Embracing global transition - are we ready?

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Non-confidential - Standard

Presentation Context

What are the technological options?

1 Energy context - Europe

2 Energy transition options

3 So what – insurance?

Image source:
Eagle Creek Wildfire
Water flood on river after heavy rain in Pakse, Southern Laos. (Creator: Patrick Fuller/ IFRC)

Decarbonising fossil fuel operations

Challenges, barriers and opportunities

UK & EU major oil & petroleum consumers 2020 (Mtoe)

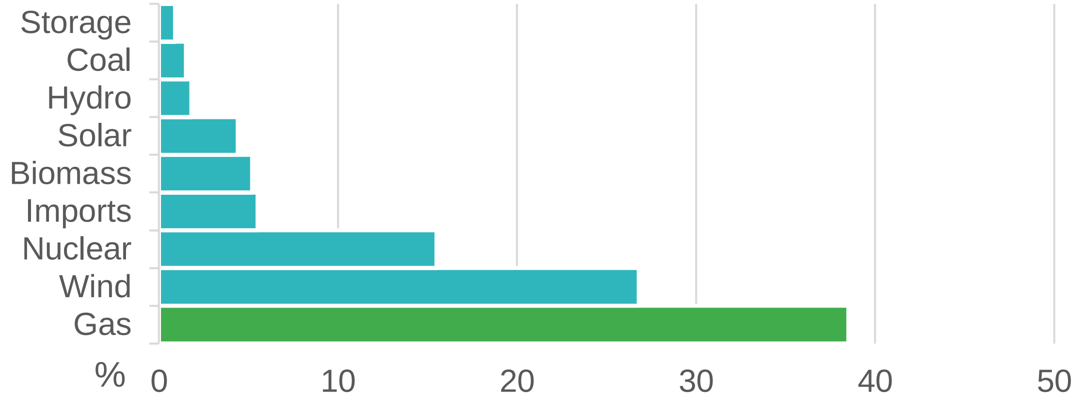
• Germany (97.8)	• Poland (31.3)
• France (68.8)	• Netherlands (28.5)
• Italy (51.0)	• Belgium (21.3)
• Spain (50.3)	• Austria (11.8)
• United Kington (48.2)	• Romania (10.5)

Mtoe: million tonne of oil equivalent

UK & EU major gas consumers 2020 (Mtoe)

• Germany (74.6)	• Spain (27.9)
• Italy (58.3)	• Poland (17.4)
• United Kingdom (41.9)	• Belgium (15.2)
• France (34.9)	• Romania (9.7)
• Netherlands (31.4)	• Hungary (8.8)

Total electricity generation in 2022 in GB (NG ESO, 2023)

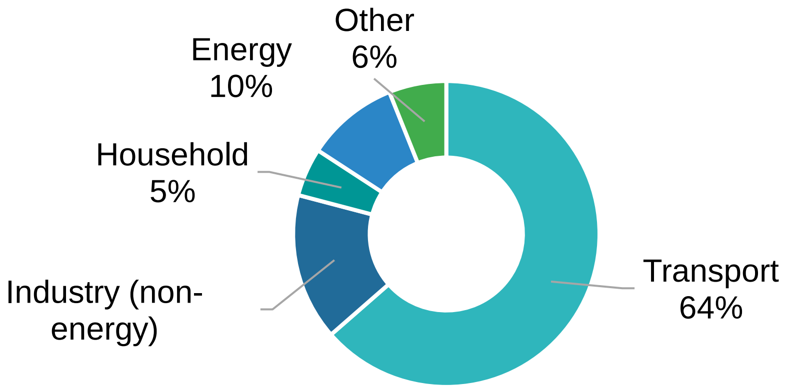


Source: European Commission, Directorate-General for Energy, EU energy in figures : statistical pocketbook 2023, Gross Inland Consumption in 2020, Publications Office of the European Union (2023)
National Grid ESO Great Britain's monthly electricity stats. National Grid ESO (2023)
Natural gas supply and consumption. Energy Trends: UK gas. Department for Energy Security & Net Zero (DESNZ). (2023). (487,744 GWh; Unit conversion assumes 1 GWh = 85.9845 toe)
DESNZ (2023). Primary oil commodity balance

Decarbonising fossil oil operations

Challenges, barriers and opportunities

Oil consumption in EU, 2021 (%)



2020 2025 2030 2035 2040 2045 2050

Quick fixes

- Fuel switching (replace with gas) (current target – 10% (energy operations))
- Fuel replacement/ substitution (target – 10%, could double)
  - Biofuels
  - Ethanol
- Electrification of rail network

Replacement opportunities

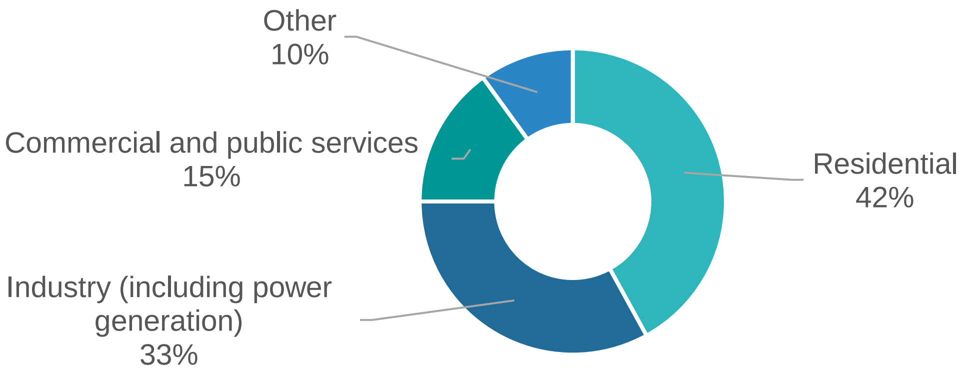
- E-fuels
- Biofuels
- Electric vehicles
- Hydrogen buses and trains
- Hydrogen and ammonia-fired boilers

 Source: European Commission Eurostat (2023). Oil and petroleum products - a statistical overview.

Decarbonising fossil gas operations

Challenges, barriers and opportunities

Gas consumption in Europe, 2020 (%)



2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050

Quick fixes

- CCUS at application (power generation)
- CCUS at source (convert to hydrogen/ ammonia/ methanol at origin countries)
- Electrification of heating and cooking
- Fuel replacement/ substitution
- Minimal biomethane currently present in UK

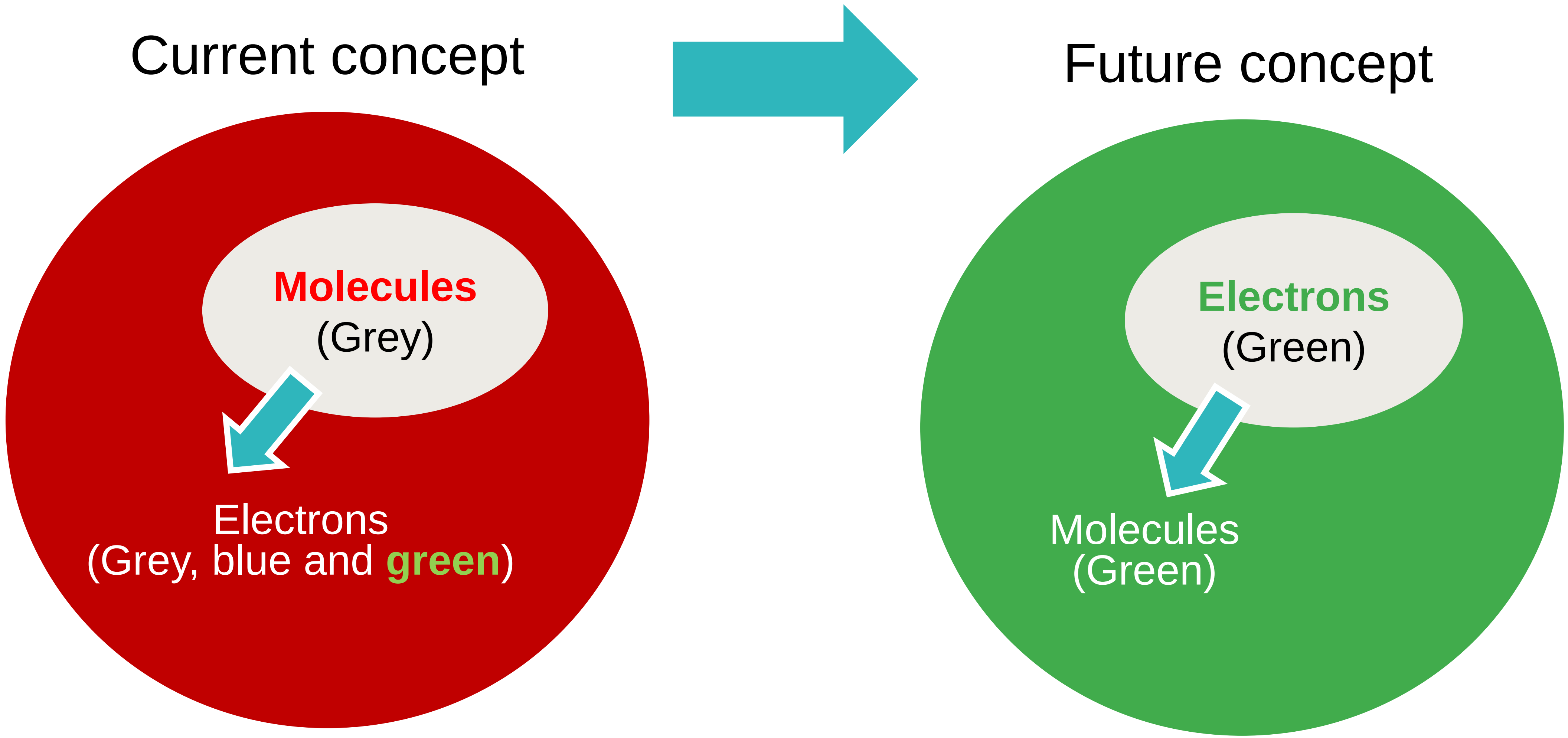
Replacement opportunities

- Hydrogen
- Ammonia
- Methanol
- Biomethane

Source: IEA (2022). World Energy Balances 2022 - Europe – Countries & Regions.

Shift in our thinking – Primary energy driven by green electrons

We will need to embrace change



Shift in our thinking – Primary energy driven by green electrons

Changes to infrastructure and assets

Assets management (existing)

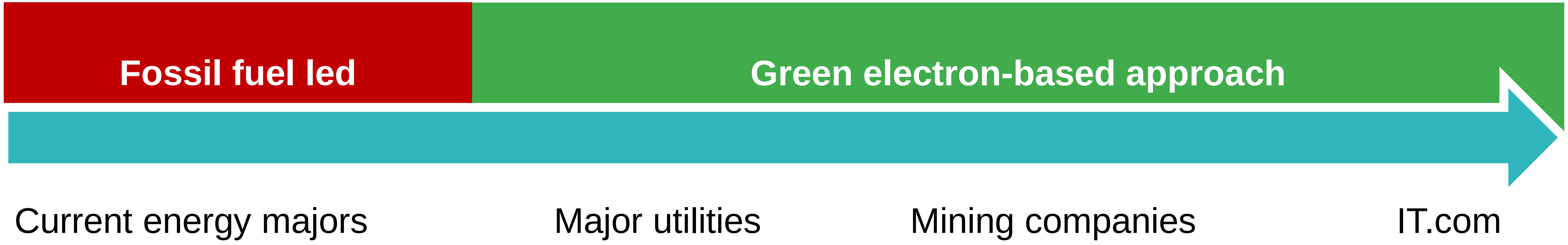
- Smart use of existing assets (onshore and offshore pipeline)
- Re-purpose existing assets (LNG Terminals to ammonia terminals)
- Re-purpose existing refineries (Crude oil to biodiesel processing)
- Government owning assets (Ports, nuclear stations, pump storage)

Assets management (New)

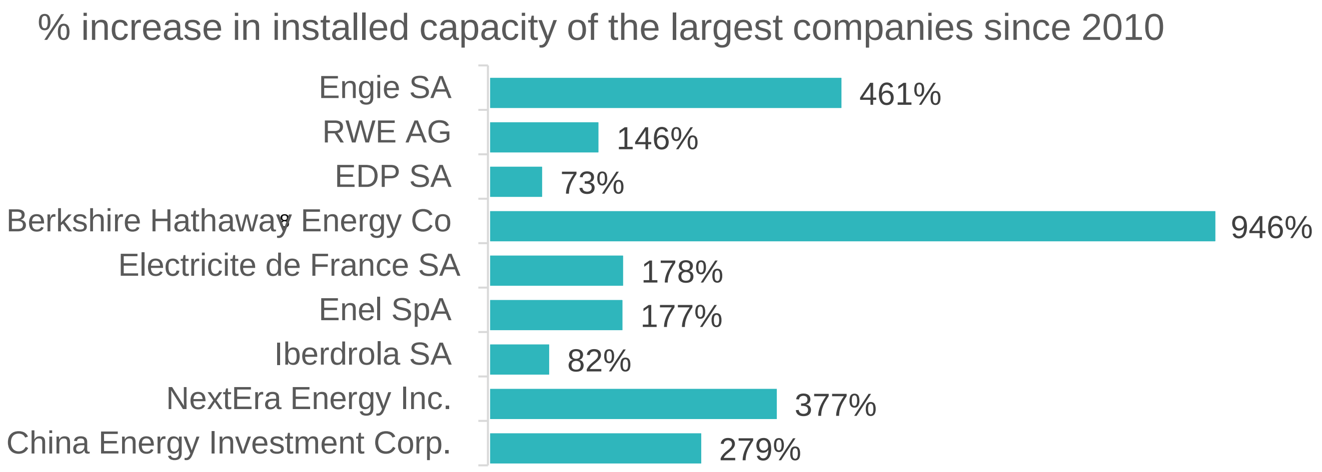
- Enhanced power generation (wind, solar, nuclear, hydropower & other low-carbon technologies)
- Power generation based on hydrogen, ammonia (CCGT)
- Ammonia and methanol terminals
- Production of hydrogen, ammonia, methanol
- Production of efuels and SAF
- Production of biomethane
- CCUS at major CO2 emitters (power sector, chemical plants, steel, cement & others)
- LNG to NH3 terminals
- Effort on storage (green molecules, pump storage)
- Green metal production

Who will be the energy majors going forward?

Re-inventing – no other option



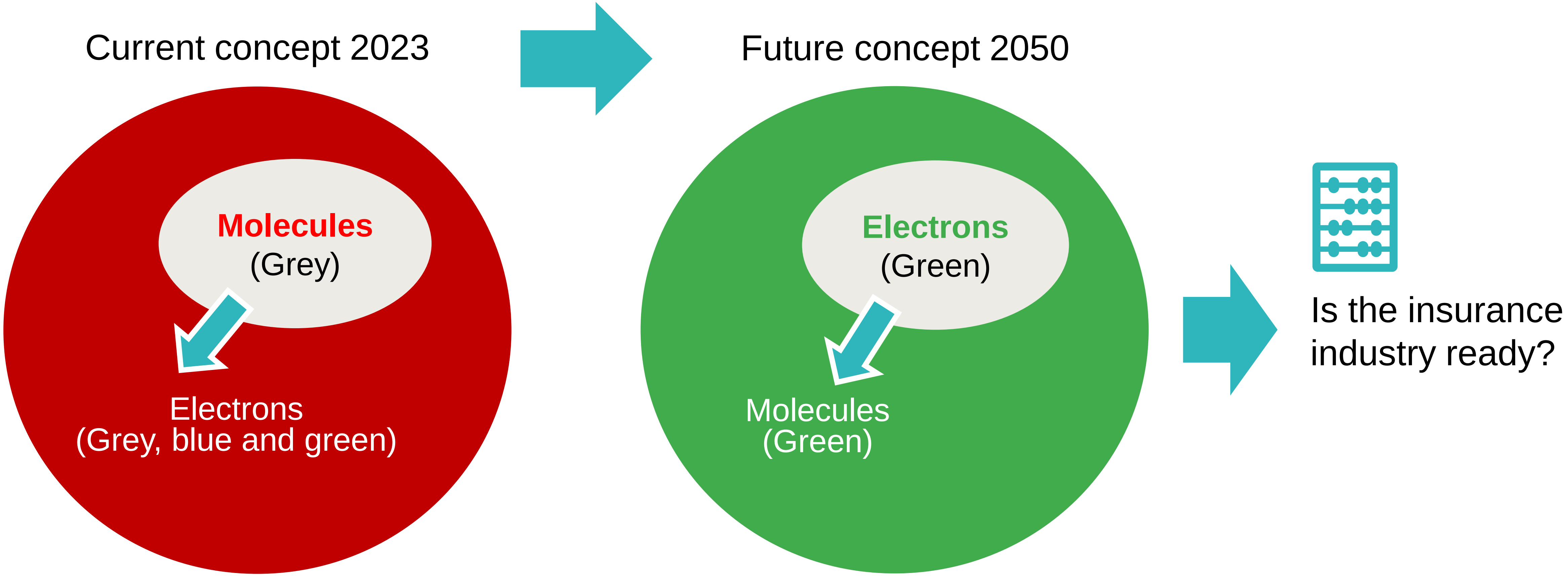
New Green Giants



Source: BloombergNEF (2020). The New Energy Giants are Renewable Companies.

Shift in thinking – assume we meet 2050 target

Impact on stakeholders (developers, investors, planning, supplier chain, policies, insurance)



Thank you

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