

A disruptive nuclear energy company

The future of sustainable energy is clean, safe and inexhaustible

THE CHALLENGE

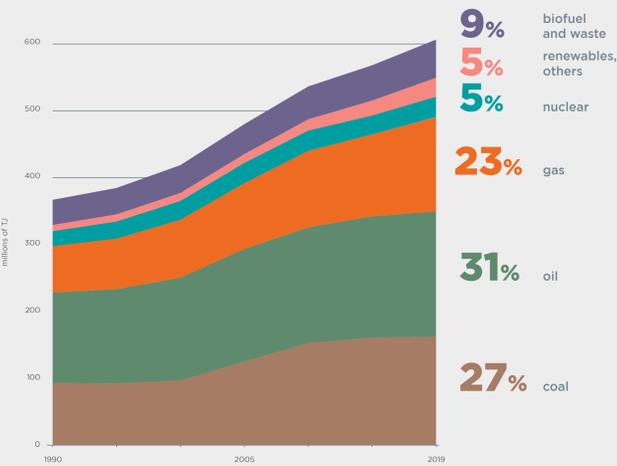
The world is facing a turning point: meeting its growing energy demands, rapidly reaching net zero emissions and reducing the environmental impact of power production. The current energy source mix is not sustainable.

ENERGY NEED

Energy demand greatly increased in the last decades and will continue growing. The decarbonisation process must involve all energy uses (not only electricity).

TOTAL ENERGY

(electricity, transport, heat)



[rework of IEA: Total energy supply]

NUCLEAR IS THE BEST OPTION

Fission is intrinsically a greenhouse gas free process, extremely concentrated and reliable.

AVERAGE LIFETIME ELECTRICITY NEED

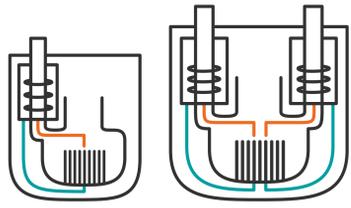
Fuel	fuel	corresponding CO2 emissions
Coal	88,000 kg	253,000 kg
Oil	65,000 kg	210,000 kg
Gas	47,000 kg	127,000 kg
Uranium 3.5% enrichment	~1 kg	0 kg

[rework of IAEA: Nuclear Energy compared, 2021]

OUR SOLUTION

Gen-IV reactors: an even better nuclear energy production

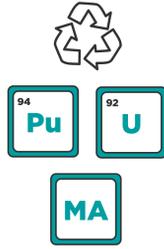
newcleo is building the next generation of nuclear energy production that is safe, clean and sustainable. We are working on an innovative combination of existing technologies to disrupt the nuclear sector, operating intrinsically safe reactors and dramatically reducing existing and future nuclear waste.



LEAD-COOLED FAST REACTOR

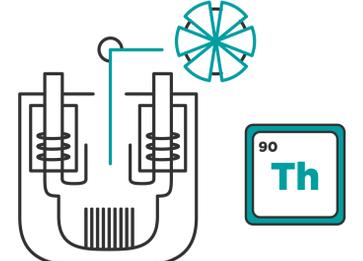
MINI LFR
30 MWe
Also for maritime propulsion

SMALL LFR
200 MWe
also can be used as a burner



NEW FUEL CYCLES

Burning of existing waste



ACCELERATOR DRIVEN SYSTEM

Subcritical LFR + Particle accelerator

GEN-IV SMR

most mature technology, simpler design, versatile commercial use

WASTE BURNING, NO MINING

use of spent fuel (plutonium and minor actinides)

MOX FUEL MANUFACTURING

Extracting energy from the current nuclear industry waste, supporting energy independence

INTRINSICALLY SAFE

not self-sustaining, automatically shuts down in case of accident

LEAD COOLANT

enhanced passive safety and higher thermal efficiency

KNOW-HOW

13 international patents and 300+ years of team experience

REDUCED RADIOTOXICITY

drastically reduced amount of minor actinides produced

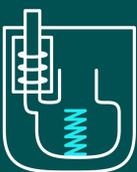
Th: ABUNDANT

3x more abundant than uranium and more evenly distributed

BETTER USE OF FUEL

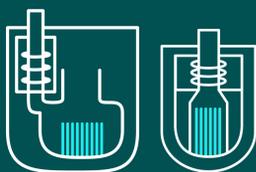
More efficient (100x) fuel exploitation thanks to fast neutrons; possibility to use various fuel types, including reprocessed spent fuel (plutonium/minor actinides) from existing plants. Significantly limits need to mine for new fuel. Natural reduction of high-level waste, hence less volume to be disposed in a geological repository.

Delivering decarbonised power at scale: OUR 15-YEAR PLAN



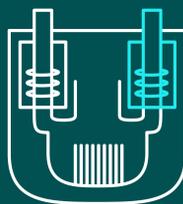
5 YEARS
PRECURSOR

non-nuclear industrial prototype



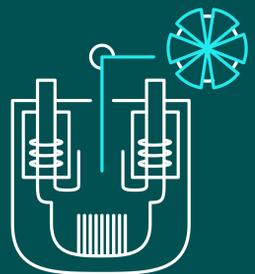
7/10 YEARS
MINI LFR
30 MWe

full-scale nuclear industrial prototype (also maritime propulsion)



10/12 YEARS
SMALL LFR
200 MWe

small modular industrial prototype (also for burning waste)



LONG TERM
ADS

ADS prototype, focusing on innovative fuel cycles

