

Nuclear energy is ready to contribute to global net zero

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Chair of Generation IV International Forum

As an energy developer and active contributor to global net zero, the Generation IV International Forum (GIF), has found the silver lining in a dark cloud through COP26. The reason for this enthusiasm stems from the efforts being undertaken by the many people involved in COP26, the side events and the exhibits to highlight the role that nuclear energy can play in a net-zero society, allowing such an important role to be better understood more broadly. Achieving a global net-zero society in the near future – i.e. during the next 15 to 30 years – is no doubt an incredibly ambitious target to reach. However, it is our responsibility to use all of the possible technologies that we have at hand to realize a global, net-zero society. We must consider all realistic options that might contribute to global net zero. To consider options from only a limited number of candidate technologies is not a practical attitude for our future.

In its message of 16 August to COP26, the World Nuclear Association underlined that “the flagship report published by the United Nations Economic Commission for Europe on 12 August reinforced the pivotal role that nuclear energy can play in effectively combatting climate change, whilst also building a more resilient society. This is not an isolated view; expert organisations from across the world, including the Intergovernmental Panel on Climate Change (IPCC), the International Energy Agency, the OECD-Nuclear Energy Agency, the International Atomic Energy Agency, the MIT Energy Initiative, *and World Nuclear Association* have all concluded that nuclear energy is a crucial component in any realistic transition to a low-carbon future that is also cost-efficient.”

As a contributor to global net zero, the GIF has joined the international initiative of the Clean Energy Ministerial “Nuclear Innovation: Clean Energy Future” (NICE Future), and has further explained with other global net zero contributors how nuclear energy can contribute to a global net zero world in a report entitled *Flexible Nuclear Energy for Clean Energy Systems*. As noted in the concluding chapter of this report:

- *Nuclear energy can work in harmony with renewables to expand the use of clean energy sources,*
- *Nuclear energy is operating flexibly today in some forms, and innovation can lead to more pathways for nuclear flexibility.*

Since GIF started its activities as an international technical promoter of the next generation of nuclear reactors in 2001, considerable technical progress has been made in reactor development programs. Moreover, GIF understands the importance of global net zero and harmonization with all net-zero technologies. To contribute to a global net-zero society, GIF also released a financial report entitled

Nuclear Energy: An ESG Investible Asset Class. Because nuclear energy, in combination with renewables, is the only way for countries to meet their nationally determined contributions (NDCs) under the Paris Agreement and their net-zero commitments, “nuclear’s high load factors and reliability could make achieving net-zero affordable. (Barclays, 2021)”. In the report, the authors describe how nuclear power, as an investible asset, can contribute to ensuring reliability and harmonization in standards. For these reasons, GIF would like to join the global net-zero movement and contribute as a potential technical and financial partner.

Nuclear energy is a sustainable, safe, clean, reliable, flexible and affordable energy source for 24/7, and it has already been developed and is being used throughout the world. In other words, it is an existing option ready for use. Nuclear systems and advanced reactors, such as Generation IV systems, can contribute to this net-zero society, alongside renewable energies, through operational flexibility (load following, heat storage), deployment flexibility (scale, siting) and product flexibility (electricity and non-electric applications, such as process heat, hydrogen production or desalination). GIF is developing these promising technologies in collaboration with future builders in GIF member countries and could attract worldwide appeal to such technologies via GIF monthly webinars on the GIF website, open workshops and other opportunities.

We would like to underline the importance of passing on the viable technologies developed by previous generations to the younger generations that will carry the future. To this end, we have expanded the topics of our monthly webinars to cover not only purely technical topics but also ideas and strategies for technology development, and have also been organizing technology contests for young engineers. In our outreach activities, we have been placing considerable emphasis on the importance of transmitting opportunities to the next generation. Therefore, we are very pleased that all possibilities, including nuclear power, will be on the agenda at COP26 and that realistic solutions will be discussed.

COP26 can lead our future by taking advantage of human knowledge and wisdom. Again, we must emphasize the importance of considering all of the possibilities available today, without bias and exceptions, when we are deciding our future. Responsible actions for global net zero will be essential, and the Generation IV International Forum, along with all nuclear promoters, is ready to contribute.

Respectfully,



GIF Chair, JAEA
Dr Hideki KAMIDE