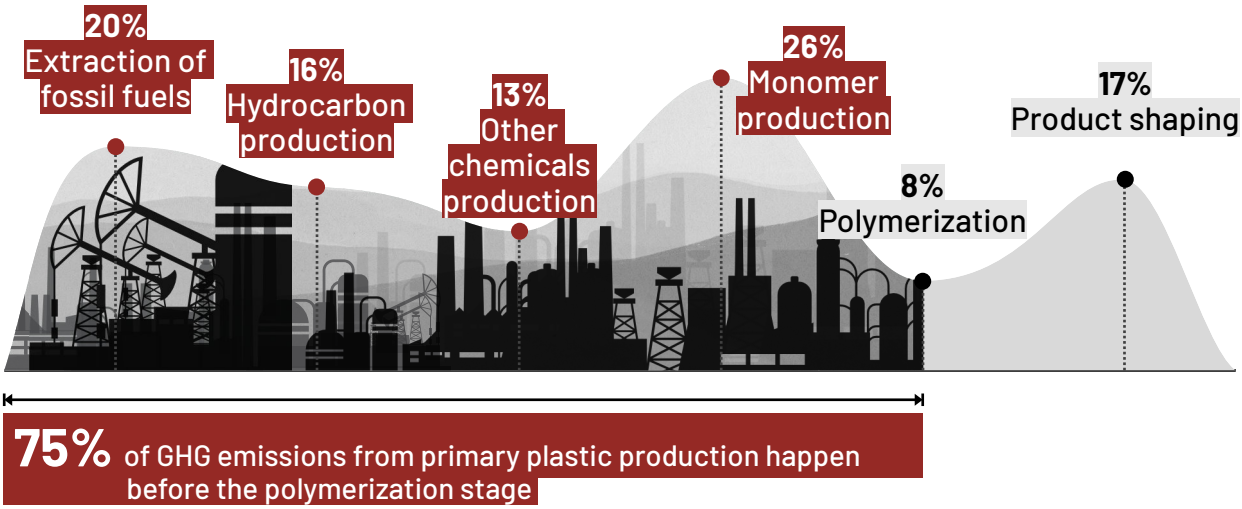
Plastic Production Reduction: The Climate Imperative

Negotiations are underway to draft a new, global treaty to end plastic pollution, one of the world's fastest-growing environmental problems. One of the most challenging questions is how to tackle the ongoing, rapid expansion of plastic production. Previous studies have made clear that deep cuts in plastic production are required to reduce plastic leakage into the marine environment. Now, a major new study from Lawrence Berkeley National Laboratory (LBNL) reveals that deep production cuts are also required to align with climate targets. Global Alliance for Incinerator Alternatives (GAIA) has created this briefing to draw policy inferences from the LBNL study.

Below are three key findings:

1. The full life cycle of plastic starts with the extraction of fossil fuels, which provide both the feedstock and the energy source for plastic production.

75% of all greenhouse gas emissions from primary plastic production happen during the production of monomers and preceding stages, crucial for plastic production. To fully understand, measure, evaluate and address plastic pollution, assessment and regulatory controls must consider the full lifecycle, beginning with extraction.



2. Growth in plastic production alone will doom international climate goals.

Even if every other source of greenhouse gas emissions – transportation, electricity, agriculture, heavy industry, etc. – were to miraculously and completely decarbonize in 2024, at current growth rates, primary plastic production alone would completely consume the global carbon budget as early as 2060 and no later than 2083.

Plastic's share in the remaining carbon budget

2.4%
2020-2023

Plastic production used **2.4%** of the global carbon budget for a **67%** chance of keeping temperatures below 1.5°C in just four years.

100%
by 2060

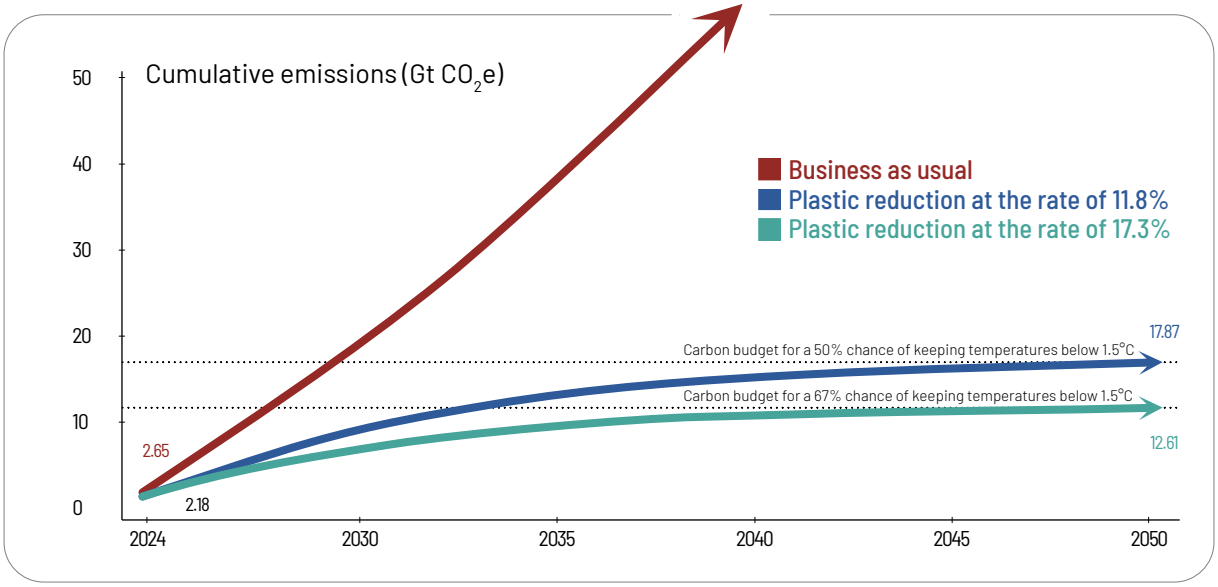
With a **4.4%** growth rate of the plastic industry for a **67%** chance of keeping temperatures below 1.5°C

100%
by 2083

With a **2.5%** growth rate of the plastic industry for a **50%** chance of keeping temperatures below 1.5°C

3. Deep, rapid cuts in plastic production are required by the Paris Agreement.

To avoid breaching the 1.5°C limit set by the Paris Agreement, primary plastic production must decrease by **at least 12% to 17% per year**, starting in 2024.



See the full policy brief and methodology in:
Dr. Neil Tangri, Dr. Sam Adu-Kumi, Dr. Jorge Emmanuel (2024). Plastic Production Reduction: The Climate Imperative. GAIA.