



COP28
UAE

Answering the GST, Charting the Energy Transition & Building a Circular Economy

Friday, December 8
15:00 - 16:30
Side Event Room 3,
Blue Zone

Hosted by





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Answering the GST, Charting the Energy Transition & Building a Circular Economy



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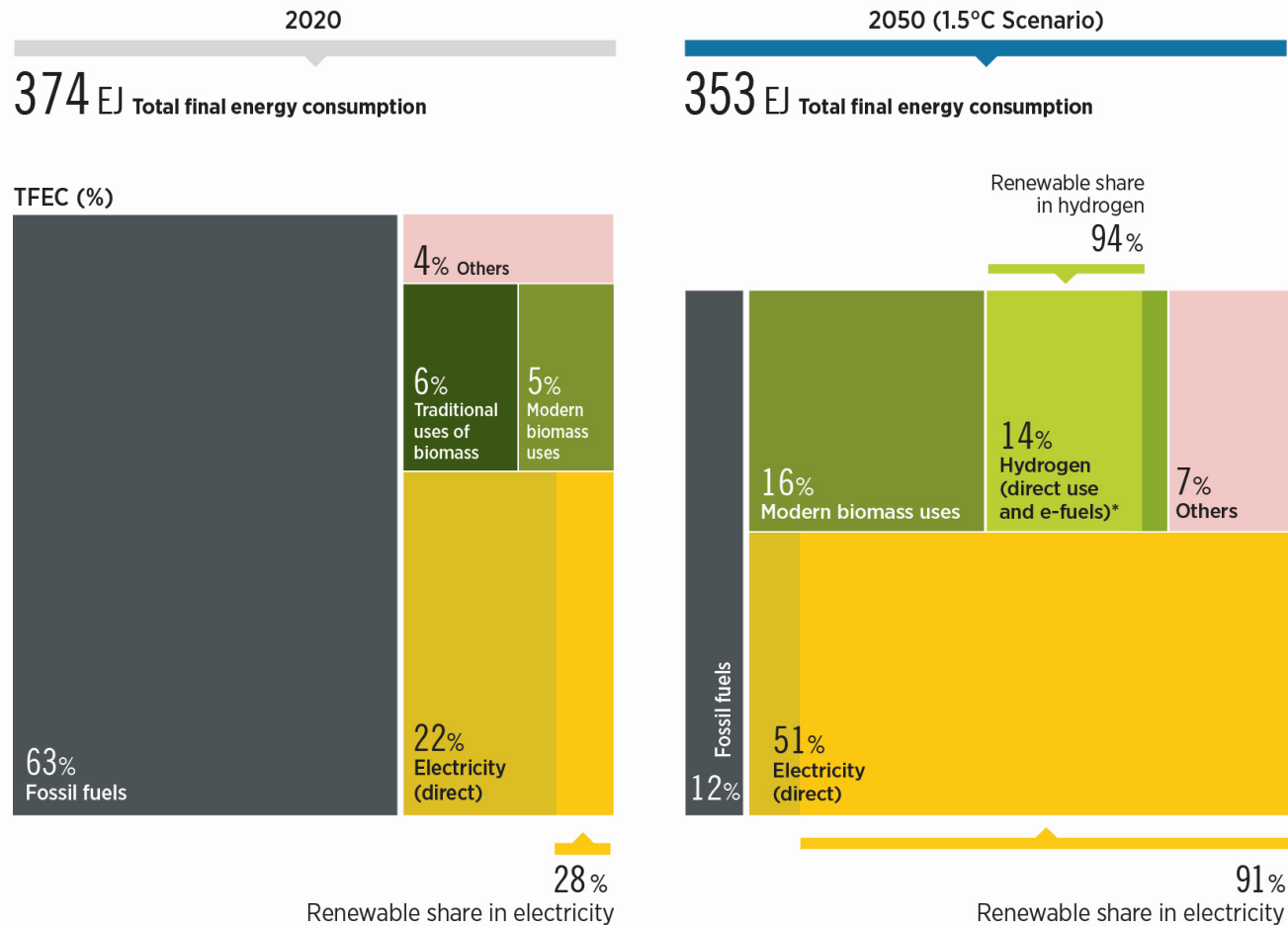
WORLD ENERGY TRANSITIONS

OUTLOOK 2023

1.5°C PATHWAY

Total final energy consumption by carrier in 2020 and 2050

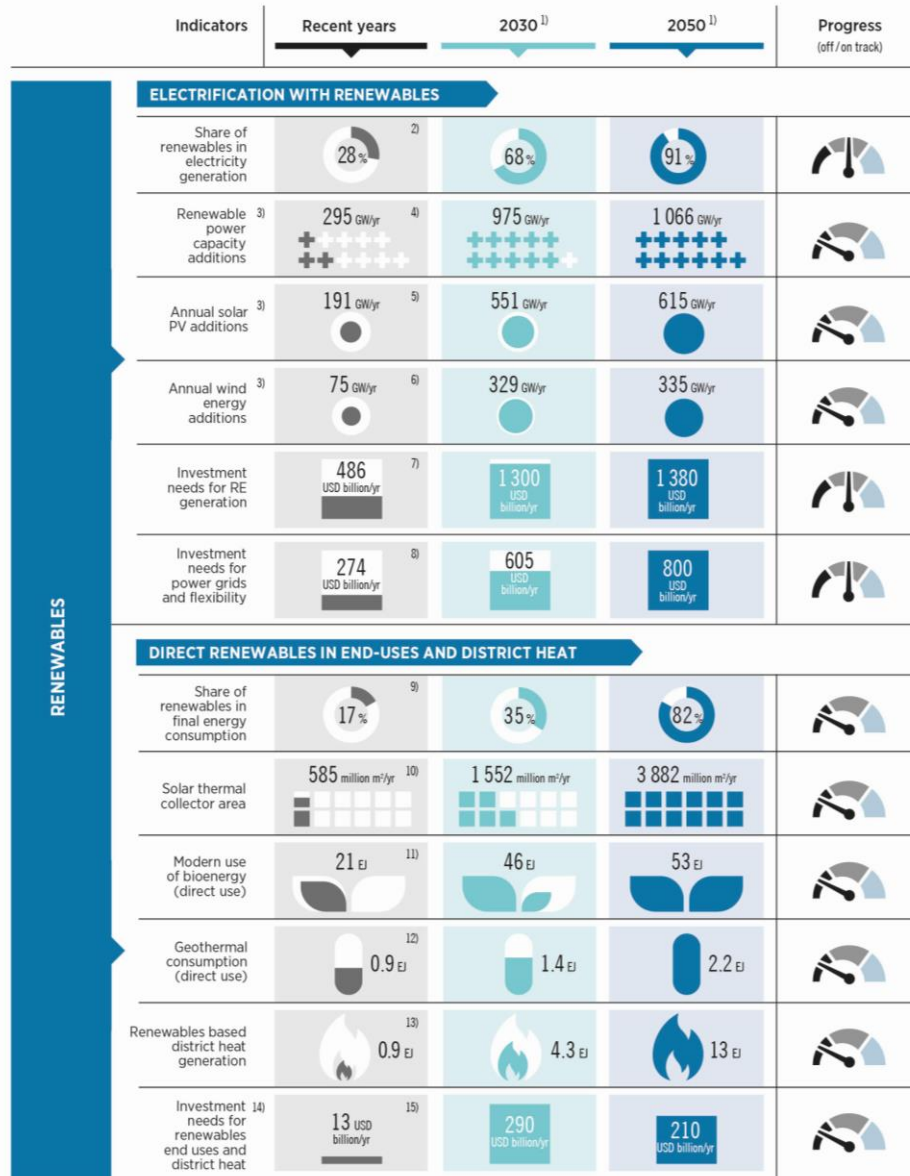
Breakdown of total final energy consumption by energy carrier between 2020 and 2050 under the 1.5°C Scenario



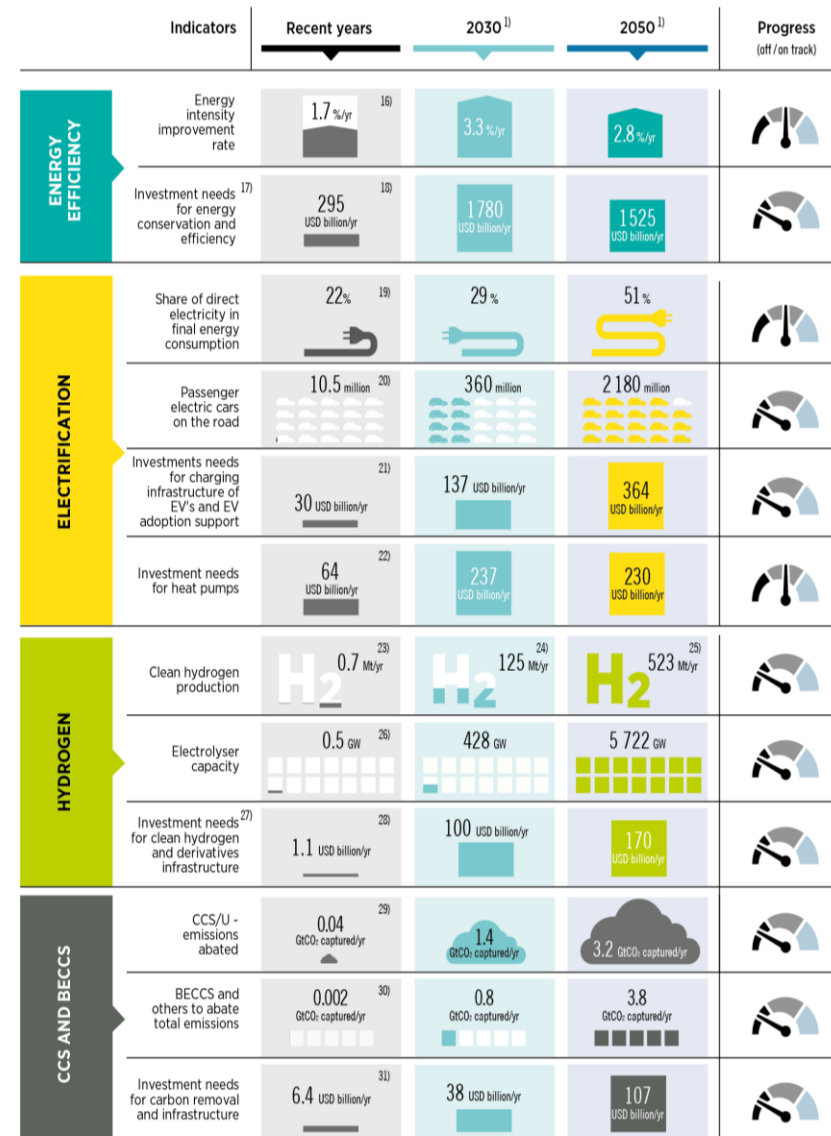
- **Renewable energy** deployment, improvements in **energy efficiency** and the **electrification** of end-use sectors contribute to this shift
- Total final energy consumption **decreases by 6%** from 2020 to 2050
- More significant roles of **modern biomass (16%)** and **hydrogen (14%)** in 2050
- **94% of hydrogen** consumption in 2050 from **renewables**

Despite some progress, the energy transition is far from being on track to 1.5°C

Tracking progress of key energy system components to achieve the 1.5°C Scenario



Tracking progress of key energy system components to achieve the 1.5°C Scenario

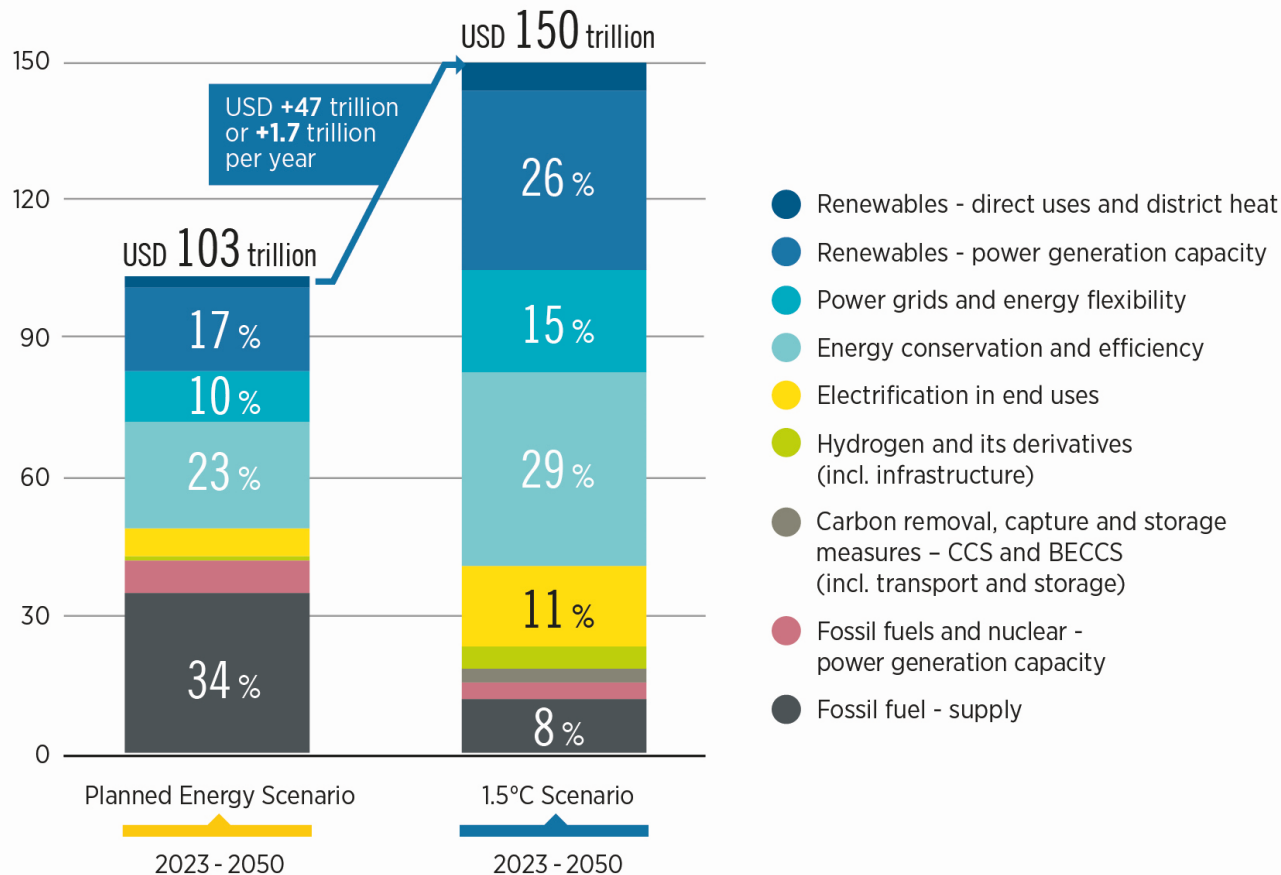


Notes: see next page

Investments needed: focus on renewables, efficiency and electrification

Global investment by technological avenue: Planned Energy Scenario and 1.5°C Scenario, 2023-2050

Cumulative energy sector investments, 2023 - 2050 (USD trillion)

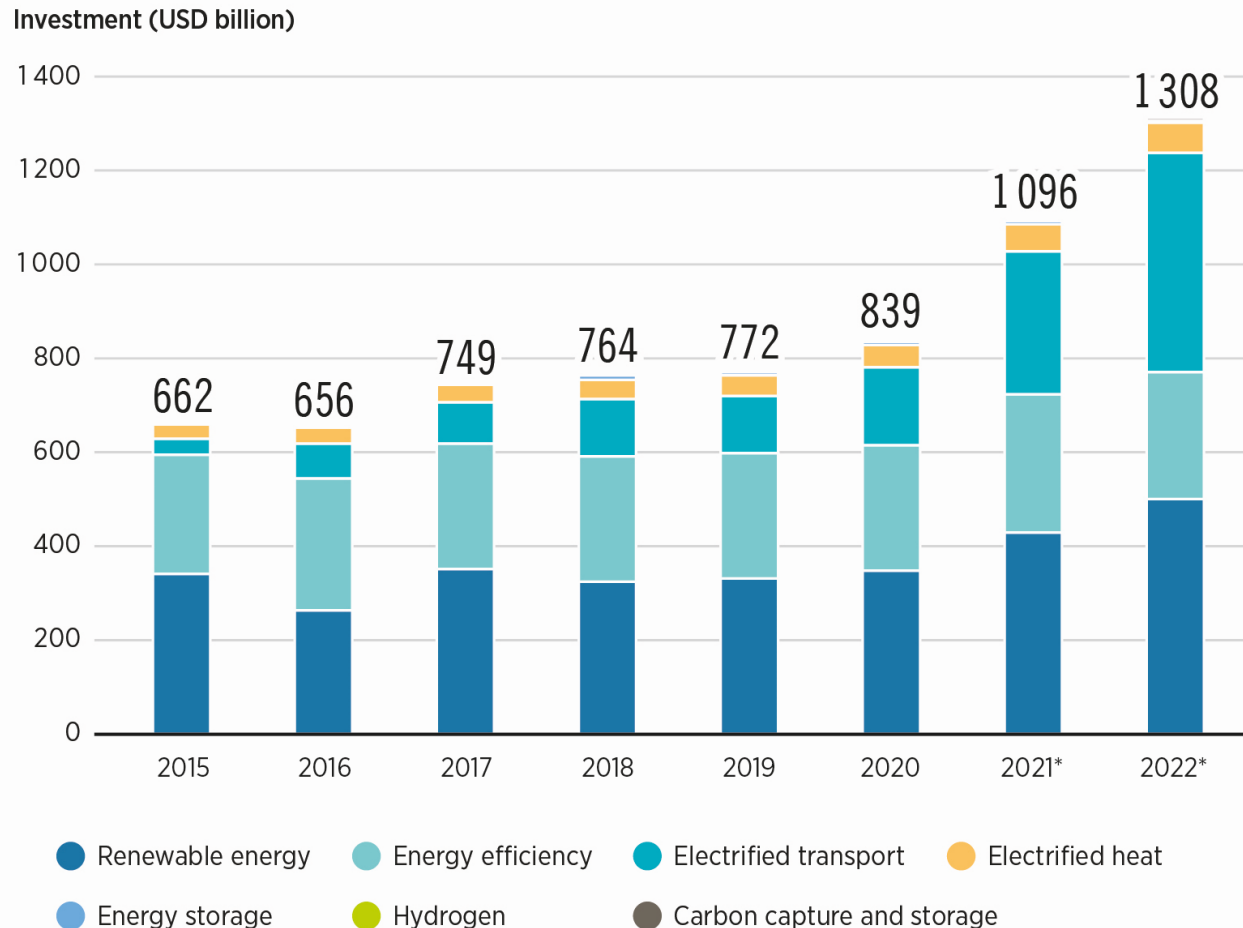


- **Energy investment decisions** should simultaneously **drive the transition** and reduce the **risk of stranded assets**
- **41%** of investment in the Planned Energy Scenario is still aimed at **fossil fuels**
- A combination of **scale-up** and **reallocation** of investment in **energy transition technologies** with supporting **infrastructures** and **efficiency measures** is needed for achieving 1.5°C target (**USD 1.7 trillion/yr more in average**)

Notes: BECCS = bioenergy, carbon capture and storage; CCS = carbon capture and storage.

Energy transition investment reached a record-high in 2022

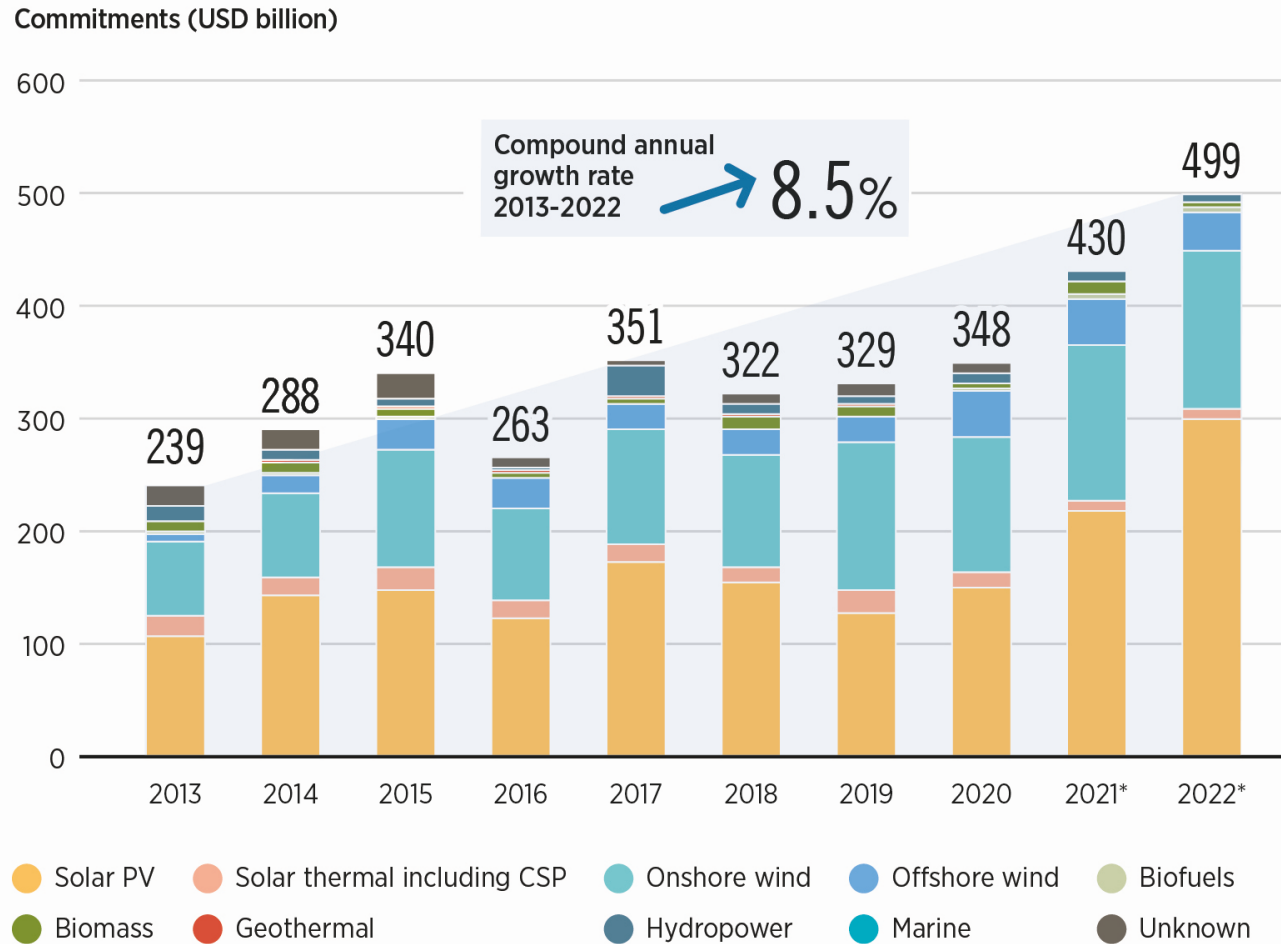
Global investment in energy transition technologies, 2015-2022



- In 2022, global investment in the energy transition **grew 70%** from before the pandemic
- They need to **more than quadruple** to achieve the **1.5°C target**
- **Renewable energy and energy efficiency remained the largest sectors** but their share in total investments has progressively declined as other technologies attract larger amounts of investments (e.g. electrified transport)

Global investments in renewable energy reached a record high in 2022, but remained focused in the power sector

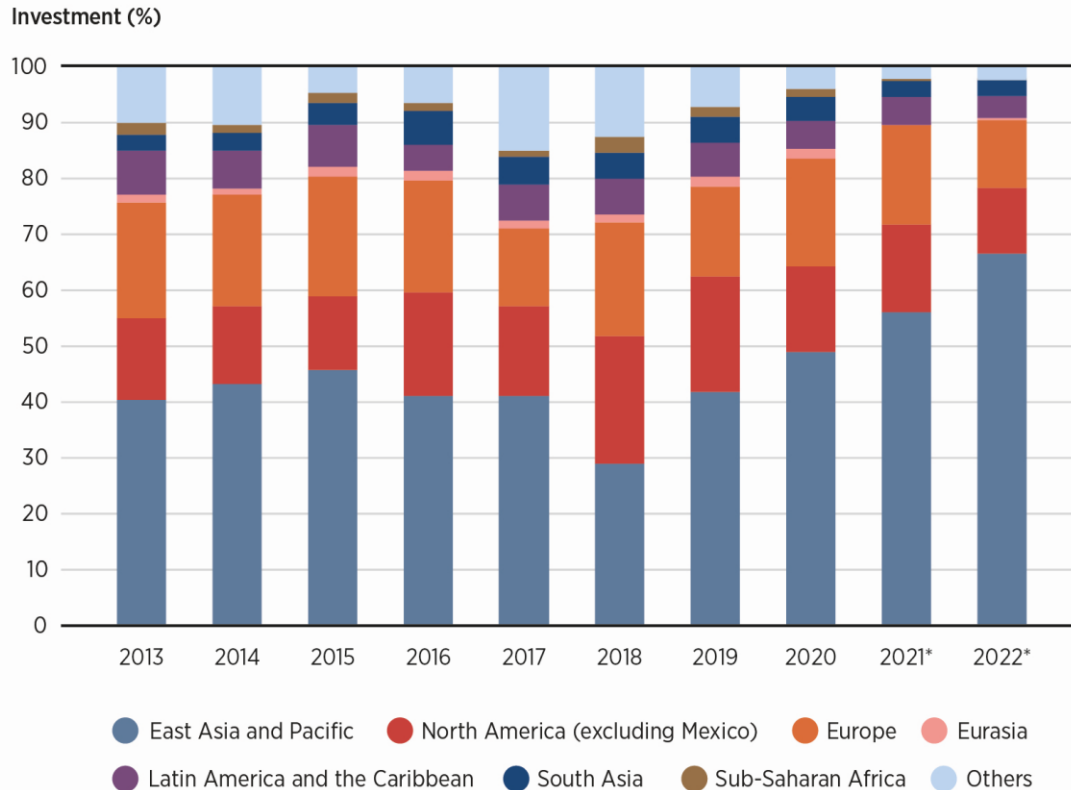
Global annual financial commitments in renewable energy by technology, 2013-2022



- In 2022, **annual investments in renewable energy** peaked at USD 499 billion in 2022 – 43% higher than in 2020
- **Power** attracted **97%** of investment in **2021-22**, up from **90%** in **2013 -20**
- Investment in end uses must increase from **13 billion** to **269 billion/year**
- **Solar PV** attracted **43%** of investment in **2020**, followed by **onshore (35%)** and **offshore wind (12%)**

The bulk of investments remain concentrated in few regions

Investment in renewable energy by region of destination, 2013-2022



- **90% of global investment went to East Asia and Pacific (mainly China), Europe and North America (excl Mexico)**
- More than **half of the world's population** received **only 15% of investments** in 2022
- The **share of investments** they receive has been **declining** since 2018 at an average **rate of 36% per year**
- **Least Developed Countries** attracted less than **1% of investments** on average between 2013 and 2020

Key energy transition pillars

PHYSICAL INFRASTRUCTURE: forward-looking planning, modernisation and expansion of supporting infrastructure on land and sea to facilitate the development, storage, distribution and transmission, and consumption of renewables. Infrastructure should facilitate national, regional and global strategies for new supply-demand dynamics.

POLICY AND REGULATORY ENABLERS: design of policy and regulatory frameworks that facilitate deployment, integration and trade of renewables-based energy, improve socio-economic and environmental outcomes and promote equity and inclusion. These need to enable the energy transition at various levels, from local to global, and reflect new supply-demand dynamics.

SKILLS AND CAPACITIES: awareness- and capacity-building institutions, communities and individuals to acquire the requisite skills, knowledge and expertise to drive and sustain the energy transition. Strengthened institutions, social dialogue and collective bargaining will help bring about greater socio-economic benefits.



WORLD ENERGY TRANSITIONS

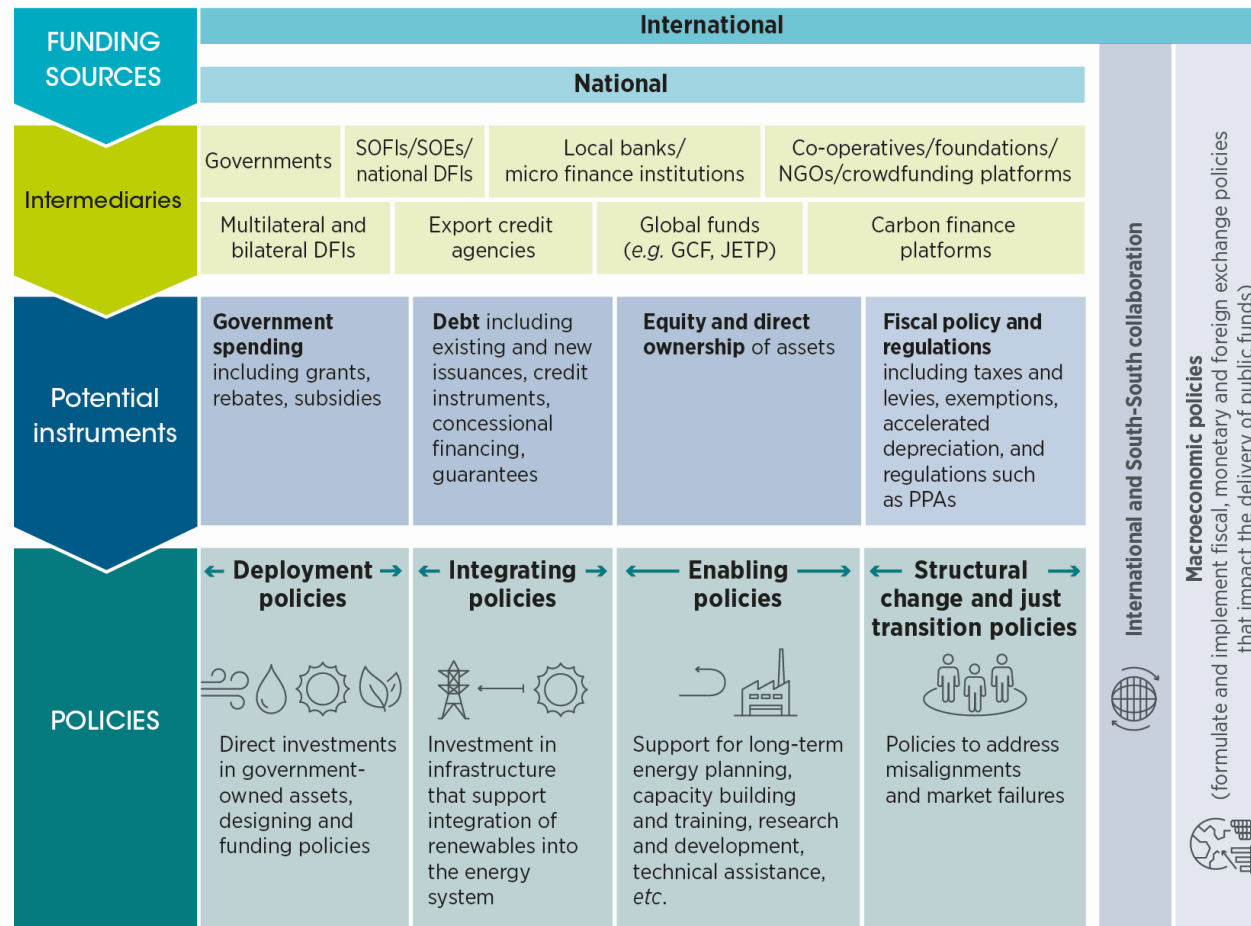
OUTLOOK 2023

1.5° C PATHWAY

Thank you!

Public funds must flow through intermediaries using various policy instruments

1 The flow of public finance for a just and inclusive energy transition



- More public funds **need to be directed to regions and countries** that have immense untapped potential but find it difficult to attract private investment.
- Supporting instruments include **government spending** (e.g. grants, rebates and subsidies); **debt** (e.g. concessional financing and guarantees); **equity and direct ownership of assets** (e.g. transmission lines or land to build projects); and **fiscal policy and regulations**.



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Moderator



Anna Freeman
Policy Director,
Clean Energy Council
& ICSE



Ahmed Idriss
Director, Environmental
Policy, Capital Power



John Titchen
Director, Goldwind
Australia



Bill Kent
Executive Director,
Association of Energy
Engineers



Paula Glover
President, Alliance to
Save Energy



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Moderator



Jamaica Gayle
Director of Sustainability & Environmental Affairs, PBPC



Emanuele Sicuro
Director of Government Relations, Cargill



Kolja Kuse
Chairman, e5



Kevin Rabinovitch
Global VP of Sustainability and Chief Climate Officer, Mars, Inc.



Helen Walter-Terrinoni
Global Decarbonization Lead, Trane Technologies



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