



FOSSIL FUEL POWER PLANTS CONVERSIONS

To keep global warming below 2 °C



Carbon emissions must be reduced

Fossil fuel power plants generate large amounts of emissions.

Some of these power sources must be decommissioned or underused, i.e. be stranded.

STRANDED ASSET

A stranded asset is defined as an asset that must be decommissioned or underused in order to keep global warming below 2 °C.

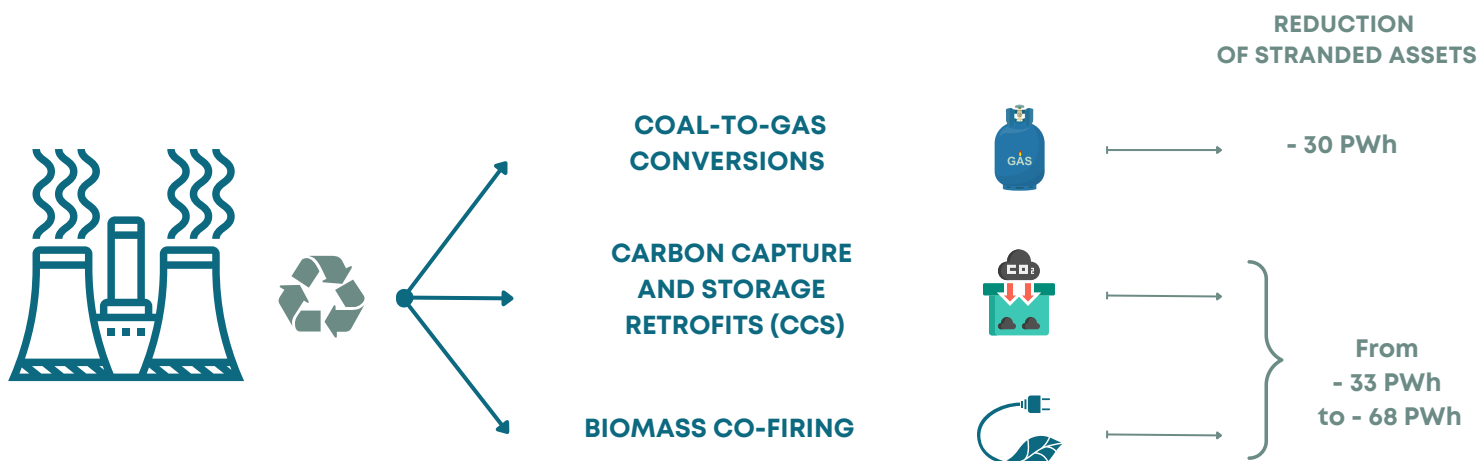
TO BE COMPATIBLE WITH THIS 2 °C OBJECTIVE BY 2100

The equivalent of 267 PWh fossil fuel based electricity should not be produced, despite the development of low-carbon energy technologies (carbon capture and storage, bioenergy, solar and wind...).

1 Petawatt Hour (PWh)
= 1 000 000 Gigawatt Hour (GWh)

267 PWh
= 10 times global electricity production in 2018

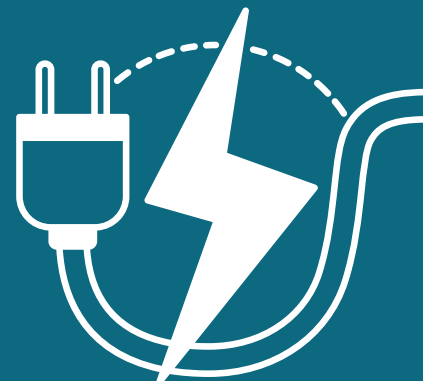
HOW TO CONVERT FOSSIL FUELS TO BE LESS CARBON-INTENSIVE?



UNCERTAINTY

Scenarios by the likes of the IPCC* and IEA* often assume very rapid rollout of low-carbon energy technologies.

The amount of fossil fuel based electricity generation at risk of stranding would rise by 69 percent and 45 percent, respectively if either CCS or bioenergy are not deployed to their full potential.



WARNING

The findings provide a stark warning to energy companies, that have argued technologies such as CCS and bioenergy could substantially reduce the carbon footprint of energy production from fossil fuels.



SOLUTIONS



- Take full account of stranding risks today.
- Avoid building new fossil fuel facilities.
- Reduce the utilization rate of existing fossil fuel power plants by anticipating their shutdown.

SOURCE

Lu Yangsiyu, Cohen François, Smith Stephen M. and al., Plant conversions and abatement technologies cannot prevent stranding of power plant assets in 2 °C scenarios. *Nature Communications* 13, 806 (2022)

*IPCC = Intergovernmental Panel on Climate Change of the United Nations
*IEA = International Energy Agency