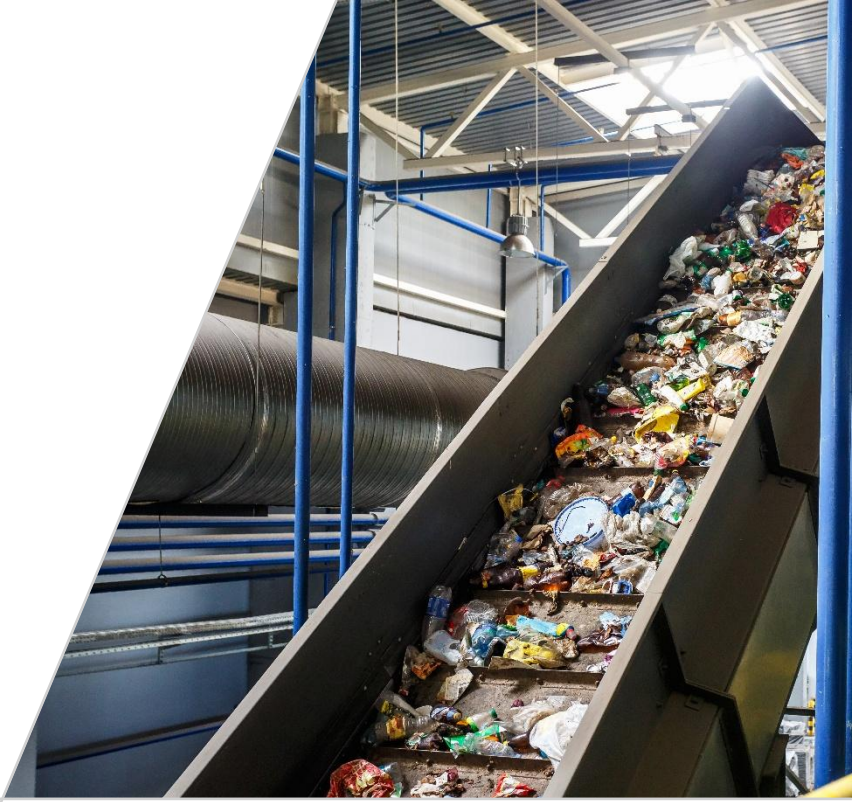
Recycled Plastics Supply Outlook



China and Europe lead the way

Sept. 2, 2026

BloombergNEF

Executive summary

The availability of recycled plastic is becoming increasingly important in markets like Europe, South Korea and India where governments are set to tighten what are already some of the strongest mandates for its use in packaging and products. Still, only 21% of plastic waste will be turned into new material by 2040 on average across eight regions BloombergNEF finds, up from about 12% in 2024, showing the need for more supportive policies and investment.

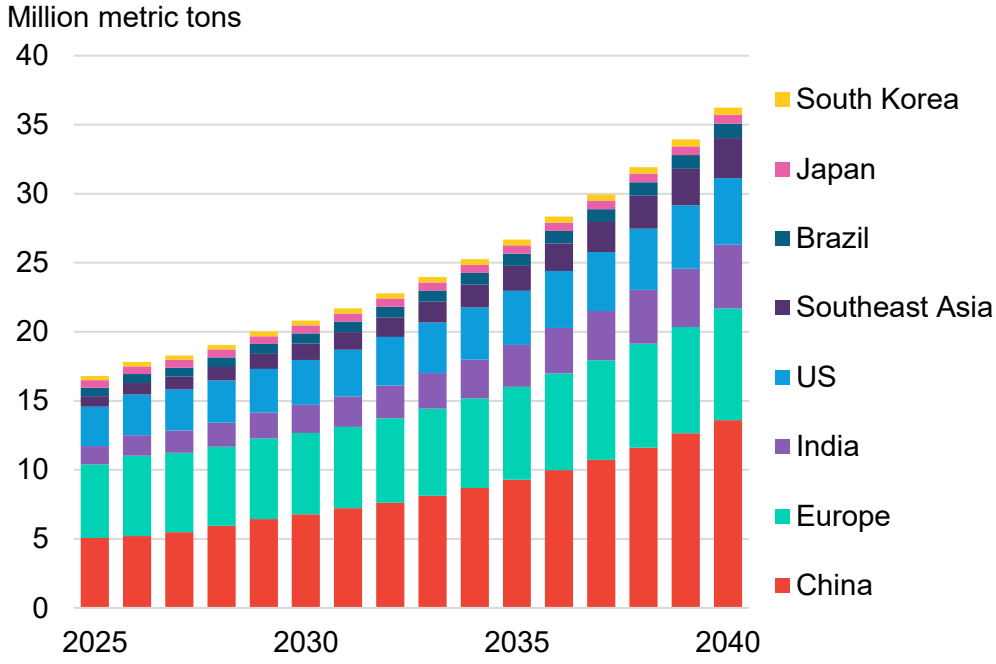
- Supply of recycled plastics for the five main polymers across the eight markets could reach 36.2 million metric tons by 2040, based on BNEF's outlook. China accounts for 38% of the supply by then, followed by Europe at 22%. The US and India each make up 13%.
- By 2040, around 30 million metric tons of mechanically recycled plastics is expected to be produced across the eight markets. While a large share of these recycled plastics are low-grade materials, markets including China, India and South Korea are shifting toward higher-quality production.
- The European Union, India and Brazil are enforcing some of the strictest recycled content mandates and these are expected to rise after 2030, when demand for recycled plastics could outpace supply.
- Chemically recycled plastics account for 5.8 million metric tons, or 16%, of the recycled supply by 2040. Countries including Japan and South Korea are launching policies to attract recyclers.
- Motivation for recycling stems from several factors including waste reduction, decarbonization and supply chain security. Feedstock availability, collection quality and the economics of building new plants are the biggest challenges recyclers face today.
- Approach: BNEF uses polymer demand data to estimate annual waste available for recycling in each market. It then forecasts recycling rates out to 2040, based on available historical data.

36 million tons Recycled plastics supply in eight markets by 2040

21% Average recycling rate across the eight regions by 2040

60% India's recycled content target for rigid plastics packaging by 2030

Total recycled plastic supply outlook by region



Source: BloombergNEF. Note: Polymers include polyethylene terephthalate (PET); high-density polyethylene (HDPE); low-density and linear low-density polyethylene (LLDPE/LDPE); and polypropylene (PP).

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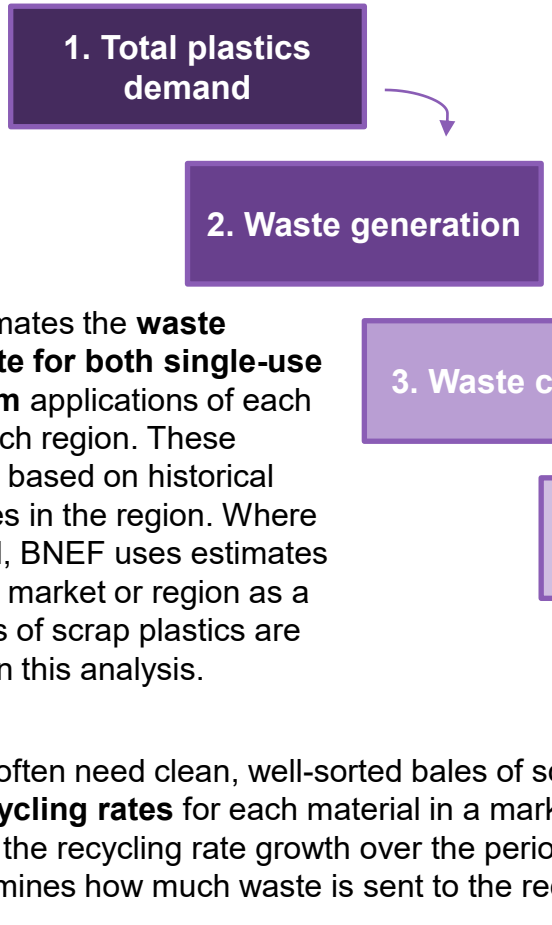
Methodology

Summary of approach and assumptions

Methodology overview

This report models recycled plastics supply for five polymers: polyethylene terephthalate (PET); high-density polyethylene (HDPE); low-density and linear low-density polyethylene (LLDPE/LDPE); and polypropylene (PP), across eight regions; the US, India, China, Europe, Southeast Asia, Japan, South Korea and Brazil. The model does not include plastic waste that is converted into fibers, such as polyester from PET bottles.

BNEF's recycled plastic outlook methodology



1. ***BNEF's Petrochemical Supply and Demand Database*** (web | terminal) forms the basis for the annual plastics demand by polymer in each region. Demand has been estimated based on the total plastic production plus net imports of plastics. Tecnon Orbichem's data on regional PET resin consumption was used to estimate PET resin demand. We then applied an adjustment factor to account for the trade of final goods containing plastics.

2. A **lifecycle duration is assigned to each polymer** where we assume it becomes waste thereafter. For example, single-use PP joins the waste stream the following year, while long-term applications of PP only become waste after nine years on average.

3. BNEF estimates the **waste collection rate for both single-use and long-term** applications of each polymer in each region. These estimates are based on historical collection rates in the region. Where data is limited, BNEF uses estimates from a similar market or region as a proxy. Imports of scrap plastics are not included in this analysis.

4. Not all waste collected for recycling makes it to a recycling plant. **Losses in waste sorting** due to contamination, poor quality and leakages are accounted for. Waste that is not sent to a recycling plant will often end up in a landfill or be incinerated.

5. Recyclers often need clean, well-sorted bales of scrap. We **estimate recycling rates** for each material in a market and then forecast the recycling rate growth over the period. This rate is what determines how much waste is sent to the recycling.

6. We then assume a **recycling process efficiency** of around 65% on average. The **sum of mechanically and chemically recycled plastics** then forms the final annual recycled output.

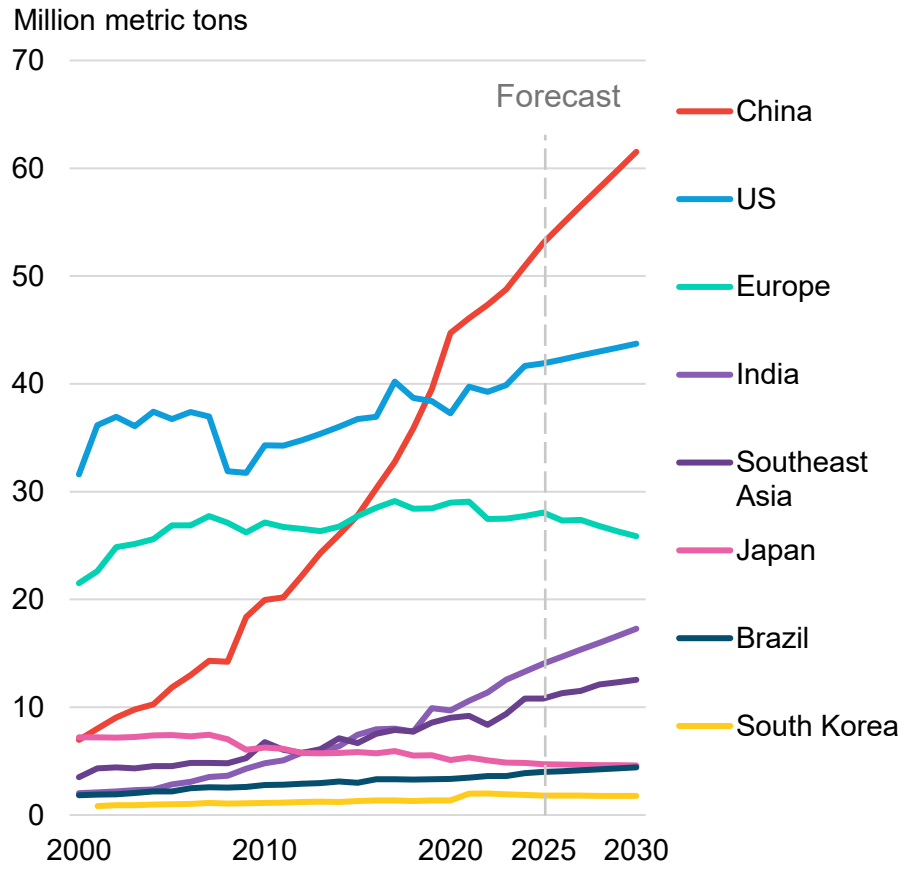
For detailed assumptions used in the report, see Appendix.

BNEF's plastic demand outlook determines waste levels

BNEF estimates plastics demand as the sum of plastic production and net imports of plastics in the region, from the *Petrochemical Supply & Demand Database* (web | terminal), which in turn determines how much waste will be generated in each region. For the demand **forecast**, we look at the historical demand growth rates and the context in which the market currently operates.

- **China** is the biggest driver of global plastics demand as production capacity expands rapidly and the country pushes toward self sufficiency. By 2030, China's plastic demand across the five polymers is expected to exceed 60 million metric tons. China also remains a major net importer of polyethylene.
- **US** is the second-largest producer of plastics globally with demand expected to steadily grow from 2025.
- **Europe's** chemicals industry has been facing challenges with cheap imports of plastics flooding the market. The industry has contracted in recent years with chemical plant closures.
- **India's** plastics demand has grown rapidly over the past two decades. The country is expecting new PE production plants to come online in 2026 and beyond, which will further accelerate demand.
- **Southeast Asia** has rapidly growing demand including in markets like Vietnam, where Chinese producers are expanding PE capacity.
- **Brazil's** plastic production has also grown in recent years but demand growth after 2025 remains relatively stable.
- **South Korea** and **Japan's** chemical industry has been hit by plant closures in recent years, driven by global oversupply. Demand for each of the five polymers is expected to decline after 2030 in Japan.

Total fossil fuel-based plastics demand by region



Source: BloombergNEF. Note: Polymers include polyethylene terephthalate (PET); high-density polyethylene (HDPE); low-density and linear low-density polyethylene (LLDPE/LDPE); and polypropylene (PP). Data between 2026-2030 is a forecast. For more, see BNEF's Petrochemical Trade Tool (web | terminal) and Petrochemical Assets Database (web | terminal).

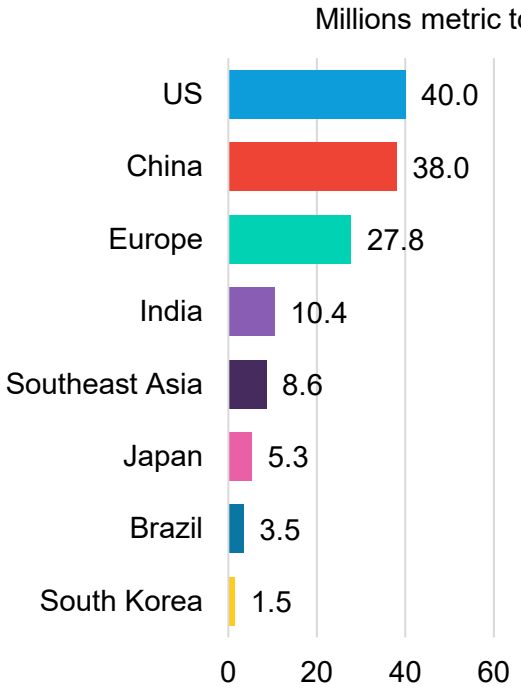
Global overview

Outlook for five polymers across eight regions

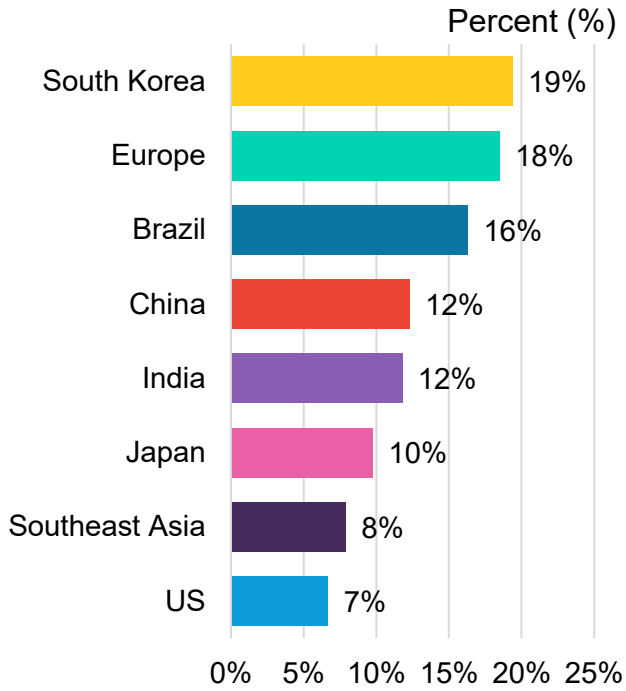
Plastic recycling is limited by low waste collection and recycling rates today

- Global plastic waste more than doubled between 2000 and 2019, yet only about 9% was ultimately recycled in 2019 according to the OECD. Globally, waste generation is growing faster than the infrastructure and systems needed to manage and recycle it.
- Recycling rates for the five polymers was around 12% on average in 2024, according to BNEF's outlook. Recycling rates are lowest in markets where waste generation tends to be the highest.
- Often developing countries can lack reliable collection, sorting and recycling facilities, reducing recycling prospects. Even when recycling is technically feasible, the cost of recycling may be higher than producing new virgin plastics and the quality of recycled plastics may be lower, resulting in limited buyers.
- Recyclers and waste operators require a financial incentive to recycle. Policies such as recycled-content mandates and product-design standards are creating demand for recycled material.

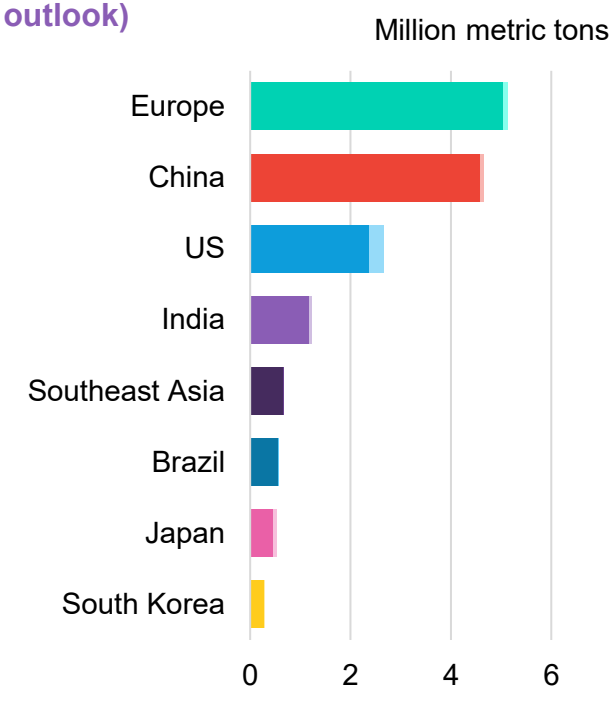
Estimated plastic waste generation in 2024



Estimated plastic recycling rate in 2024



Plastic recycled supply in 2024 (based on outlook)

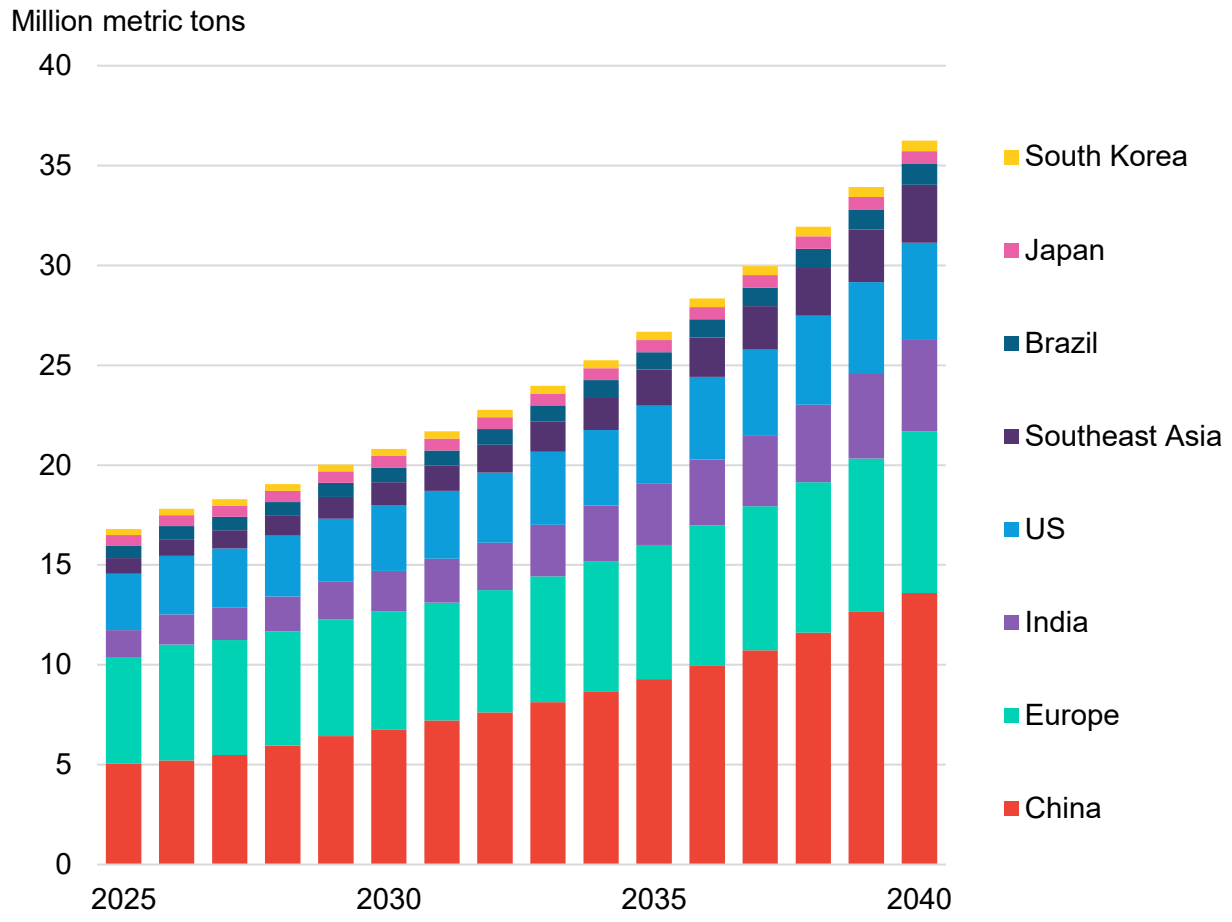


Source: BloombergNEF. Note: Polymers include polyethylene terephthalate (PET); high-density polyethylene (HDPE); low-density and linear low-density polyethylene (LLDPE/LDPE); and polypropylene (PP). For recycled supply, the lighter shade refers to chemically recycled plastics, darker shade refers to mechanically recycled plastics.

Recycled plastic supply to more than double between 2025 and 2040

- Recycled plastics supply for the five main polymers (PET, PP, HDPE and LDPE/LLDPE) across the eight markets could reach 36 million metric tons (Mt) by 2040, based on BNEF's outlook. This marks a doubling from 2025 levels of 16.8Mt.
- **China** accounts for 38% of the supply by 2040, followed by **Europe** at 22% and the **US** and **India** each accounting for 13%.
- Markets in Asia including **China**, **India** and **Southeast Asia** are expected to experience the fastest growth in recycled plastics supply over the period.
- Motivation for recycling stems from several factors including waste reduction, decarbonization and supply chain security. Feedstock availability, collection quality and the economics of building new plants are the biggest challenges recyclers face today.

BNEF's recycled plastic supply outlook by region



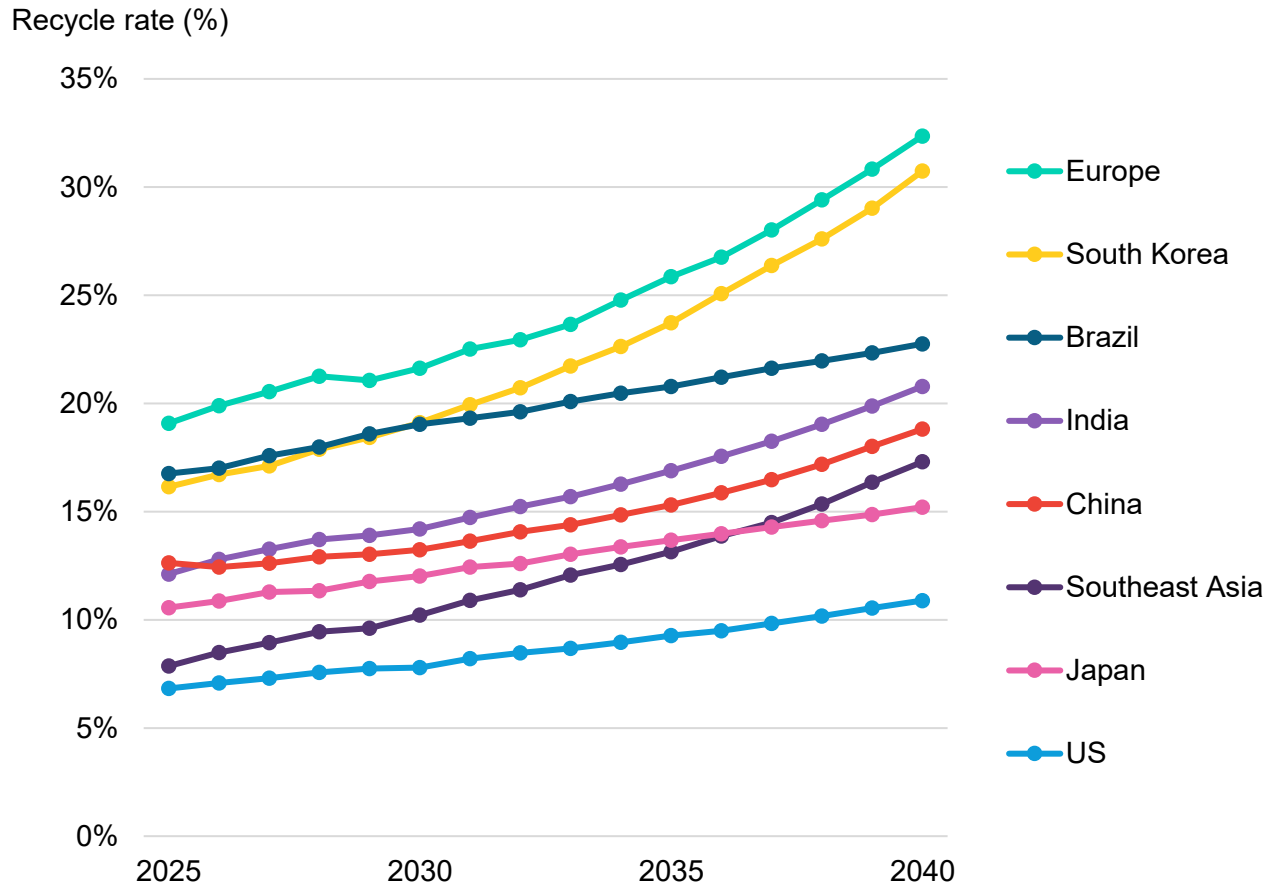
Source: BloombergNEF. Note: Polymers include polyethylene terephthalate (PET); high-density polyethylene (HDPE); low-density and linear low-density polyethylene (LLDPE/LDPE); and polypropylene (PP).

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Recycling rates grow fastest with waste collection and policy mandates

- Plastic recycling rates range between 7-20% in 2025, and by 2040 they increase across all markets to between 11-32%.
- Most markets operate recycling plants for single-use plastics like PET bottles. However, recycling rates are often determined by waste collection and feedstock quality.
- Government mechanisms such as extended producer responsibility (EPR) can support recycling of specific plastics like PET and HDPE.
- Recycling rates grow fastest in regions like **Europe** and **India** which already have relatively good waste collection systems in place, combined with governments imposing recycled-content mandates for plastics used in packaging.
- Despite **China** being the largest producer of recycled plastics globally, its recycling rate only increases gradually and is outstripped by faster growth in plastic waste generation.

Total recycled plastic supply as a share of total plastic waste generation by region

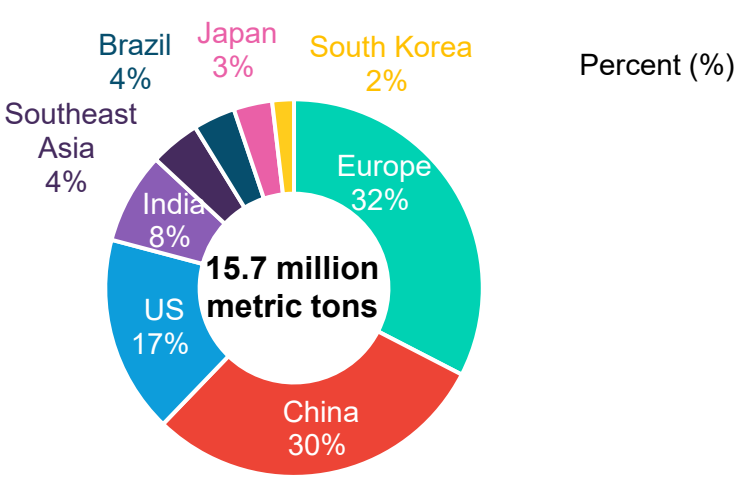


Source: BloombergNEF. Note: Polymers include polyethylene terephthalate (PET); high-density polyethylene (HDPE); low-density and linear low-density polyethylene (LLDPE/LDPE); and polypropylene (PP).

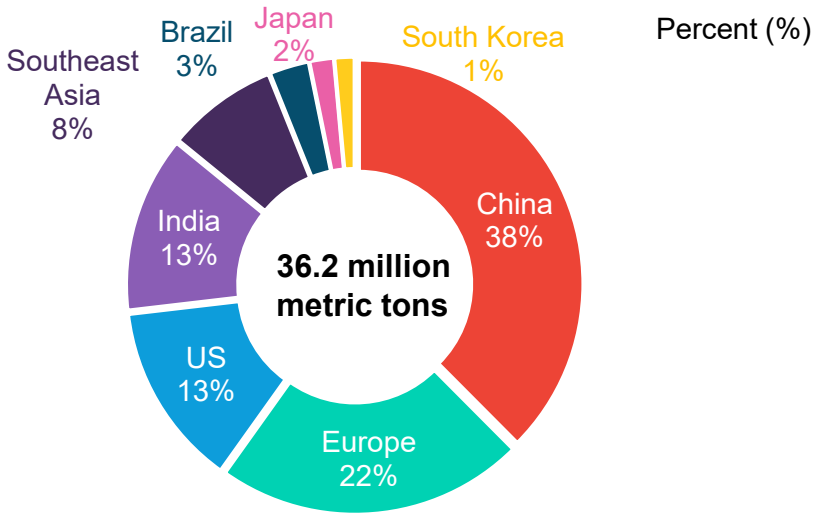
Asia dominates recycled plastic supply by 2040

- The regional share of recycled plastic supply differs vastly between 2024 and 2040, as Asia displaces Europe as the top producing region. Total volumes increase from 16Mt in 2024 to 36Mt in 2040, by when Asia accounts for 61% of the supply.
- In 2024, **Europe** accounted for a third of global recycled plastics supply, closely followed by **China** (30%). By 2040, BNEF estimates China to outpace Europe as the dominant supplier. While mandates in Europe are driving demand, making money from recycling plastics remains difficult and many recyclers are closing operations. This could result in Europe requiring imports of high-grade recycled plastics in the long run to meet mandated demand.
- **Southeast Asia's** regional share of supply grows from 4% in 2024 to 8% in 2040 as governments introduce measures to tackle plastic pollution.
- By 2040, **India** becomes the joint third-largest supplier of recycled plastics, alongside the **US**. India's plastic recycling market is growing fast with tightening policy measures including extended producer responsibility (EPR) guidelines that set mandatory targets for recycling and reuse of rigid packaging, as well as the use of recycled plastic content. India also benefits from an informal waste collection sector which improves access to sorted waste feedstock.
- Markets like the **US** and **China** that produce relatively low-cost virgin plastic are likely to be the regions where recycled plastics face the most competition, particularly if mandated demand for recycled material is low.
- Despite **South Korea's** recycling rate increasing rapidly, its overall volume of production remains low relative to other regions due to the smaller volume of domestic consumption.

Share of recycled plastic supply across eight markets in 2024



Share of recycled plastic supply across eight markets in 2040



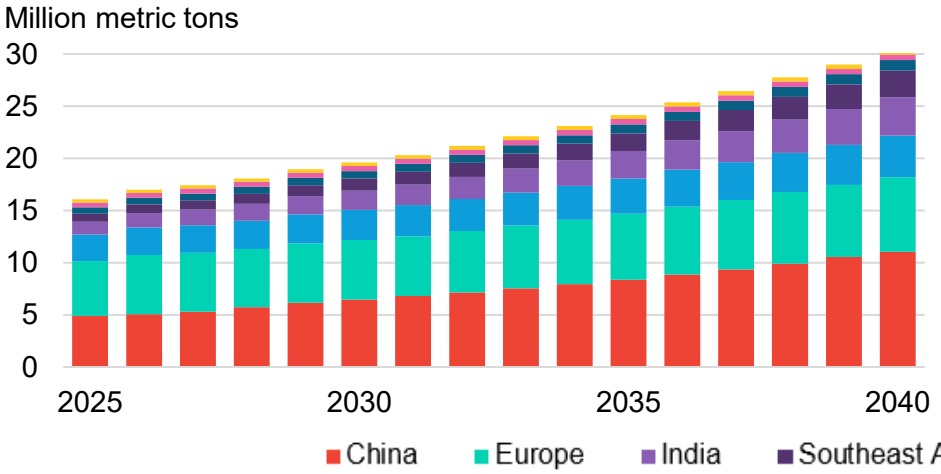
Source: BloombergNEF. Note: Polymers include polyethylene terephthalate, high-density polyethylene, low-density and linear low-density polyethylene and polypropylene.

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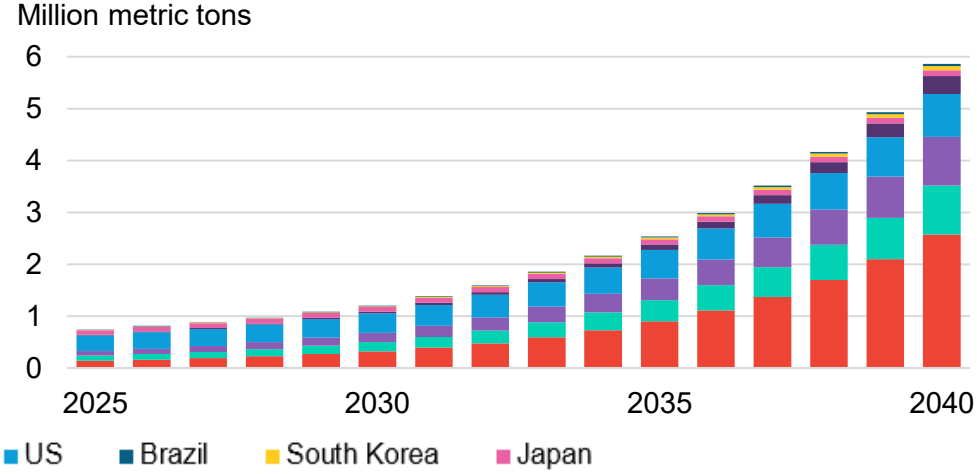
Recycled production could displace 34 million barrels of naphtha by 2040

- Mechanically recycled plastics account for the largest share of production as the most mature process today.
- By 2040, around 30 million metric tons of mechanically recycled plastics (PET, PP, L/LDPE and HDPE) is expected to be produced across the eight markets. While a large share of these recycled plastics are low-grade materials, markets including **China**, **India**, **Southeast Asia** and **South Korea** are shifting toward incorporating higher-quality recycled output into plastic packaging and products. Some are drafting rules to increase the traceability of recycled content in plastics too.
- Chemically recycled plastics account for 5.8 million metric tons, or 16%, of the recycled supply by 2040. This reflects rapid growth from current operational capacity, which BNEF estimates to be only around 1.5 million metric tons.
- Governments in the **US**, **South Korea**, **Japan**, **Europe** and **India** are supporting the deployment of chemical recycling technologies to extract more value from hard to recycle waste.
- Some plastic producers are turning to chemical recycling as a route to make low-carbon plastics and reduce their dependence on fossil fuel-based feedstocks such as naphtha.
- Pyrolysis of mixed plastic waste produces "recycled naphtha", which can displace fossil fuel-based naphtha to produce plastics with recycled content. BNEF estimates recycled naphtha supply to reach over 4.6 million metric tons by 2040. This may displace around 34 million barrels of virgin naphtha demand, or about 12% of the global consumption in 2025.

Mechanically recycled plastics supply outlook by region



Chemically recycled plastics supply outlook by region



Source: BloombergNEF. Note: Polymers include polyethylene terephthalate (PET); high-density polyethylene (HDPE); low-density and linear low-density polyethylene (LLDPE/LDPE); and polypropylene (PP).

Recycled content mandates are the biggest demand driver

- Governments are mandating recycled content in plastic packaging, creating clearer long-term demand for recycled material. Collectively, these mandates will drive a step change in demand for high-quality recycled resin, especially food-grade PET and reliable post-consumer recycled materials suitable for packaging.
- In the near term, this may lead to supply deficits, increase competition for clean feedstock and raise recycled plastic premiums over virgin resin, particularly in markets where collection, sorting and recycling infrastructure is still developing. The European Union, India and Brazil are enforcing some of the strictest mandates, and these are expected to rise by 2030 and beyond.

Summary of recycled content requirements in plastic packaging set by selected governments

	2025-2026	2030	2040
European Union		**10-35%** post-consumer recycled content	**25-65%** post-consumer recycled content
India	**30%** recycled content in rigid plastics packaging **10%** recycled content in flexible plastic packaging	**60%** recycled content in rigid plastics packaging **20%** recycled content in flexible plastic packaging	
Brazil	**22%** minimum recycled content obligation for manufacturers and importers		**40%** minimum recycled content obligation for manufacturers and importers
South Korea	**10%** recycled content for large producers and users of bottled-water and non-alcoholic beverage PET bottles		**30%** recycled content for large bottled-water and non-alcoholic beverage PET bottle users and producers.
Malaysia		**15%** average recycled content	

Source: BloombergNEF, government websites. Note: post-consumer waste refers to material discarded by an end-user such as a household, business and pre-consumer waste is leftover material from a manufacturing or industrial process before the product ever reaches an end consumer

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