

Japan's Dangerous Distractions

Ammonia and Hydrogen Co-Firing

Japan doesn't want to give up fossil fuels.

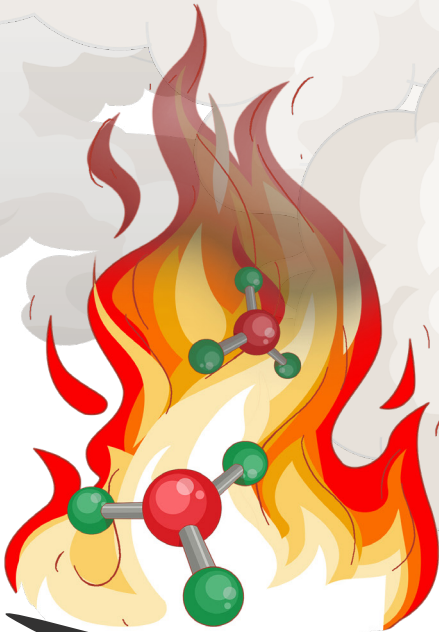
Japan is promoting the burning of ammonia at coal plants and hydrogen at gas plants to supposedly help governments transition to clean energy. However, Japan is prioritizing corporate profits over the safety and well-being of our planet and our communities.

Ammonia and hydrogen co-firing are **ineffective** and will not reduce greenhouse gas emissions enough to reach our climate goals. Co-firing will prolong the lifetime of coal and gas plants when they should be shut down. It's bad for our **health and environment**, it's **costly and bad for the economy**, and it's **unproven technology**.

And yet, the Japanese government is aggressively pushing countries across Asia to adopt these methods. Several companies and institutions like JERA - one of the world's largest energy companies, and Mitsubishi Heavy - have already signed agreements to develop projects in countries like Indonesia, Malaysia, Thailand, and the Philippines.

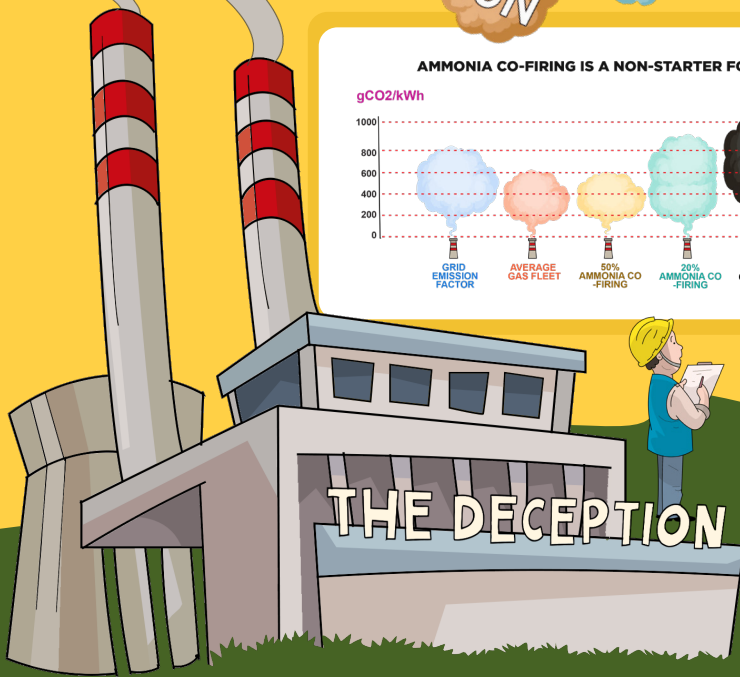
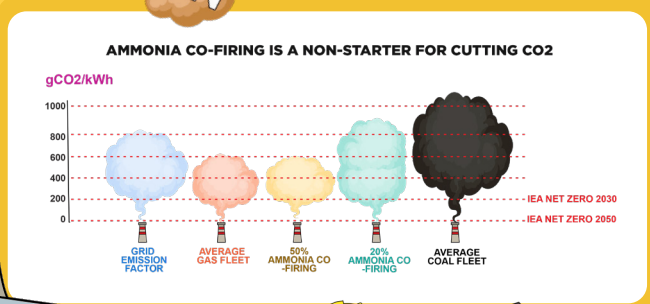
What is Ammonia and Hydrogen Co-Firing?

Co-firing involves replacing some of the coal at coal-fired power plants with ammonia, or some of the fossil gas at gas power plants with hydrogen. By retrofitting old power plants to burn ammonia, the fuel can be combusted alongside coal to generate power. Ammonia is almost exclusively produced from gas and coal. The entire ammonia production chain is both carbon and energy-intensive. The cheapest type of ammonia, grey ammonia, produces twice the emissions as the direct combustion of coal over its lifecycle.



Not Enough Emission Reduction!

The Japanese government claims that ammonia and hydrogen do not emit carbon dioxide (CO₂) when burned. However, burning coal and ammonia in equal amounts – an impossible feat with today's technology – would still emit about as much CO₂ as a gas-fired combined cycle power station. Ammonia released into the air also becomes a base for nitrous oxide, a potent greenhouse gas.





● It's ineffective

Co-firing will prolong the burning of coal and gas and won't reduce emissions enough to reach the net zero targets needed to mitigate the climate crisis. Experts say we must stop using coal power within the next 20 years (2030 in some countries and 2040 worldwide) to achieve these targets. The Japanese government says co-firing will cut greenhouse gas emissions by 20%, but they're withholding two important things: the polluting way ammonia and hydrogen are produced and the fact that this method will prolong the use of dirty coal and gas plants.



● It's bad for our health and environment

Ammonia co-firing prolongs the use of coal plants which have serious health impacts like heart ailments, respiratory disease, lung cancer and premature death, including thousands of premature deaths in Japan each year, and millions worldwide. Continued use of methane gas by using hydrogen co-firing can cause respiratory ailments, cancers, and other health problems. Ammonia spills in the ocean would also be detrimental for sea life, and a spill in a populated area could trigger a public health emergency.



● It's costly and bad for the economy

The use of this expensive and ineffective technology will exacerbate financial problems for already debt-burdened countries. The cheapest and dirtiest type of ammonia, grey ammonia, is up to four times more expensive than solar and wind in Indonesia, Malaysia, The Philippines, and Thailand.

This technology risks being a stranded asset and a heavy financial burden for governments. This dirty strategy serves only the vested interests of a select few individuals in governments and corporations who benefit from fossil fuels.



● It's unproven technology

Ammonia co-firing is unproven and immature, serving only as a very expensive greenwash. While Japan is experimenting with expensive, ineffective technologies, people in Asia and around the world will continue to suffer, while a select few individuals in governments and corporations benefit from our continuing addiction to fossil fuels.

Ammonia co-firing does not exist at the scale, speed, cost and non-toxic levels needed to actually decarbonize the energy sector.

What should we do instead?

Ammonia and hydrogen co-firing are dangerous distractions that are wasting valuable time and resources in mitigating the climate crisis. We need to urgently scale up renewable energy combined with energy efficiency and stop governments like Japan from derailing the energy transition. We need a fossil fuel phase out and a just transition to clean, sustainable energy with transparent and participatory processes for communities. It's not too late for Japan to change and be part of the green energy transition so desperately needed.



For more information, please visit:
<https://fossilfreejapan.org/>

Or scan this QR code:



Resources:

- *Explained: Why ammonia co-firing in coal power generation is a flawed approach*, E3G, April 2023
<https://www.e3g.org/news/explained-why-ammonia-co-firing-in-coal-power-generation-is-a-flawed-approach/>
- *Japan's Ammonia-Coal Co-Firing Strategy a Costly Approach to Decarbonization, Renewables Present More Economic Alternative*, BloombergNEF, September 2022
<https://about.bnef.com/blog/japans-ammonia-coal-co-firing-strategy-a-costly-approach-to-decarbonization-renewables-present-more-economic-alternative/>
- *"Japan's Ammonia Co-firing Plans Threaten Paris Goals," Kiko Network*, November 2023,
<https://kikonet.org/en/content/32598>
- *"Why ammonia cannot clean up coal in Asia," Energy Tracker Asia*, <https://www.ammoniacoalfiring.info/>