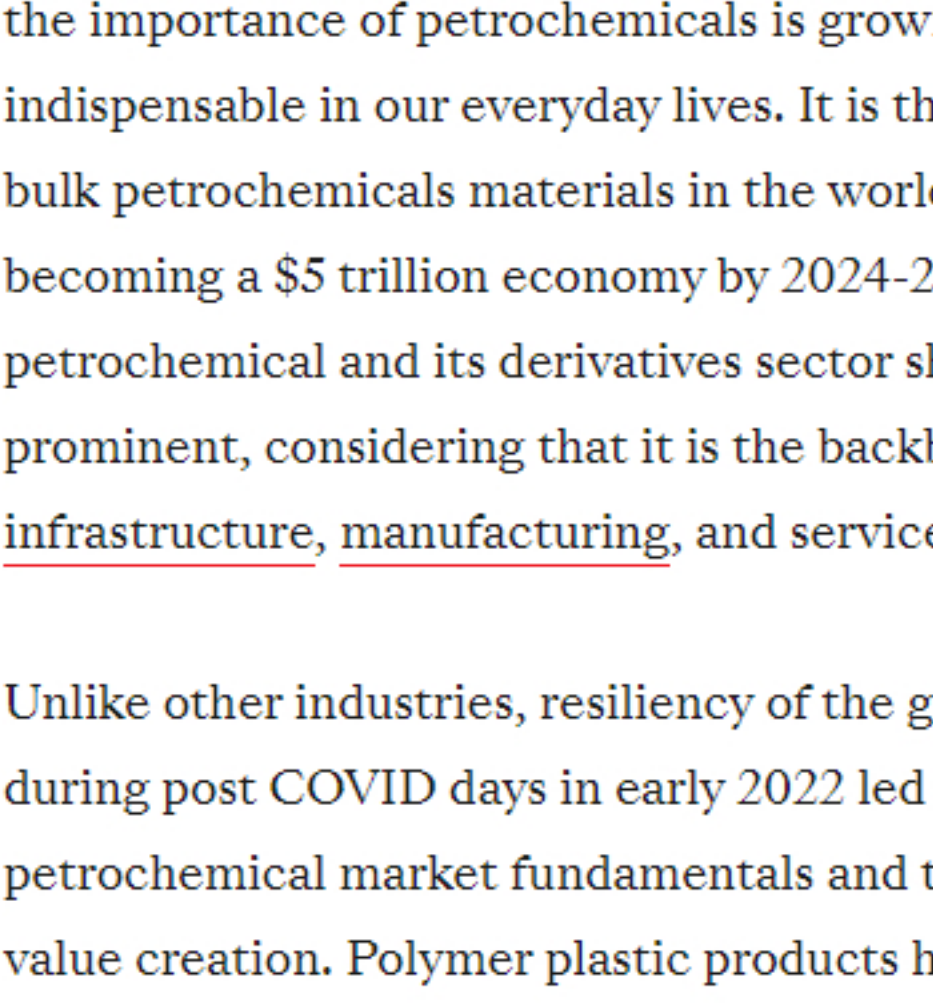


shaping India's growth towards a \$5 trillion economy

As India progresses towards becoming a \$5 trillion economy by 2024-25, the share of the petrochemical and its derivatives sector shall become even more prominent, considering that it is the backbone of agriculture, infrastructure, manufacturing, and services.



Foundation of our Economic Growth

We live in a world where petrochemical products are integral to modern societies. From the cars we drive to the electronic goods we use to the packaging we need;

the importance of petrochemicals is growing even more. Plastics are indispensable in our everyday lives. It is the fastest-growing group of bulk petrochemicals materials in the world. As India progresses towards becoming a \$5 trillion economy by 2024-25, the share of the petrochemical and its derivatives sector shall become even more prominent, considering that it is the backbone of agriculture, [infrastructure](#), [manufacturing](#), and services.

Unlike other industries, resiliency of the global petrochemicals industry during post COVID days in early 2022 led to strengthening of petrochemical market fundamentals and thereby preceding to unique value creation. Polymer plastic products helped address several challenges during the pandemic. It is beyond belief of the fact that the global pandemic could have been managed this effectively without the use of polymers. The consumption of healthcare products and flexible packaging for consumer goods, food and e-commerce merchandise has increased manifold, leading to rising demand for certain polymer products. Largely, the industry has seen strong demand growth in 2022 and will continue to support economic growth across the world by 2030, as well as noteworthy momentum to aid the circular economy through plastics recycling and sustainability.

Global trends and the opportunities for India

Petrochemicals are rapidly becoming the leading driver of global oil consumption. As per [International Energy Agency](#), the industry accounts for more than a third of the growth in oil demand by 2030, and nearly half by 2050, ahead of the transportation sector. Meanwhile, there is a pressure on fossil fuel usage due to rising climate change needs resulting in a combination of better fuel economy, alternative fuels, and electrification. Thus, the stagnating global demand of fuel and overall growth along with profitability of petrochemical products in next two decades will contribute to the future of the petrochemicals industry as a major significance for both global energy security and the environment.

The last decade has seen China's emergence as the largest petrochemical market due to its petrochemical self-sufficiency policies followed by the US as there has been some big near-term capacity additions. Since petrochemical growth in the EU has been stagnant over a few years due to high plastic consumption, Asia and Middle East regions have seen long term growth resulting in the development of petrochemical hubs. The combination of a growing economy for developing countries, rising population, increasing skill base, and technological development has rendered an increasing demand for petrochemical plastic products.

Even though we experience the petrochemical boom and its cyclical nature, there are certain uncertainties that the global petrochemical industry is challenged with including present trade restrictions due to war, drive towards circular economy and sustainability and rising bans on single-use plastics. Amongst all the uncertainties including flat oil products demand, India still has the potential for a more persistent fuel demand, on top of fast-growing petrochemical requirements as the plastic consumption is around one third to the global plastic consumption.

Both domestic public and private oil companies in India have firmed up their petrochemical capacity investment plans with a hope to reduce significant import dependence and cater to high demand growth for polymer products. Multiple analysts' reports highlight that Indian petrochemical industry to grow at a CAGR of 9-10% over a period of next 20 years given that there is a dearth of around 12-14 global scale petrochemical cracker capacities to meet India's rising demand potential. The China Plus One business strategy is gaining impetus and thereby diversifying business into other progressive developing nations like India due to favorable geo-political situations and availability of cheap resources. Major international companies including Saudi Aramco, BASF, Rosneft, ADNOC, Borealis and a couple others have forged joint ventures and have made substantial investments which can change the image of the India petrochemical industry.

By 2022, India has ranked as sixth largest player in the global petrochemical business with a market size of around USD 190 Bn. India's strong economic progress, supported by robust macro fundamentals, and population growth are major enablers for the petrochemical manufacturing hub. The flagship programmes such as Make in India and the Aatmanirbhar Bharat Abhiyan provide governmental guidance to this sector and create a facilitative environment to attract further investments. The Indian petroleum industry's forward integration into petrochemicals and subsequent polymer derivatives is a potential game changer. The security of feedstock availability and intermediate products for downstream polymer industries will increase resulting in value maximization across the entire chain of polymer molecules.

Where does the Indian petrochemicals industry stand today?

Petrochemical industry is the ideal sector for a Make in India and Aatmanirbhar Bharat Abhiyan strategy given the strategic importance of petrochemical building blocks and intermediates. In the past, the Indian petrochemical players have grown their business portfolios from the existing refinery backdrop to drive net margin. Therefore, the focus has been more on utilizing the available naphtha as feedstock, leveraging straightforward technologies and producing basic petrochemical building blocks namely ethylene, propylene, butadiene, and aromatics. Investments in capacity additions by Indian petrochemical companies has led to self-reliance across the basic petrochemical polymer industry. The petrochemical intermediates form a critical chain in the Indian chemical industry as they are primary feedstock of producing specialty chemicals, which are essential for manufacturing almost all consumer and technology products. The major polymer intermediates include ethylene oxide, propylene oxide, polyols, phenol, styrene and rubber derivatives are used in manufacturing a variety of consumer products.

Indian domestic refineries have added petrochemical capacities to produce polymer building blocks to manage the pressure off from flat gross refining margin curves and more resilient sources of income. By 2035, India can afford to have around 20 refinery-cum-petrochemical integrated plants to cater to the demand of plastic consumption of our burgeoning population growth. The configuration may involve co-located or integrated facilities or investment in standalone NGL feedstock crackers with varied levels of operational integration. Even with different ownerships, steam crackers are co-located with refinery plants in the same industrial zones as SEZs thereby saving on intermediate product transfers costs, corporate overheads, staff costs, leveraging synergies in utility supply and logistics infrastructure. Latest direct crude-oil-to-chemicals (COTC) technologies had gained popularity on the back of high margin yield products like olefins or aromatics. Some of the recent success of COTC plants are based in China and Middle East including Exxon, Hengli, Yanbu etc.

Even though India is self-reliant on basic petrochemical products with its export numbers promising, there is a serious scarcity of petrochemical intermediates or derivatives resulting in an import dependency of 50% which is quite high in comparison to the chemical manufacturing sector. It is an opportune time for Indian downstream companies to invest in developing the polymer intermediate industry by capacity expansions or forging Joint Ventures within or outside the country. The lack of growth for the petrochemical intermediate industry allows Indian companies to become import dependent resulting in a cumulative loss of USD 180-200 Bn due to high import bill and missed growth opportunity by 2030. On the other hand the downstream petrochemical industry i.e specialty chemicals accounted for over 50% of chemical exports in 2022, dominated by agrochemicals, dyes and pigments, etc. Due to the cost advantages in emerging markets, particularly India and China, a significant shift of production supremacy over developed countries has been observed in the global specialty chemicals industry. Additionally, many global companies are looking to optimize their supply chain and explore opportunities to shift closer to Asian demand centers like India.

The Indian petrochemical intermediates market is driven by the growth of downstream industries such as plastics, synthetic fibers, and rubber, as well as the increasing demand for high-performance materials in various end-use applications such as automotive, construction, and textiles. It is expected to grow at a steady pace in the coming years, to fill the gap between basic petrochemical and speciality chemical industry. Companies operating here need to expand their production capacities, investing in research and development, and forming strategic partnerships and acquisitions to strengthen their market position. The availability of skilled labor, favorable government policies, and a growing manufacturing sector are expected to provide further impetus to the growth of the petrochemical intermediates market in India.

India has joined the movement of banning single use plastics along with more than 150 countries, including a nationwide ban on certain items and initiatives to promote alternatives and recycling. Studies show these plastics leach harmful chemicals into the ecosystem, such as bisphenol-A. Microplastics which are smaller plastic particles from single use plastic breaking down, pollute the water and food sources. While challenges remain, the Indian government's efforts have helped to raise awareness about the issue and encourage positive changes in behavior among individuals and businesses.

Policy support by the Indian Government

The GoI's initiatives such as "Make in India" and "[Skill India](#)" have been encouraging foreign investment, external branding and promoting the growth of the chemical manufacturing sector, which is driving the demand for petrochemicals. Several policy measures including [National Petrochemical Policy \(NPP\)](#) in 2007, Hydrocarbon Vision 2030 in 2016, 100% FDI in the petrochemical sector through automatic route and Production Linked Incentive (PLI) scheme in 2021 have been approved to support the growth of the petrochemical industry in the country. Multi-pronged infrastructure support has been instituted including petrochemical hubs like Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) which will provide world-class infrastructure for the industry. Additionally, measures like improving the availability of feedstock, including the development of new gas pipelines and the expansion of the country's refining capacity have been pursued. There is also a growing focus on R&D in the petrochemical intermediates industry to develop new and innovative products that are more sustainable and environmentally friendly. This is expected to lead to the development of a more advanced and competitive local petrochemical industry. The government has provided various tax incentives for the petrochemical industry, including exemptions or reduced rates for excise duty, customs duty, and value-added tax (VAT) on certain petrochemical products such as polymers, plastics, and synthetic fibers. These rates on petrochemical products are subject to change based on the government's policy objectives and economic conditions. However, they are an important source of revenue for the government and play a significant role in shaping the competitiveness of the petrochemical industry in the country.

The revision of the Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) policy in September 2022 was a welcome move. The revised PCPIR policy is expected to significantly impact India's economy, attracting investment and creating jobs in the sector. It is to encourage investment in the sector and transform India into a petrochemical manufacturing hub for domestic and international markets through high-quality infrastructure and to create a competitive environment favorable for businesses. It is expected to attract over USD 420 billion in combined investments between now and 2035. The policy will guide to prioritize completing existing projects, streamline processes to remove roadblocks and develop a specific cluster integration strategy. An assurance of 20% viability gap funding for infrastructure projects and smart utilities is already implemented. The revised PCPIR policy is expected to be a game-changer for the petrochemical industry in India, and its success will undoubtedly significantly impact the country's economy and development.

The impact of the Free Trade Agreement (FTA) on the Indian petrochemical industry would depend on the specific terms of the agreement. While India is a net exporter of synthetic fibres, aromatics and olefins, India is a net importer of polymer and fibre intermediates, with the quantum imports rising over time. Imports have overtaken domestic production in lure of tariff reduction and trade liberalization thereby posing a threat to the financial viability of both existing and new investments. FTAs have resulted in an influx of cheap petrochemical products from other countries creating a massive dumping gateways into India. This could lead to a decline in domestic manufacturing and employment. Therefore it is imperative that the policy makers need to undertake actions with regards to possible impacts which may follow, while entering into any new agreement. However, FTAs has its own pros and cons; therefore, it is important to review the policies from time to time, institutionalizing a FTA regulatory board, exclusion of key petrochemical products sensitive to domestic industry etc.

Furthermore, there is a growing focus on safe, sustainable and eco-friendly petrochemical production, which is driving the development of new technologies and innovations in the industry. Bold steps like introduction of Chemical (Management and Safety) Rules (CMSR) and Extended Producer Responsibility (EPR) rules have been implemented to promote responsible chemical management practices. Additionally, the government is rationalizing the essential customs duties on raw materials used by domestic manufacturers. These initiatives aim to create a safer and more sustainable petrochemical industry, crucial for India's long-term economic growth and development.

Way forward

India's petrochemical sector is on the cusp of significant growth. This is evidenced by various factors, such as the impressive return on investment in financial markets, India's demographics, increasing affluence, and its global stature. This presents a lucrative opportunity for petrochemical companies to cater to the domestic market, which could lead to import substitution and savings in foreign exchange. The PLI schemes with an outlay of Rs 1.97 lakh crore to promote vital end-use sectors, including pharmaceuticals, telecommunications, automobiles, electronics, mobiles, medical devices, and textiles. This is expected to further boost the country's demand for chemicals and petrochemicals. Strategic global partnerships and collaborative programs with the government will also be critical in driving the industry's growth. The chemicals and petrochemicals industry is responsible for contributing towards nearly 10 out of 17 [UN Sustainable Development Goals](#) by 2030.

Moreover, the petrochemical industry needs to play a vital role in promoting a circular economy through effective design, reuse, and recycling of materials, as well as innovation and technology. This requires embracing Industry 4.0 to enhance existing technological strengths while maintaining global safety standards. In the coming days, three themes will be central - accelerated action on sustainability, innovation to decarbonize the economy, and the growth of newer end-user segments. The Indian petrochemical industry can facilitate the transition to a circular economy and explore opportunities in green chemicals to play a pivotal role in this transformation. Overall, with the right policy support and investment, the petrochemical industry can contribute significantly to the goal of making India a \$5 trillion economy by 2024-25.