

Energy comparisons



Approximate size of a nuclear fuel pellet

≈3/8-inch in diameter and 5/8-inch in length



1 ton
(907 kg) of coal



17,000 ft³
(481 m³) of gas



120 gallons
(454 L) of oil

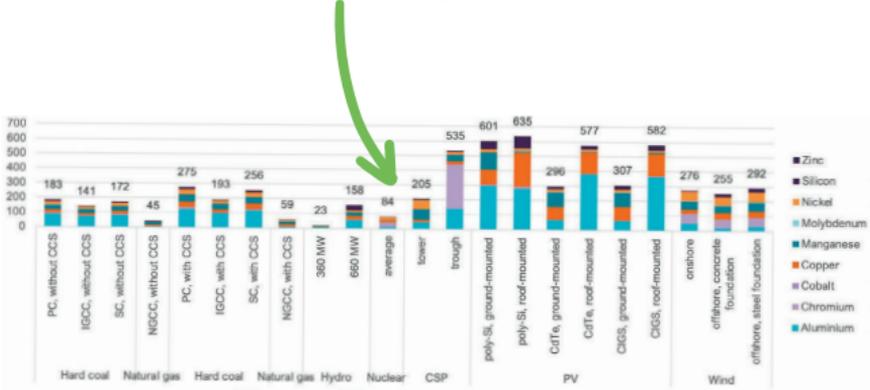


Source: U.S. Department of Energy

Materials required

Less materials + Less mining + Less waste
= Less impact on the environment

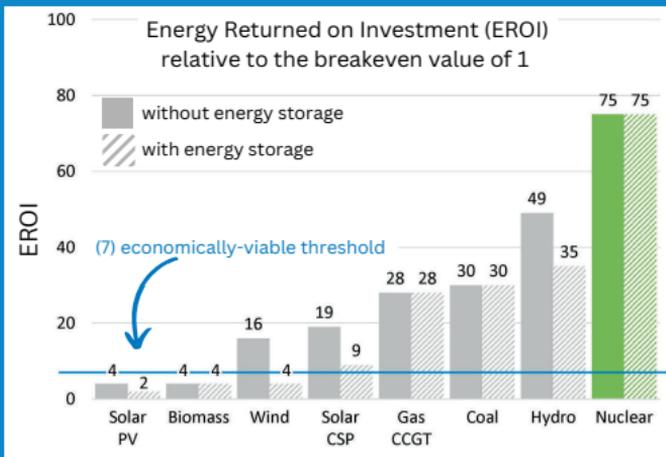
Lifecycle requirements of select materials for electricity technologies, in g per MWh.



Source: United Nations Economic Commission for Europe Life Cycle Assessment of Electricity Generation Options

Working efficiently

The ratio of energy returned to energy invested in that energy source, along its entire life-cycle



Source: Weißbach

Learn more!

Become a member (for free) today
with North American Young Generation in Nuclear at
www.naygn.org/register

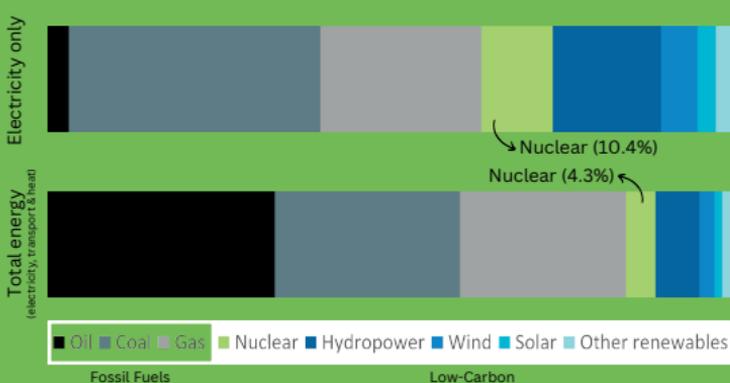


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How do we decarbonize?

Nuclear will need to **double by 2050** if we are to reach net zero climate goals,

according to experts at the International Energy Agency. More than 1/3 of global electricity comes from low-carbon sources; *but* a lot less of total energy does.

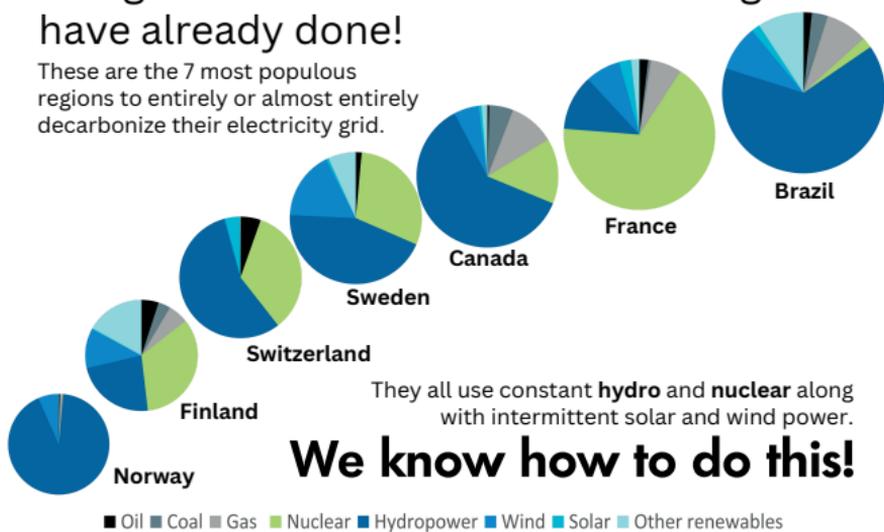


Source: Our World in Data based on BP Statistical Review of World Energy (2020). Based on primary energy and electricity mix in 2019.

How do we decarbonize?

Using all the tools available as these grids have already done!

These are the 7 most populous regions to entirely or almost entirely decarbonize their electricity grid.



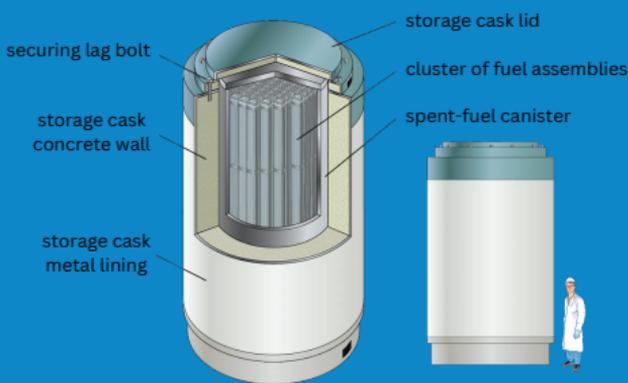
We know how to do this!

Source: "Electricity Generation (TWh), 2020" from BP Statistical Review of World Energy; "Yearly Energy Output by Fuel Type" from IESO Transmission Connected Generation

What about the waste?

Spent nuclear fuel is stored safely in shielded dry storage casks across the world.

Dry storage has provided safe management of spent fuel since the 1980s. Casks provide enough shielding that you can safely stand next to them.



Source: Encyclopedia Britannica

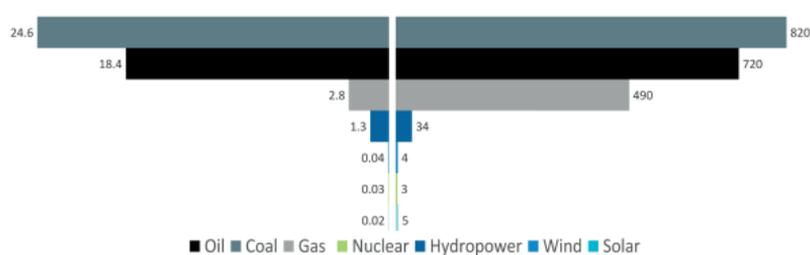
But is it safe and clean?

Nuclear energy is one of the safest forms of electricity generation...

...and in fact **>2 million lives have been saved** by replacing fossil fuels.

Death rate from accidents and air pollution
Measured as deaths per terawatt-hour of electricity production. 1 TWh is the annual electricity consumption of 150,000 people in the EU.

Greenhouse gas emissions (in tonnes)
Measured as emissions of CO₂-equivalents per gigawatt-hour of electricity over the lifecycle of the powerplant. 1 GWh is the annual electricity consumption of 150 people in the EU.



Source: Our World in Data based on Markandya & Wilkinson (2007); UNSCEAR (2008; 2018); Sovacool et al. (2016); Pehl et al. (2017); Ember Energy (2021)