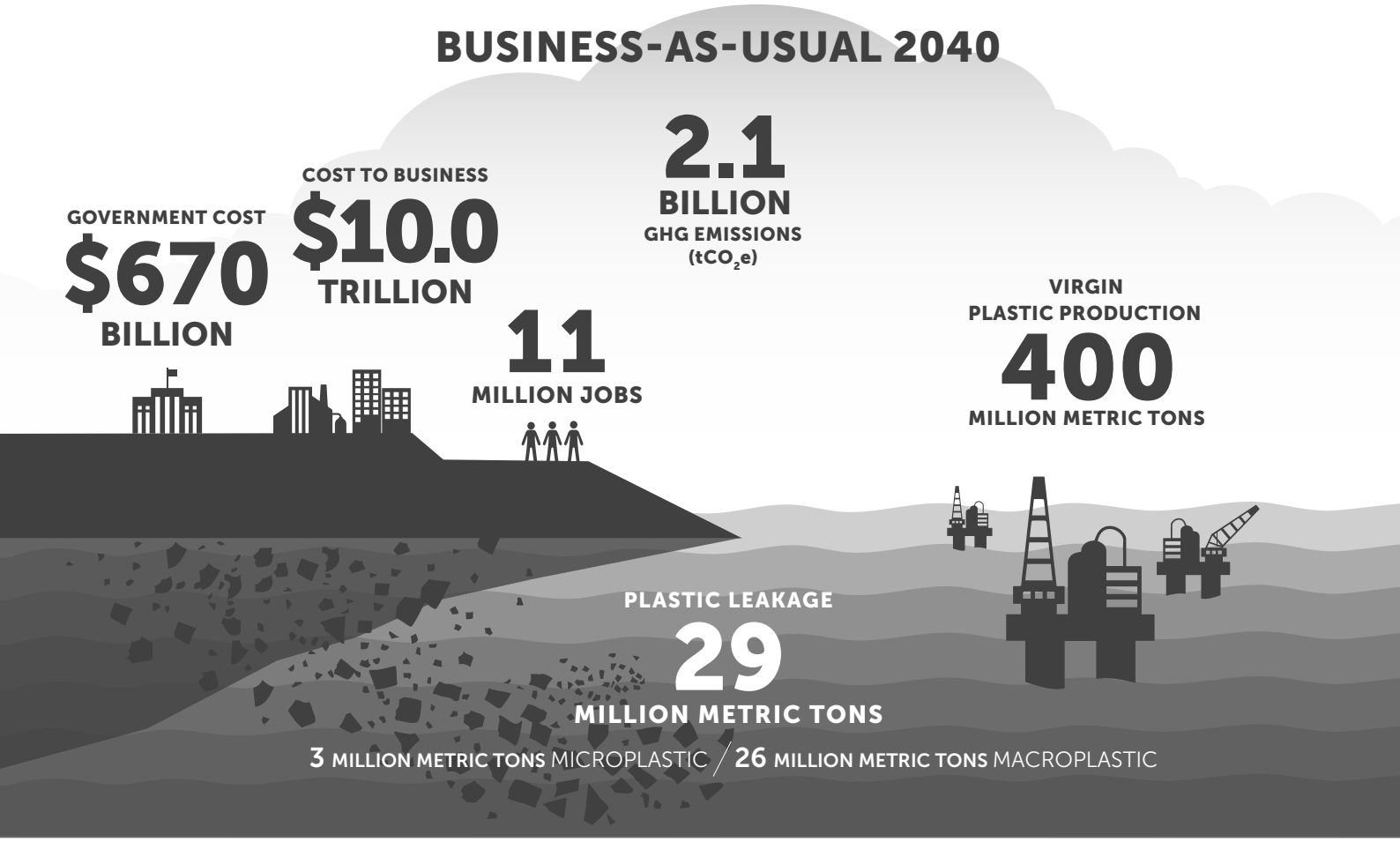
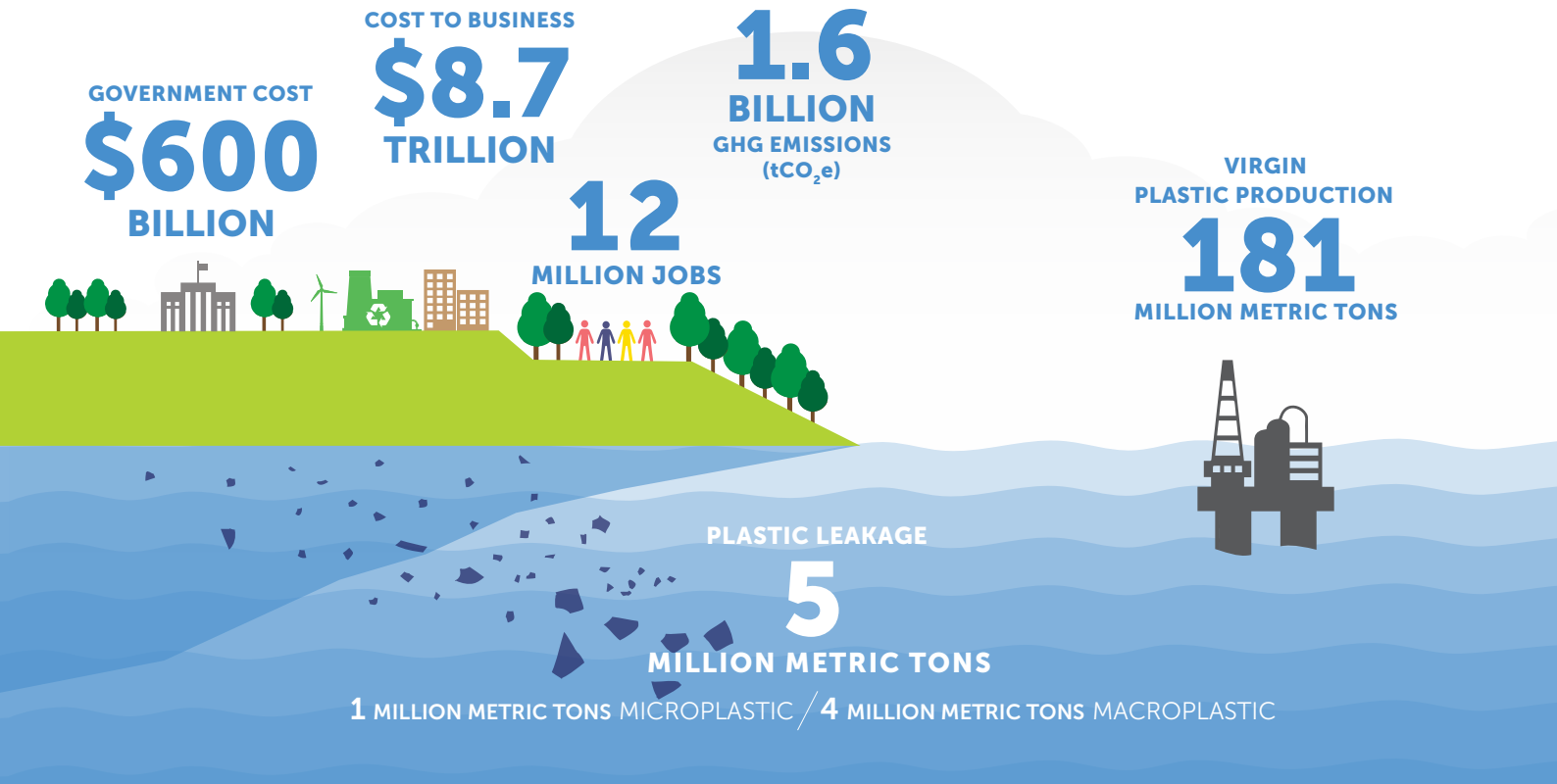
Changing the plastics system: better for the economy, the environment, and communities

Continuing on our current Business-as-Usual trajectory will nearly triple the annual flow of plastic into the ocean by 2040, with severe environmental, economic, and social impacts. A cleaner, more sustainable future is possible with concerted action starting in 2020 across the entire global plastics system, with lower costs to governments and lower greenhouse gas (GHG) emissions.





FAST FACTS

‘Breaking the Plastic Wave’ in numbers

Scale of the problem

11 million metric tons of **plastic leaked into the ocean** in 2016

29 million metric tons of **plastic leakage into the ocean** in 2040

40% of today’s global plastic waste ends up **in the environment**

7% reduction of leakage if all current **government and industry commitments** were implemented by 2040

500,000 people need to be connected every day until 2040 to close the **collection gap**

11% of leakage is **microplastic** in 2016

By 2040:

2x plastic generation

3x plastic leakage into the ocean

4x plastic stock in the ocean

US$100B **financial risk** to industry under BAU in 2040

45% of today’s leakage is from **rural areas,** where collection economics don’t work

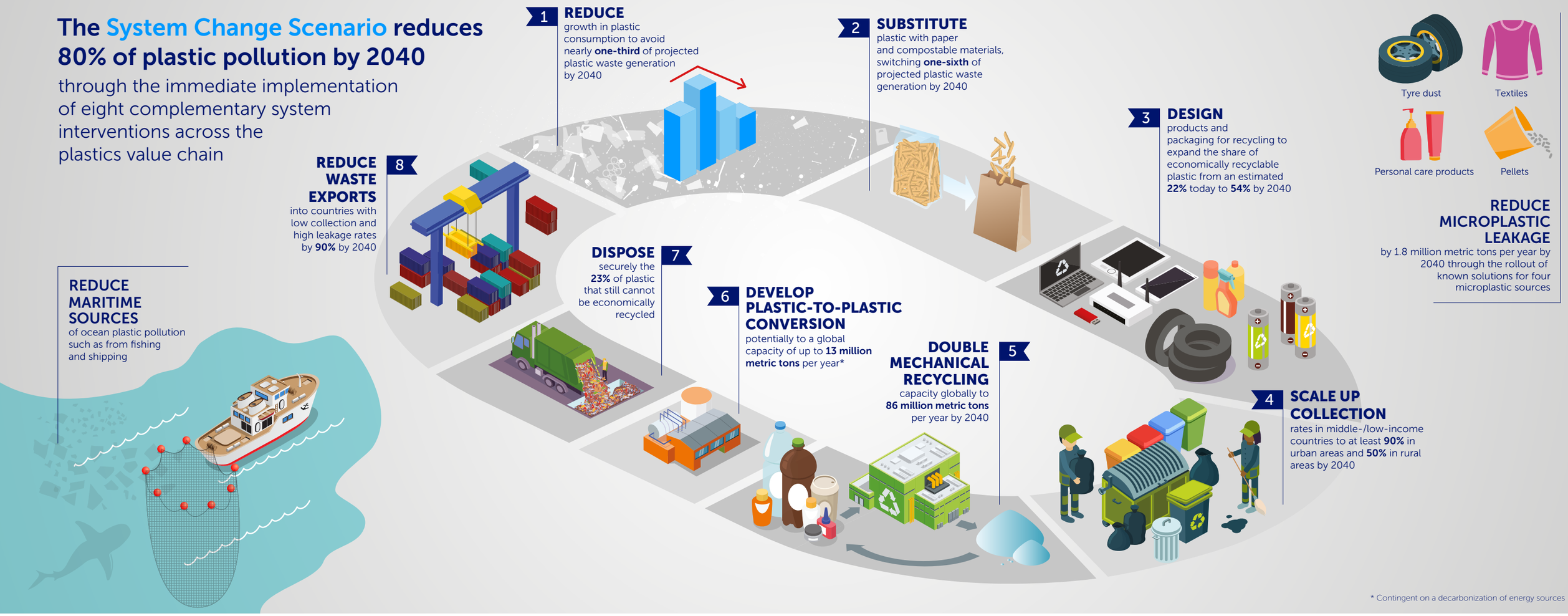
21% of plastics are **economically recyclable** (but only 15% are actually recycled) in 2016

19% share of **carbon budget** used by plastic industry by 2040 under BAU to stay under 1.5°C

80% share of leakage from **flexible and multilayer** plastics in 2016

The System Change Scenario reduces 80% of plastic pollution by 2040

through the immediate implementation of eight complementary system interventions across the plastics value chain



* Contingent on a decarbonization of energy sources

Integrated system change achieves social, environmental, and economic benefits

80% reduction in **plastic leakage into the ocean** by 2040 relative to BAU

US$70B saving for **governments** over 20 years relative to BAU

700,000 **jobs created** by 2040 relative to BAU

25% reduction in annual **GHG emissions** by 2040 relative to BAU

55% reduction in **virgin plastic demand** by 2040 relative to BAU

195 million metric tons reduction in other environmental leakage (land and atmosphere)

Microplastics and the ocean

About 11 per cent of today's total flow of plastic into the ocean comes from only four sources of microplastics–tyre abrasion, production pellets, textiles, and personal care products–released into the environment as microsize particles (<5mm). Rapid action and innovation are needed to stop them from leaking into the ocean and, more broadly, into the environment.

How much do microplastics contribute to ocean plastic pollution?

The four sources of microplastics we analyzed now contribute about **1.3 million metric tons** of microplastic leakage into the ocean annually, growing to **3 million metric tons** in 2040.

2016

Tyre dust contributes **78%** of microplastic leakage by mass

~1,200,000 TRILLION PARTICLES

Pellets contribute **18%** of microplastic leakage by mass

~10 TRILLION PARTICLES

Textiles & personal care products contribute **4%** of microplastic leakage by mass combined

~144,000 TRILLION PARTICLES

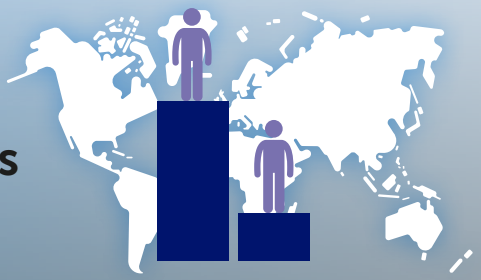
Where does microplastic leakage come from?

The microplastics analyzed represent about **60% of total leakage** in high-income countries.

High-income countries leak

365 grams

of microplastic per capita



Middle-/low-income countries leak

109 grams

of microplastic per capita

2040 System Change Scenario

How can we reduce microplastic leakage?

With concerted action beginning in 2020 across the entire plastics system, microplastic leakage can be reduced by ...

~1.8 million metric tons per year or **59% by 2040**

compared to Business-as-Usual.

Solutions include:

Better designed tyres and textiles

Modal shifts in transportation to reduce mileage driven per capita

Decreased plastic production

Regulatory and corporate measures to prevent pellet leakage

Extend wastewater treatment

Bans on using microplastic ingredients in personal care products

Additional innovation is necessary to reduce the remaining 41% of plastic leakage, particularly in tyre design.

System change and the future of plastic products

Changing the plastic system would secure a world in which many of the single-use plastic products we know and use today would be eliminated or replaced by reusable items and new delivery models. Nonrecyclable and hard-to-recycle plastics could be substituted to paper or compostable materials, with the remaining plastic waste being recycled at much higher rates, resulting in much less plastic polluting the environment.

% of Business-as-Usual demand of the following products:

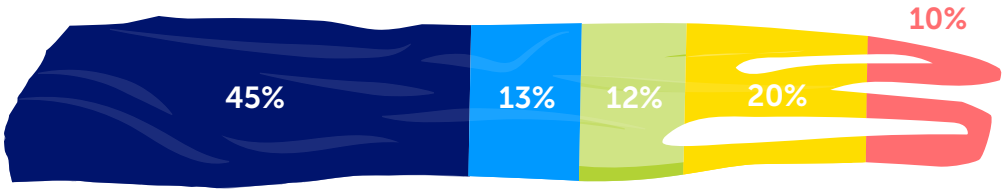
Reduced | Substituted | Recycled | Disposed | Mismanaged

Five product types/applications contribute to **85%** of all plastic leaking into the ocean today. Taking action across the global plastics system would lead to many of these plastic product types/applications being removed, substituted or recycled by 2040.

Monomaterial films (e.g., cling film, flow wrap, pallet wraps)

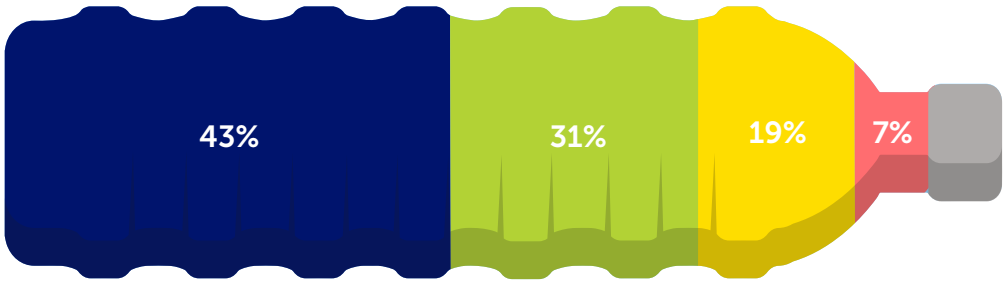
58% of monomaterial films can be avoided through reduction measures and substitution to paper and compostable alternatives.

Carrier bags (e.g., grocery bags, shopping bags)



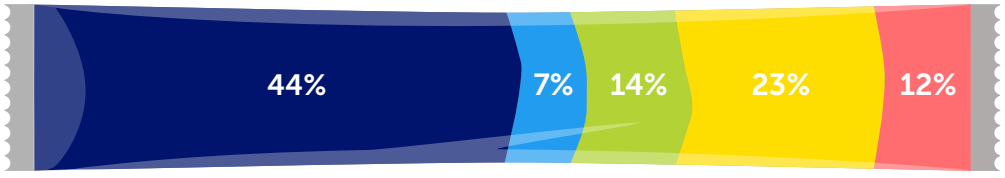
45% of bags can be avoided through bans, incentives, and reuse models.

Bottles (e.g., water bottles, drinks, cleaning products)



The recycling rate of rigid monomaterial plastic would **double** compared with today.

Sachets and multilayer films (e.g., condiment and shampoo single-portion sachets; coffee, chips, and sweets packets)



In 2016, **48%** of these plastic products were mismanaged. Under the System Change Scenario, the mismanaged rate for these products could drop to **12%.**

Household goods (monomaterial and multimaterial plastic objects, e.g., pens, toys, combs, toothbrushes, durable goods, buckets)

The recycling rate of household goods **nearly quadruples** compared with today.