



ESRG

ENERGY SYSTEMS RESEARCH GROUP
University of Cape Town



Climate Transparency



THE CLIMATE TRANSPARENCY REPORT 2021

South Africa Country Profile

THE CLIMATE TRANSPARENCY REPORT 2021

The Climate Transparency Report is the **world's most comprehensive annual review of G20 countries' climate action** and their transition to a net-zero emissions economy.

Partners

“

The consequences of the climate emergency are becoming more and more visible, with floods, extreme heat waves and unusual droughts. To respond to the climate crisis we are already experiencing, we need ambitious climate action now.

The Climate Transparency Report tells us where we are and what has to be done .

—— **LEWIS PUGH, OIG**
UN Patron of the Oceans



www.climate-transparency.org



@ClimateT_G20

#CTreport2021

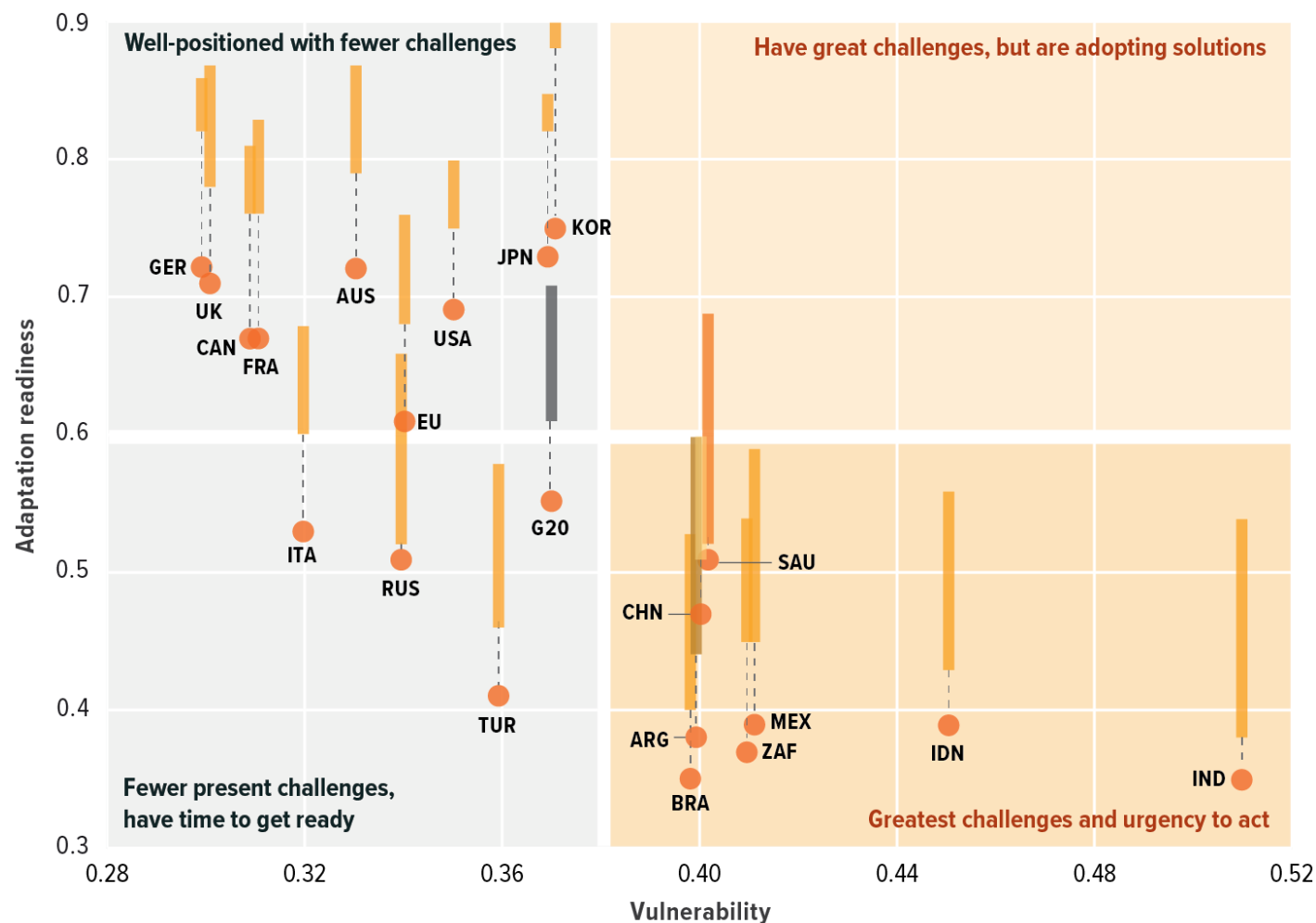


Climate
Transparency

Even if we meet 1.5°C, and certainly if we exceed it, the G20 will be exposed to even greater than-average weather- and climate-related impacts such as severe water scarcity or droughts, more days with extreme high temperatures and agricultural impacts.

Across the G20, developing countries have the highest level of vulnerability to climate change but the lowest level of readiness and, therefore, face the greatest challenges.

DEVELOPING COUNTRIES FACE THE GREATEST CHALLENGES TO ADAPT



RAISED AMBITION REDUCING THE GAP: NET ZERO TARGETS

	Law	Policy Document	No target
Net zero target covers all GHGs	▶ Canada, ▶ EU, ▶ France, ▶ Japan, ▶ UK	▶ USA, ▶ China (2060)	Australia, India, Mexico, Russia, Saudi Arabia, Turkey
No detail in net zero target on which GHGs are covered	▶ Germany (2045), ▶ South Korea	▶ Argentina, ▶ Brazil, ▶ Italy, ▶ South Africa, ▶ Indonesia (2060)	

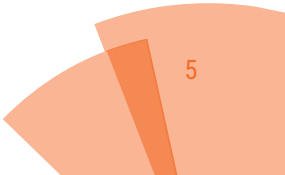
▶ No international offsets* ▶ Unclear or undecided ▶ International offsets* included

*Reductions or removals outside of own borders. Note: 11 of the G20 members have a net zero target year of 2050, excl. China, Germany, and Indonesia.

By August 2021, 14 G20 members have announced net zero targets (61% of global GHGs).

Seven G20 members have enshrined their target in law (14% of global GHGs).

More ambitious near-term (2030) targets are needed to reach mid-century net zero targets.



RAISED AMBITION REDUCING THE GAP: NDCS

By September 2021, 13 NDCs have been submitted by G20 members to the UNFCCC.

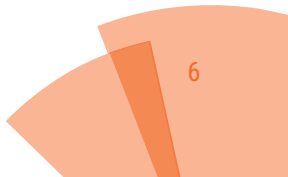
Six have submitted more ambitious NDCs than their last.

China, Japan & South Korea have proposed to increase their ambition.

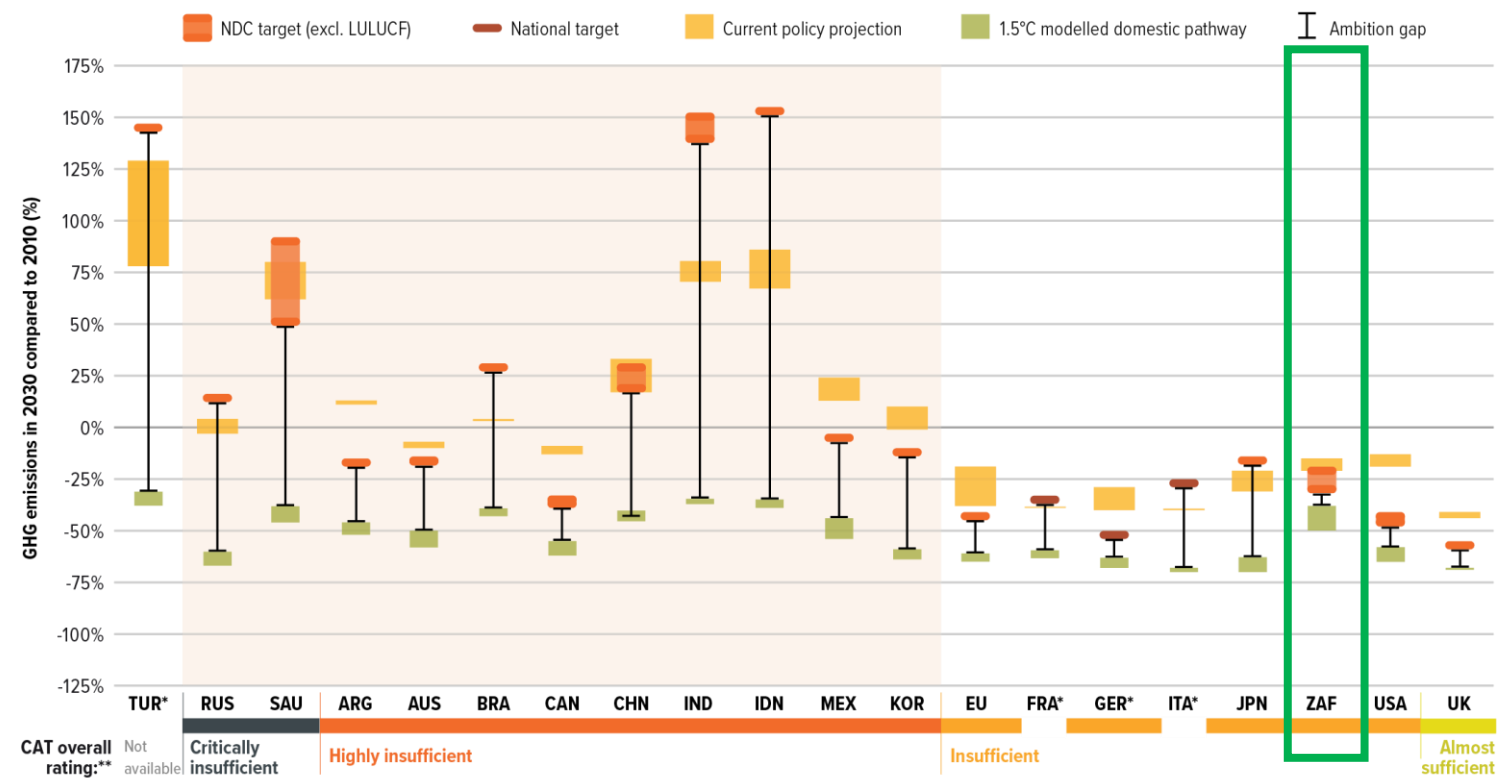
The greatest decreases are from EU, China & the US who are among the highest emitting members of the G20.

Submitted a more ambitious NDC target	Proposed a more ambitious NDC target	Did not increase ambition in NDC target	Not yet submitted or proposed an updated NDC
Argentina (2 nd NDC), Canada, EU (incl. France, Germany, and Italy), South Africa, UK (1 st NDC), USA	China, Japan, South Korea	Australia, Brazil, Indonesia, Mexico, Russia	India, Saudi Arabia

Turkey’s submission remains an Intended Nationally Determined Contribution (INDC) until it ratifies the Paris Agreement.



BUT THE G20 IS NOT YET 'ALIGNED' WITH A 1.5C PATHWAY



All NDC announcements assessed by April 2021 leave a significant **emissions gap of around 23 GtCO₂e** from a 1.5°C pathway, leading to a 2.4°C world in 2100.

If the G20 aligned targets and policies with 1.5°C pathways, this gap could be reduced by 64% and temperatures could be limited to 1.7C.

Most G20 members fall into the ‘**highly insufficient**’ or ‘**critically insufficient**’ group of CAT’s new rating system.

*France, Italy, and Germany - ‘national targets’.

The ‘Ambition gap’ is the gap between the NDC and the 1.5°C compatible range as modelled by the 1.5°C National Pathways Explorer and derived from eleven global models of the IPCC special report on 1.5°C. More detail at <http://1p5ndc-pathways.climateanalytics.org/about/>

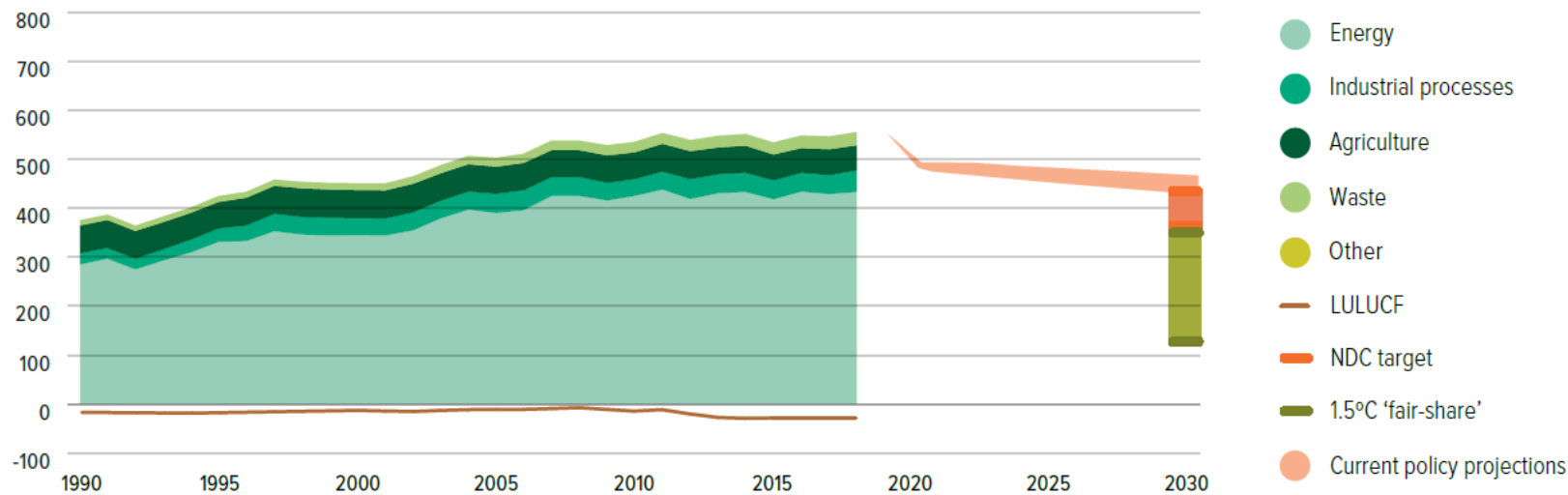
The CAT rating here is a new overall rating that combines several separately rated elements of policies and actions, domestic and internationally supported targets, ‘fair-share’ target and contribution to climate finance. Detailed assessments and explanation of methodology at <http://www.climateactiontracker.org/countries>



SOUTH AFRICA NDC'S

GHG emissions across sectors and CAT 1.5°C 'fair-share' range (MtCO₂e/year)⁵

Total GHG emissions across sectors (MtCO₂e/year)



Gütschow et al., 2021; Climate Action Tracker, 2021

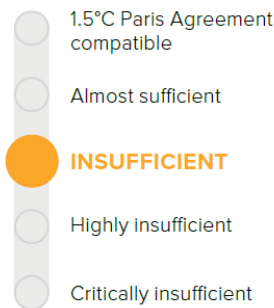
Note: Value excl. land use is calculated assuming a 10 year historical average for land use emissions based on South Africa's national inventory data from 2005-2015

The **Updated NDC**, submitted to the UNFCCC on 27 September 2021,

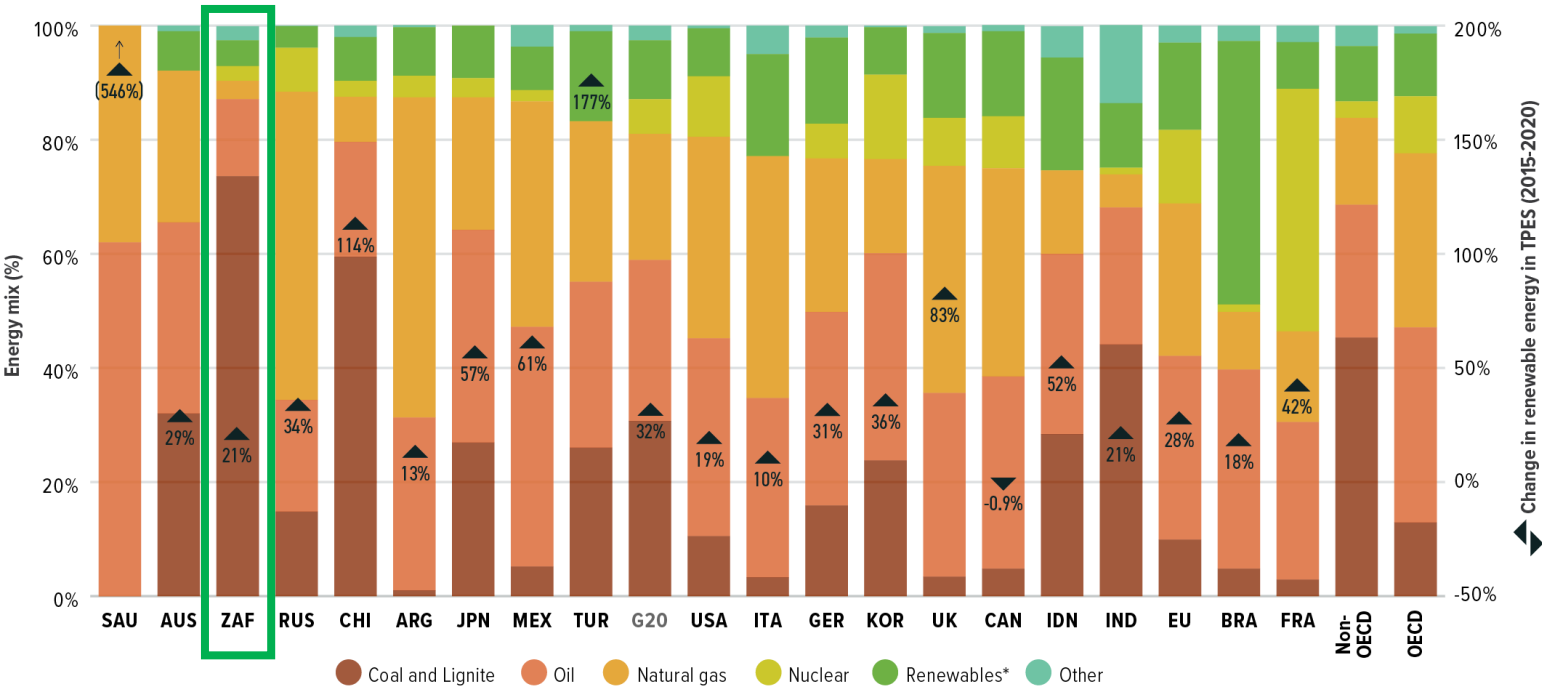
includes a 2030 GHG emission target range of 350-420 MtCO₂e, incl.

LULUCF (as submitted) or 366-436 MtCO₂e, excl. LULUCF.

SOUTH AFRICA'S OVERALL RATING



IN THE G20 RENEWABLES ACCELERATE, COAL USE IS GOING UP AGAIN



The G20 average share of renewables has increased by 32% from 2015-2020 (to 7%).

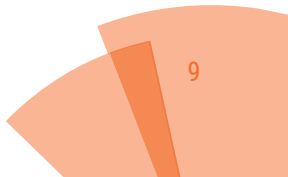
The G20 average share of fossil fuels in TPES decreased from 82.9% to 80.8% from 2015-2020, **driven by a reduction in the G20's total coal consumption** of 8% due to reduced energy demand, and the implementation of coal phase-out policies in:

UK (-78 %), Italy (-63 %), Germany (-45 %), the EU (-42 %), and Canada (-28%).

But coal consumption is projected to rise by almost 5% in 2021 with much of this growth concentrated in:

China (61%), the USA (18%) and India (17%).

The G20's average natural gas consumption increased by 12% from 2015-2020.



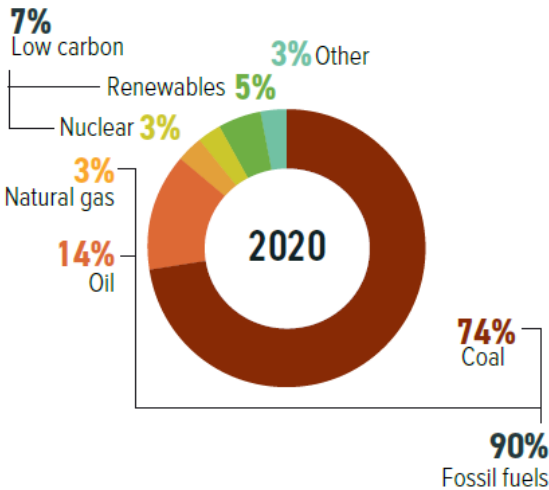
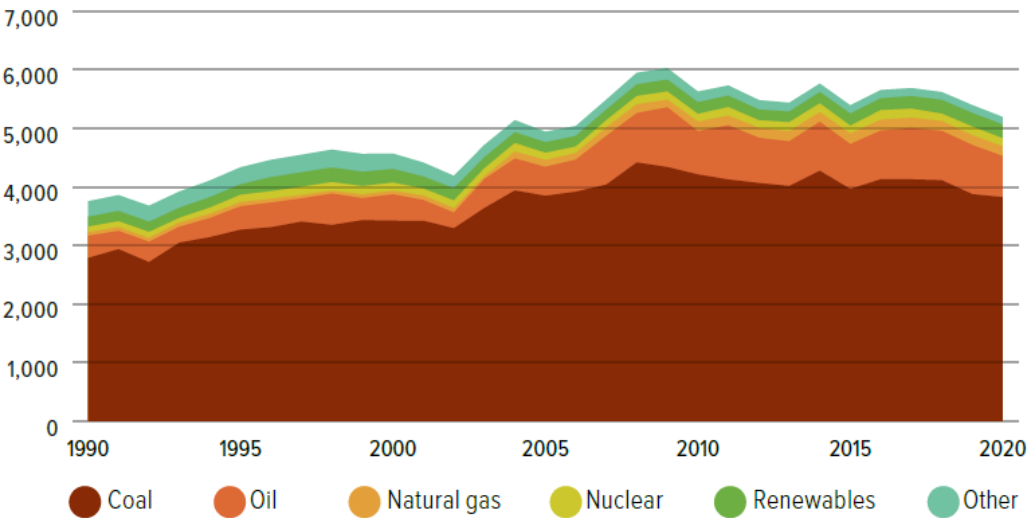
SOUTH AFRICA COUNTRY PROFILE



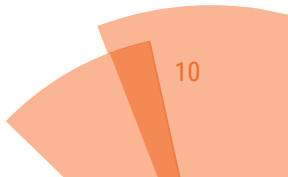
Fossil fuels still make up around 90% of South Africa's energy mix (including power, heat, transport fuels, etc) – among the G20's highest. Energy from solar PV and wind has been on the rise since 2014, but renewables still make up a tiny share of the overall mix. Carbon intensity of energy has remained nearly constant in recent years, with a slight dip in 2020 likely due to COVID-19.

Energy mix

Total primary energy supply (TPES) (PJ)



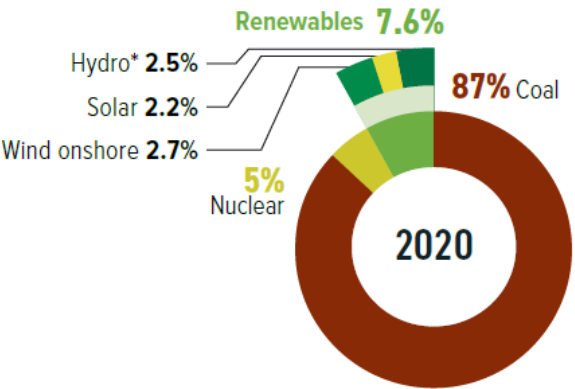
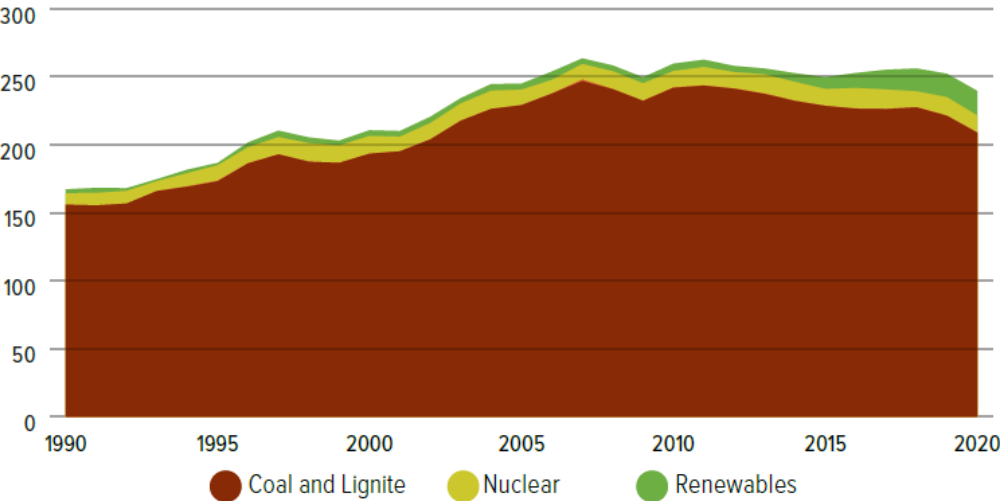
Enerdata, 2021 Due to rounding, some graphs may sum to slightly above or below 100%



SOUTH AFRICA COUNTRY PROFILE

Electricity generation mix

Gross power generation (TWh)



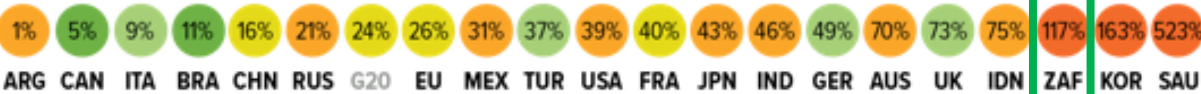
Enerdata, 2021 Due to rounding, some graphs may sum to slightly above or below 100%

*Note: Pumped hydropower used for storage makes up the majority of hydro reflected in this figure. It is important to note that the majority of pumped hydropower in South Africa is charged by coalfired power plants, usually at night, and during times of low demand.

Current decarbonisation ratings:*



Growth in share of renewables in power generation (incl. large hydro): 2015-2020 (% change)

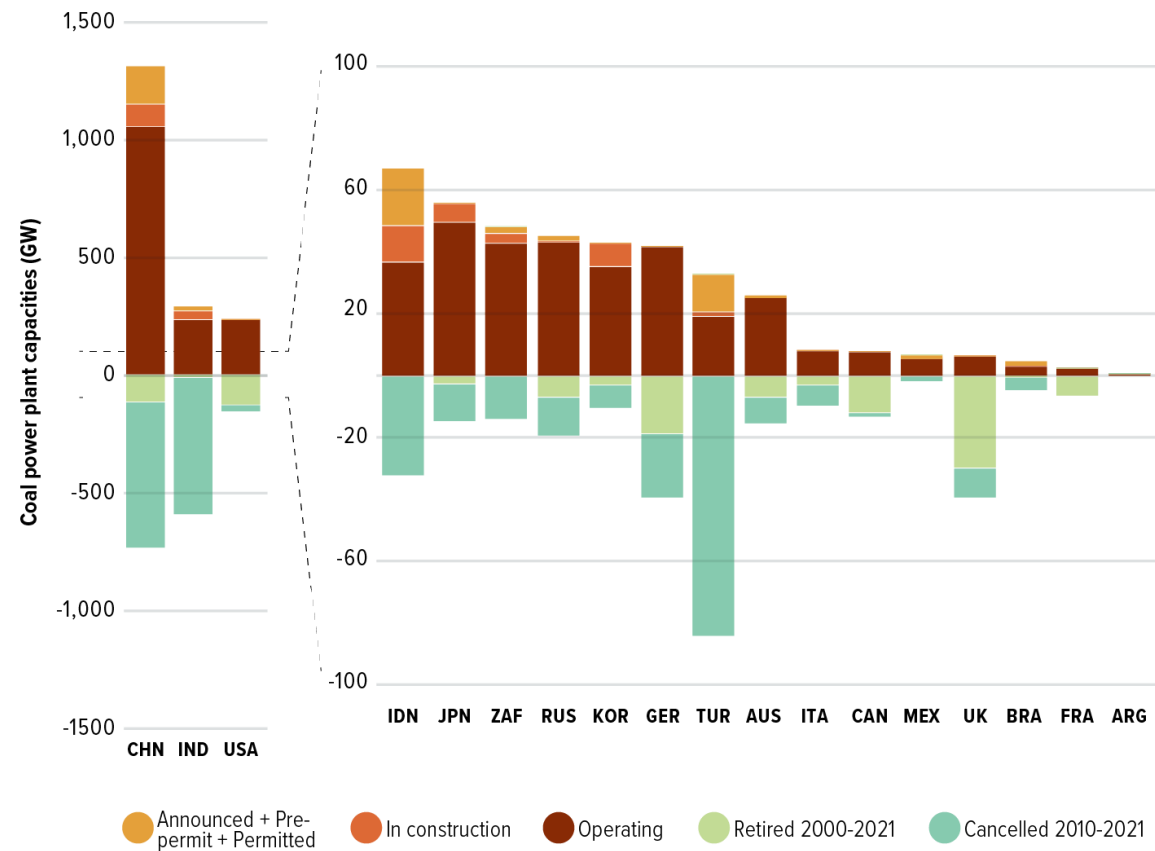


POWER: COAL PHASE-OUT URGENT WHILST RENEWABLES POWER THROUGH THE PANDEMIC

China accounts for over half of the G20's total coal capacity, followed by India and the USA. China also has the highest planned coal capacity (163 GW), followed by India (21 GW), Indonesia (18 GW), and Turkey (12 GW).

France, Italy and the UK are rated as frontrunners for coal phase-out policies

All G20 members will need to phase out coal between 2030-2040 to limit global average temperature to 1.5°C.

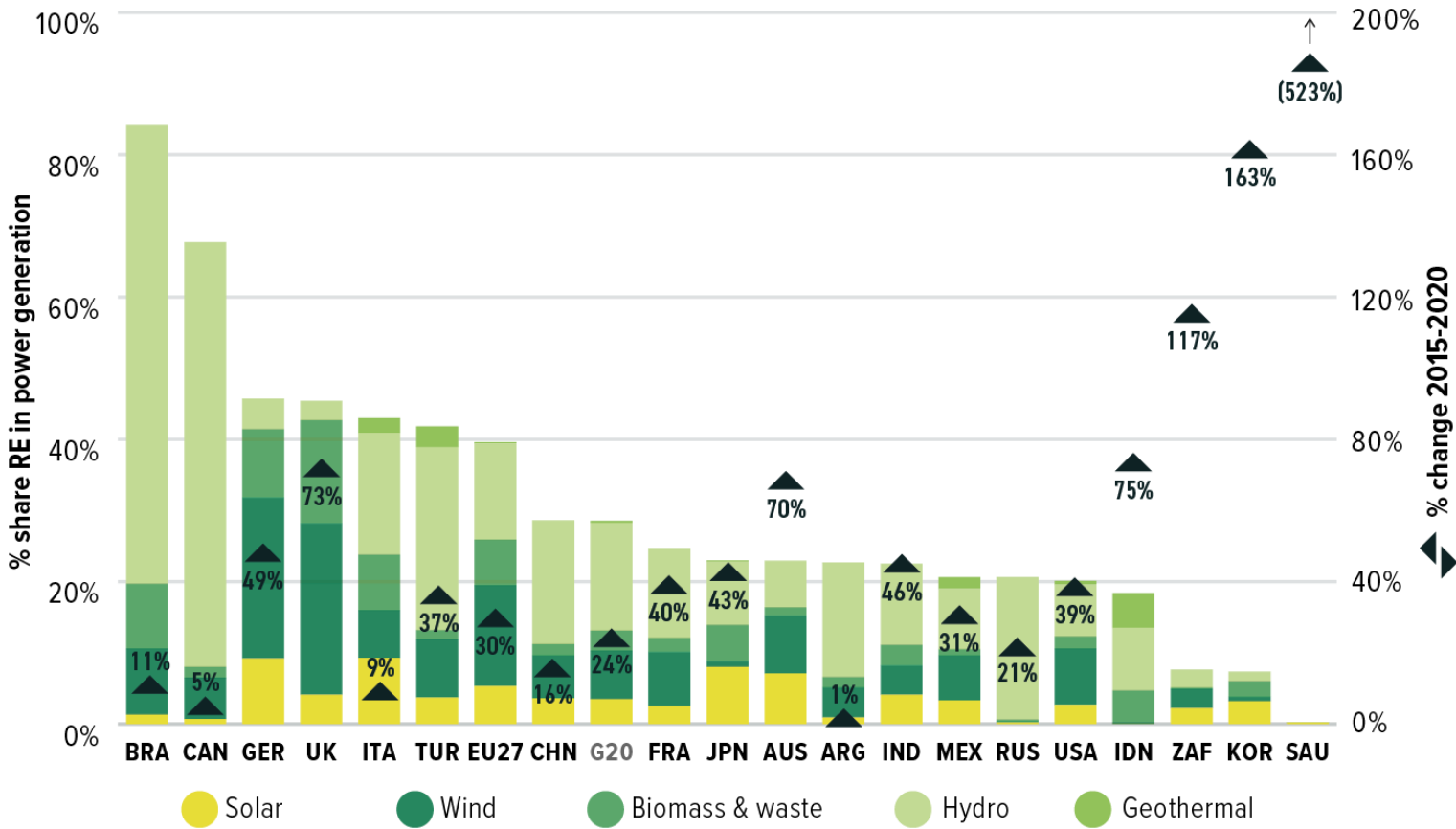


Operating, announced, permitted, pre-permit, and construction and coal transition trends based on cancelled and retired coal capacity between January 2000-July 2021.

POWER: COAL PHASE-OUT URGENT WHILST RENEWABLES POWER THROUGH THE PANDEMIC

The share of renewables in the G20's power mix has increased by **20%** (2015-2020) and is projected to reach 29.5% in 2021.

This growth rate will however need to accelerate significantly to reach 75% of the global power mix by 2040.



SOUTH AFRICA: A JUST TRANSITION

The coal mining sector employs over 90,000 workers, concentrated in regions with high unemployment levels, making the transition more challenging.

- Government has explicitly recognised a just transition as a priority in national policy and in its updated NDC.
- In 2019, the National Planning Commission initiated a social dialogue process to identify pathways for a just transition, which has been formalised into the newly-launched **Presidential Climate Commission (PCC)**, tasked to oversee and coordinate socially inclusive pathways to net zero.
- A national framework and sectoral strategies related to a just transition are being developed.
- Mpumalanga Province is undertaking social partner dialogues and exploring green economic diversification through Provincial structures.
- Eskom, the national power utility, is pursuing a just energy transition strategy through plant repurposing and new finance models.
- Local community groups are developing an Open Agenda on Just Transition.



**TRANSFORMING
THE ENERGY
SECTOR IS KEY TO
A LOW CARBON
ECONOMY**

