

CHALLENGES of an EVOLVING WORLD

Enabling the Path to a Low-Carbon Future

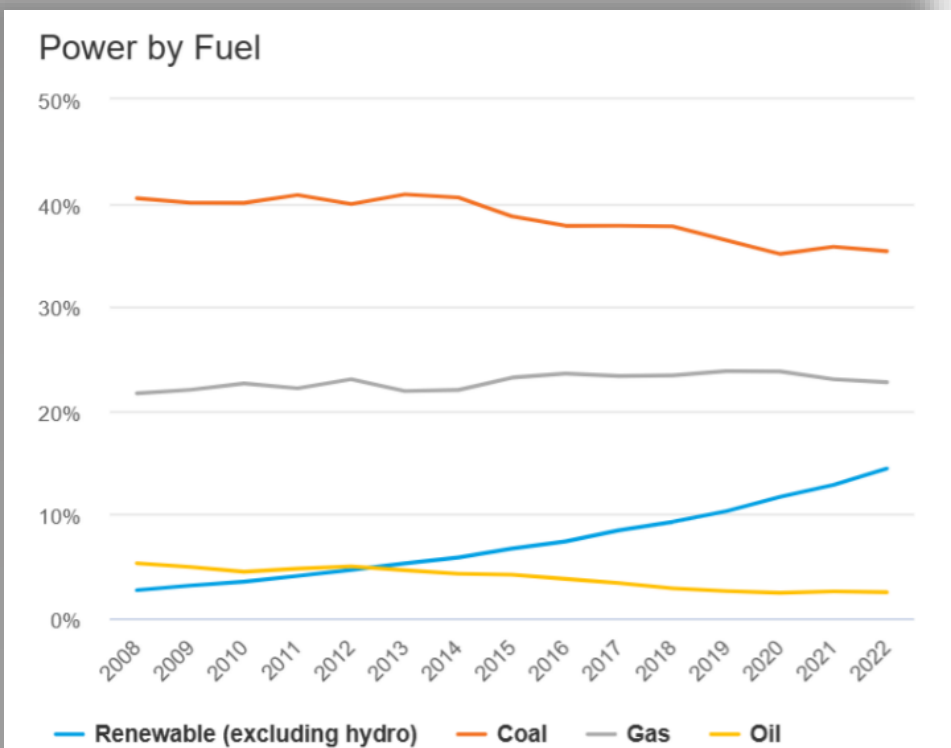
PNG Resources and Energy Investment Conference, Sydney (Dec 13th , 2023)

What powered the world in 2022

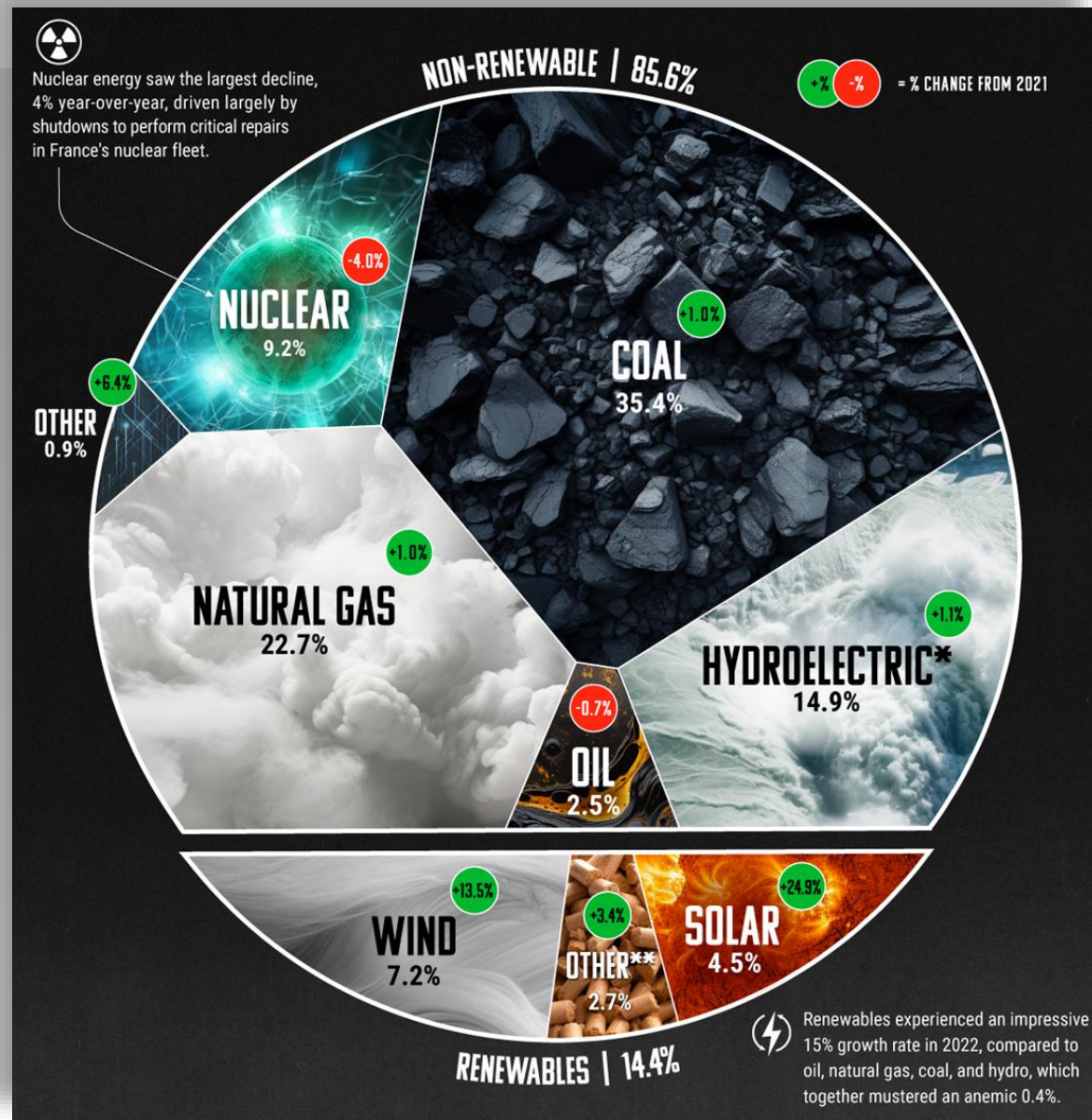
<https://elements.visualcapitalist.com/what-electricity-sources-power-the-world/>

Coal still the king → 35%
Natural gas → 23%
Hydroelectric → 15%

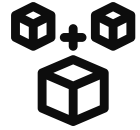
Renewables + Hydro → 29%



Source: Energy Institute



Energy Transition Takes Time



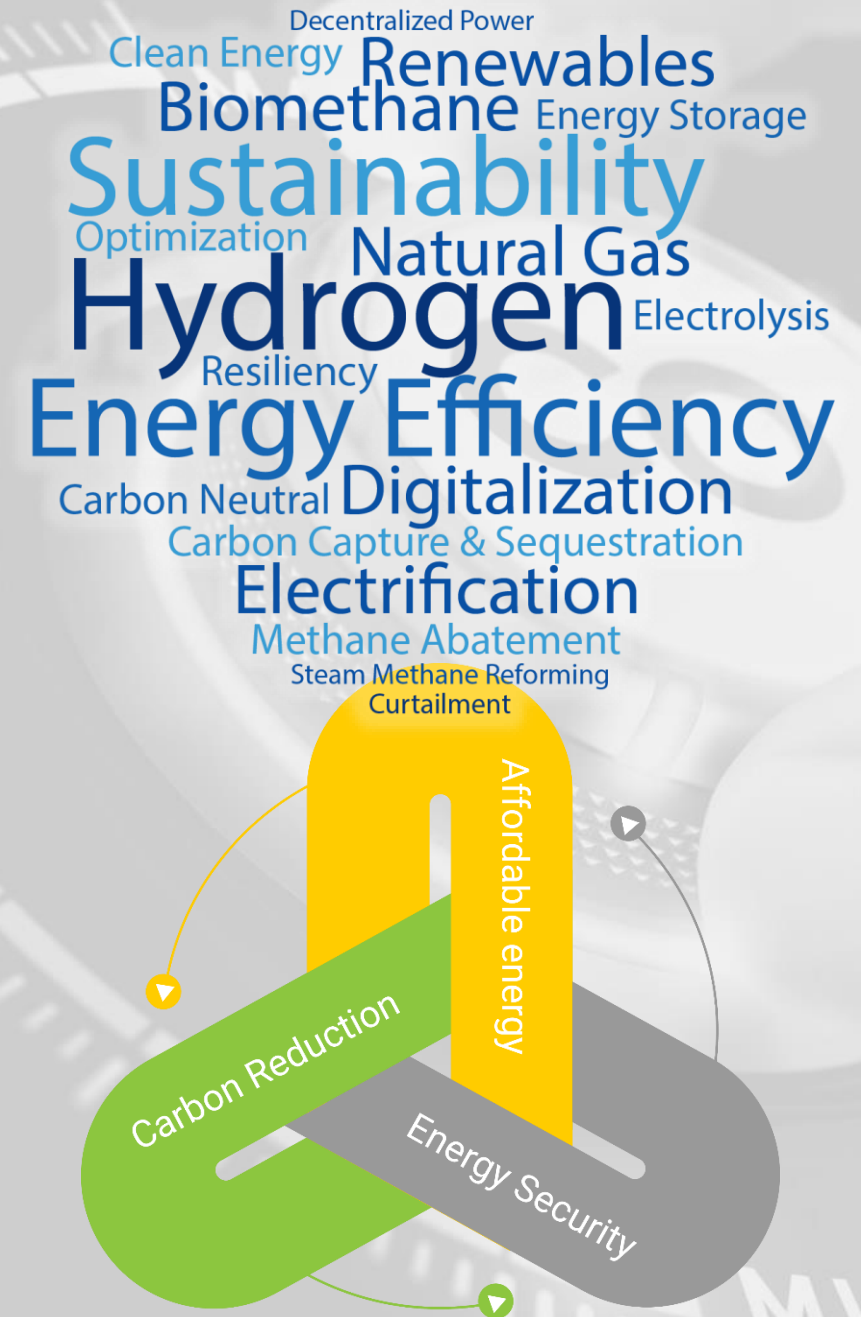
Diversification to enhance security of supply



Balanced approach supporting the speed of the energy transition



Energy solutions adapted to specific regional Requirements



Solar Turbines at a Glance

**World's Largest
Manufacturer of Industrial
Gas Turbines**

(1 to 23 MW)



**Installations in
100+ Countries**

Solar in PNG

1st unit 30+ years ago

Local Workforce

5 PNG National FSRs



49 Units



Dirio Power Station



Dispatchable Generation Technology

Solar Turbines

A Caterpillar Company

- Modular PGM (3-38 MWe)
- Mobile (SMT60 and SMT130)
- Quick Start (< 5 min)
- Quick response
- Multiple (Low Carbon) Fuels
- Flexible and Reliable
- SMART connectivity
- Future-Ready Solutions



Dispatchable Generation System for a Sustainable Energy Landscape

Carbon Reduction Pillars

The image displays four pillars of carbon reduction, each with a distinct icon and a corresponding photograph or graphic.

- Digital & Operational Efficiency:** Represented by a circular icon with a circuit board. The photograph shows an offshore oil rig with a digital overlay of a gauge and a line graph. The graph is labeled "502 Total MMSCFD" and "CO₂ REDUCTION".
- Methane Abatement:** Represented by a circular icon showing a hand holding a plant. The photograph is a close-up of a blue industrial valve or sensor.
- Hydrogen & Fuel Flexibility:** Represented by a circular icon with "H₂". The graphic is a green hexagonal grid containing various icons: a solar panel, a water drop, a cloud with rain, a plug, a globe, a house with trees, a fuel pump, a bicycle, a lightbulb, a sun, and a plug with a leaf. The text "H₂" is prominently displayed in the center.
- Carbon Capture, Use & Storage:** Represented by a circular icon with a curved arrow. The photograph shows a complex industrial facility with large vertical tanks and piping.

FUELS

CAPABILITY

Gaseous Fuels

- Natural Gas
- LNG / LPG
- Associate Gas
- Raw Natural Gas
- Refinery off Gas
- Landfill Gas
- Digester Gas
- Coke Oven Gas
- Gasified Biomass

Liquid Fuels

- Diesel #2 and #1
- Kerosene
- Naphta
- LNG
- LPG
- Gasoline

- Hydrogen
- Syngas
- Biomethane & Biogas
- Renewable Natural Gas (RNG / e-NG)
- Biopropane

- B20-B50 Biodiesel mix
- Renewable Diesel (e-diesel)
- HVO (Hydrogenated Vegetable Oil)*

- Ammonia

- B100 Biodiesel*
- Ethanol*
- Dimethyl Ether (DME)*
- Oily and liquid Biomasses

Low Carbon &

Renewable Fuels

Solar Turbines

A Caterpillar Company

Available

Under Development

* Available on some product configurations

Three Combustion Platforms

Conventional Combustion (Diffusion Flame)



**100%
READY TODAY!**

SCR available for low NOx emission

SoLoNOx



Validating higher
percentage level

100% DLE

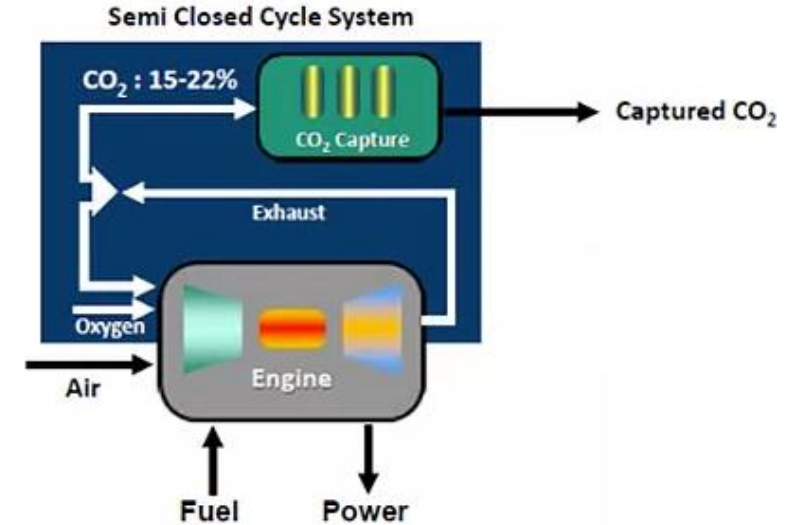


Concept evaluation, Injector testing
today (2021-2024)

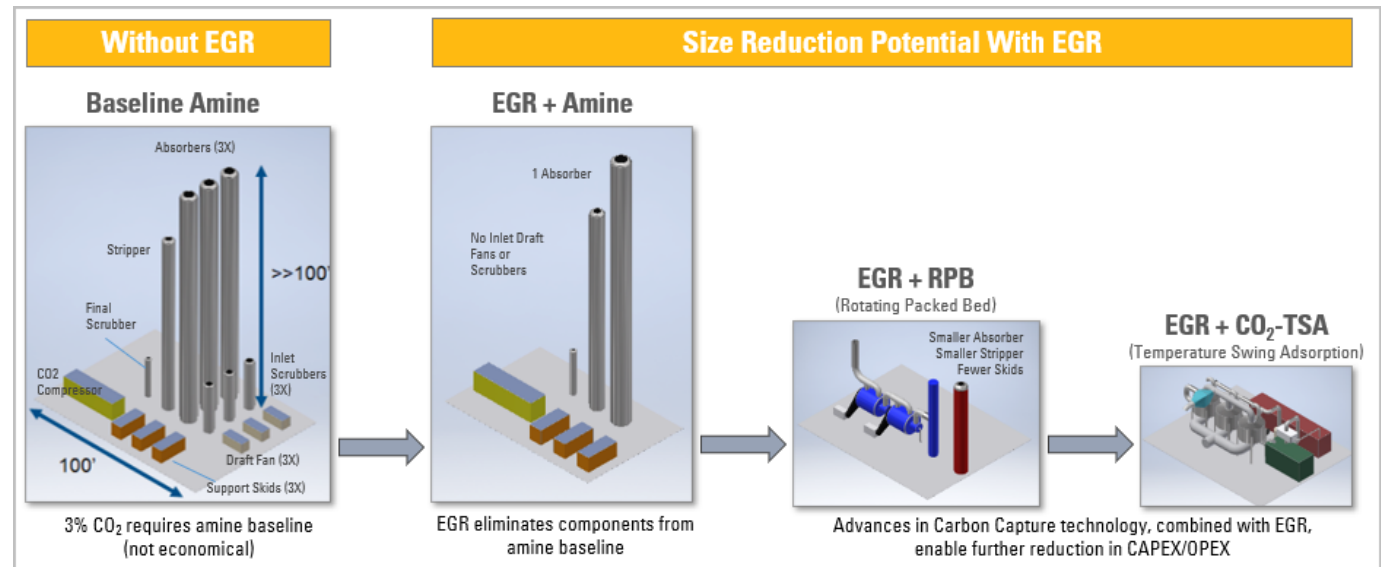
First Engine test target:
2025-2026

Carbon Capture

- CAT acquired CarbonPoint Solutions in 2021
- Patented processes to concentrate CO₂ and reduce capture system cost (EGR)
- CO₂-TSA to capture >95% CO₂ emissions



- Concentrating CO₂
 - Enables cost-effective capture at distributed scale
 - Agnostic of CC technology
- Technology Pilots ongoing

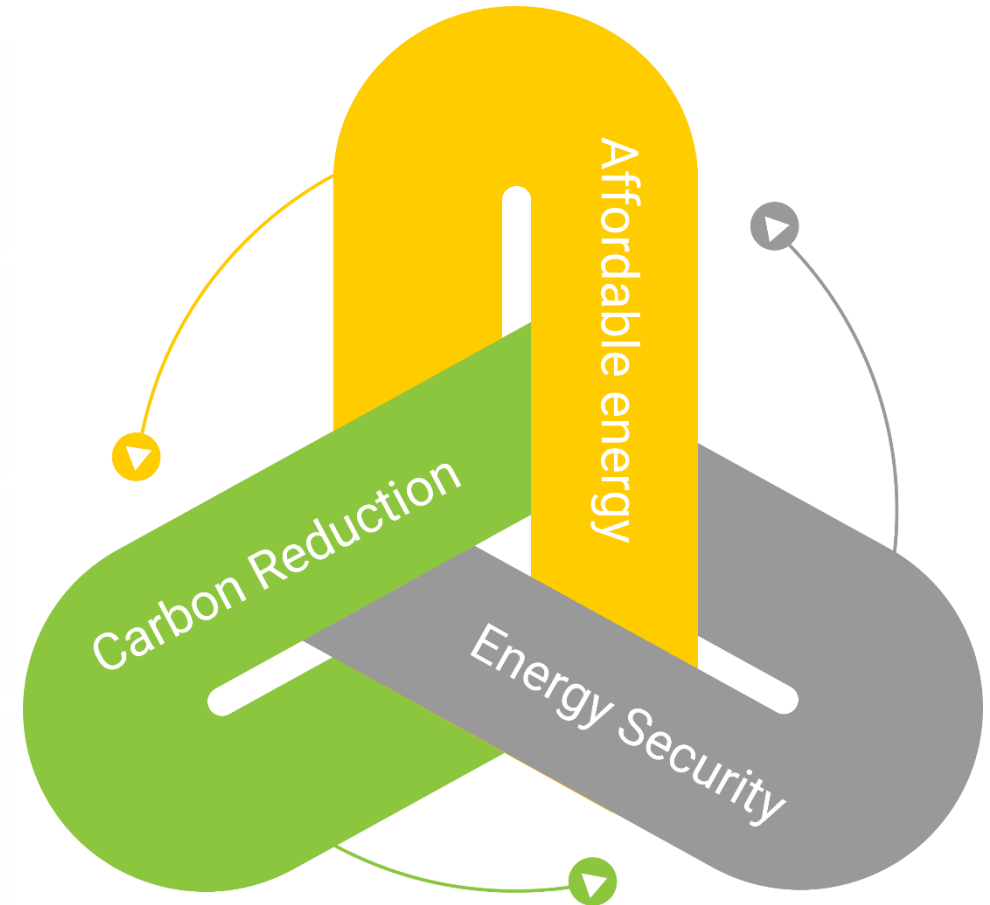


Our Commitment

Solar[®] Turbines

A Caterpillar Company

- Investing in Efficient GT technology
- Enabling Lower Carbon Intensity Solutions
- Future-Ready Solutions
- DIGITAL supports growth for Renewable Energy



BALANCED SOLUTIONS TOWARDS SUCCESSFUL ENERGY TRANSITION

THANK YOU

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