'Beautiful nuclear' must be included in energy transition, says LucidCatalyst

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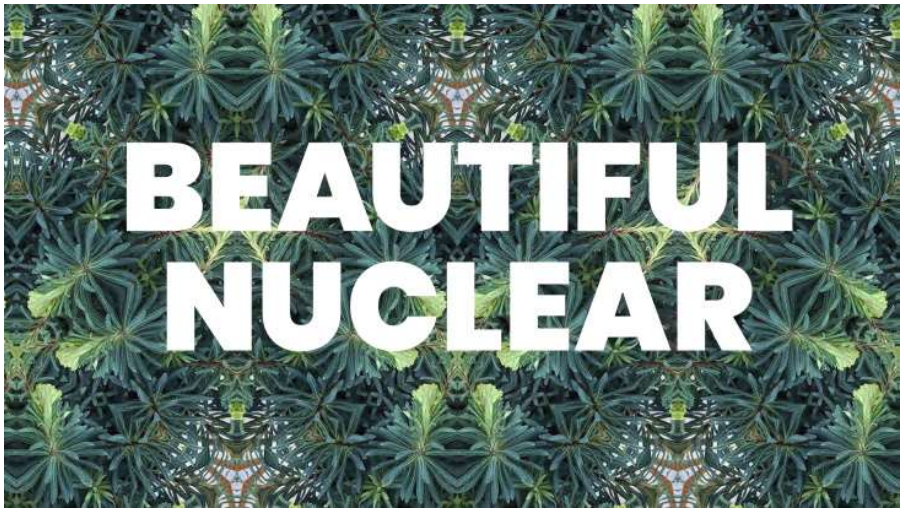
The priority for preventing irreversible climate change is decarbonisation, not the creation of energy systems which are 100% dependent on renewables, according to a new report from LucidCatalyst. It says expanding the use of nuclear energy could enable faster progress towards a sustainable and prosperous future for all.



(Image: LucidCatalyst)

The report - titled *Beautiful Nuclear: Driving Deep Decarbonisation* - was commissioned by utilities Fortum, TVO, Uniper and Vattenfall.

"The world's energy sector is undergoing a profound transition," it says. "This transition is driven by the need to expand access to clean energy in support of socioeconomic development, especially in emerging economies, while at the same time limiting the impacts of climate change, pollution, and other unfolding global environmental crises. Fundamentally this transition requires a shift from the use of polluting energy sources towards the use of sustainable alternatives."

In the context of the increasing urgency of the need to replace fossil fuels, the case for expanding the range of low-carbon options, including nuclear is crucial, LucidCatalyst says. "We call for a whole system approach to the energy transition and for evidence-based decision making. We advocate extending the resource and effort that has successfully driven down the cost of solar and wind energy, and accelerated their deployment, to all low carbon technologies."

Kirsty Gogan, from LucidCatalyst & TerraPraxis, said: "Nuclear is beautiful because its tiny land use and lifecycle footprint protects nature and delivers civilisation-scale, abundant clean energy. Both of these are fundamental to our future health, well-being and prosperity on this planet."

The report notes that nuclear energy helps meet all 17 of the United Nations Sustainable Development Goals. "No other electricity generation technology can match this diversity of beneficial impacts," it says.

Past failures to meet the emissions reduction targets recognised as essential to keep the rise in global average surface temperature below 2°C expose the danger of focusing too much on mid-century zero emissions targets, the report says. Unless the extent of the progress needed within the next two decades is acknowledged, and this need is met, the 2050 net-zero targets may be rendered irrelevant.

"Fortunately, there is abundant evidence that we can decarbonise significant parts of our energy systems at the required speed. Countries like Sweden, Finland, and France were able to rapidly decarbonise while supporting economic growth and increasing per capita energy consumption

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through a combination of nuclear energy and hydro power. As other countries plan significant increases in clean energy, the success of Sweden, Finland, and France provides powerful examples to follow."

The report adds: "To meet the decarbonisation challenge in less than three decades, more low-carbon energy generation needs to be licensed, built, and brought online than ever before. What is surprising to many people is that building nuclear plants has been, and still is, the fastest way to add clean electricity production per capita."

LucidCatalyst said "the idea that we can achieve timely decarbonisation with renewables alone - and should therefore exclude other low- or zero-carbon technologies - is not only toxic for progress, but scientifically unsound." It said this implies that developing countries should plan their future economic growth on variable renewables alone, something that no industrialised nation has yet come close to doing. "This is short-sighted and anti-development."

The report says that ideological biases and preferences have blocked funding and other policy measures that enable nuclear energy to successfully achieve programmatic cost reductions and performance improvements enjoyed by wind and solar industries, denying reliable and cost-effective energy services for citizens and industries in Europe and around the world.

The report concludes with a list of the priorities for the EU to act on to reach carbon neutrality and recommendations for how to achieve more inclusive and efficient emissions reductions.

Investors, it says, must take a portfolio approach to investments in order to reduce exposure to risk, global efforts to limit climate change should be spread across a portfolio of technology options. "Consistent, technology-inclusive access to finance is critical to realising this," it says.

The report also calls for premature closures of nuclear power stations need to stop, and "whenever possible, those shut down should be restarted." The operating fleet should seek lifetime extensions whenever possible, and funding for the necessary refurbishment needs to be made available at low-interest rates.

In addition, Energy system modellers and policy makers should include the wide range of potential applications for advanced heat sources into energy and climate scenario modelling where it is currently absent. 'Green' hydrogen and the associated mandates, policy incentives, and financing should include all low-carbon hydrogen production as per their sustainability (carbon intensity, land use, etc.), not just a cherry-picked selection of technologies.

The report also calls for Europe to fund the rapid and large-scale commercialisation of new delivery and deployment models for advanced heat sources for re-powering coal plants, hydrogen, heat and power production, with an emphasis on achieving cost-competitiveness and scale relevant to the fossil fuel markets they are designed to address.

"It is time to look again at nuclear energy," LucidCatalyst said. "Scalable, reliable, affordable, resilient, and clean power is vital for our well-being and for our future. The EU now has an opportunity to provide leadership in delivering a just and clean energy transition."

Researched and written by World Nuclear News

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