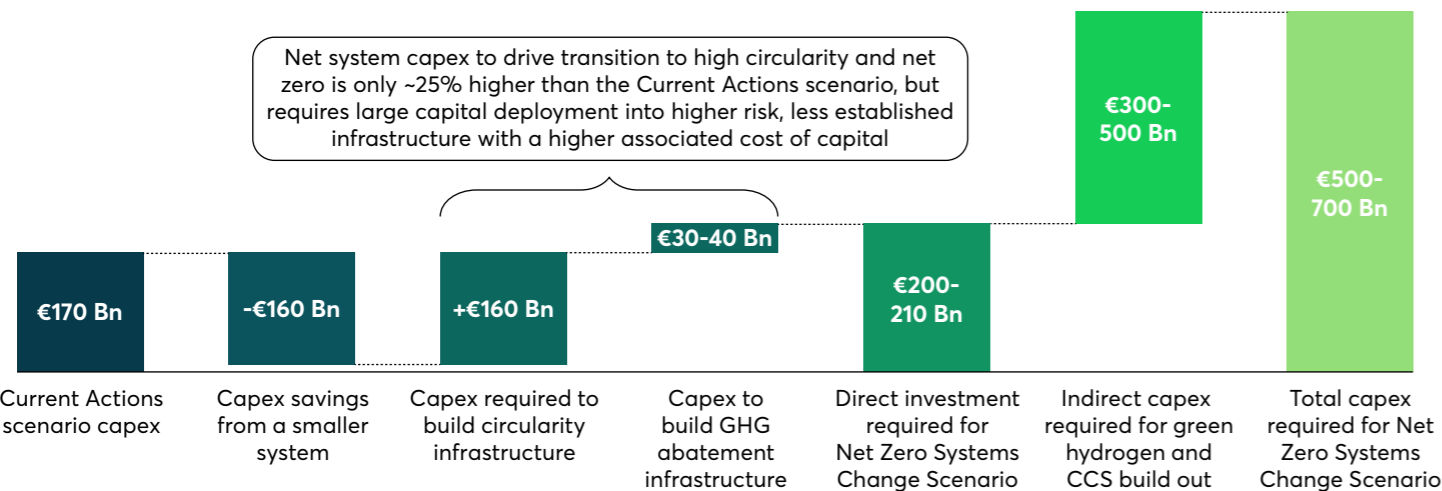


ReShaping the European Plastics System

Scenario	Scenario description	Key Assumptions
Current Actions Scenario	All major commitments already made by the public and private sectors until 2020 are implemented and enforced. These include European regulation and voluntary industry commitments.	<ul style="list-style-type: none"> Current regulation (as of April 2021) is implemented and enforced No additional regulation is put in place Voluntary commitments are met in full Basel convention strengthens and international waste trade is increasingly controlled and regulated
Reduction & Substitution Scenario	Reduction of plastic use through elimination, ambitious introduction of reuse and new delivery models, and plastic substitutions where it makes sense.	<ul style="list-style-type: none"> Strong policy intervention to incentivize reuse, new delivery models and DRS Investment into reuse and new delivery models infrastructure, including reverse logistics, and technological improvements Wide consumer and business adoption of these models Performance & cost improvements of compostables and other substitutes
Recycling Scenario	Ambitious expansion and investment into collection for recycling, sorting, mechanical recycling, and chemical recycling infrastructure.	<ul style="list-style-type: none"> All plastic packaging is designed for recycling Supportive policy incentives including minimum recycled content, recycling targets, EPR and more Financial investment into recycling investment and R&D Chemical recycling scales across Europe from its low base today
Circularity Scenario	All circularity levers are applied concurrently and ambitiously, including both upstream (see Reduction & Substitution Scenario) and downstream (see Recycling Scenario).	<ul style="list-style-type: none"> All "Recycling Scenario" and "Reduction & Substitution Scenario" conditions are met concurrently Consumers are educated, engaged and change behaviours regarding consumption and waste management
Retrofit System Change Scenario	On top of Circularity Scenario, assumes the substitution of carbon intensive fuels with low-carbon hydrogen and the capture and storage of CO2 emissions from plastic manufacturing and incineration.	<ul style="list-style-type: none"> Affordable and abundant low-carbon hydrogen is available at ~€2/kg CCS technologies scale and are affordable in multiple geographies Methanol to olefins capabilities are available (commercially) to upgrade steam cracking off-gasses Chemical recycling can improve its carbon profile
Net-Zero System Change Scenario	On top of Retrofit Scenario, assumes expansion of the role of hydrogen, the use of alternative feedstocks from both biological sources and CO2 capture, and electrification of some steam crackers.	<ul style="list-style-type: none"> Carbon usage technologies reach maturity and affordability Sufficient quantities of sustainable biomass is available for plastics Electrification of steam cracking technical barriers can be overcome GHG reduction can be applied to chemical recycling

THE COST OF NET-ZERO & HIGH CIRCULARITY

Cumulative system capex (2020-2050)



2050 ENDSTATE Scenario	Circularity ¹ (%)	GHG Emissions (MtCO ₂ e)	Virgin Fossil Plastic Use (Mt)
Base Case (Current System)	14%	112	44
Current Actions Scenario	33%	92	37
Reduction & Substitution Scenario	52%	68	29
Recycling Scenario	69%	41	24
Circularity Scenario	78%	33	20
Retrofit System Change Scenario	78%	25	20
Net-Zero System Change Scenario	78%	~0	11

1 Defined as the share of plastic utility that is either reduced, substituted by circular materials, or recycled mechanically or chemically excluding plastic entering stock.

2 Cumulative capital investments 2020-2050. Excludes cost of decommissioning legacy assets; some scenarios may have higher operating costs not shown in this table.

3 Includes direct investment into the plastic system (e.g., recycling facilities, new delivery models, etc) and indirect capex not made directly by the plastic system (e.g., carbon capture and storage or green hydrogen) but paid by plastics industry in long-term offtake contracts to suppliers of GHG reduction infrastructure. Does not include opex efficiency savings in production from upstream circularity levers.