

Building a Pipeline of STEM Professionals

NEA Global Forum on Nuclear Education, Science, Technology and Policy



As more governments look to nuclear energy in their efforts to mitigate the climate crisis and enhance energy security, it is essential to address the need for a skilled workforce. Many countries are experiencing a growing human capacity gap, particularly in areas related to science, technology, engineering and mathematics (STEM).

A large number of students are not aware of the possibilities and benefits – for themselves and society as a whole – that careers in science and technology can provide. Engaging with students earlier in their educational paths, notably in upper secondary school, can encourage them to study STEM topics in university and, ultimately, contribute to the nuclear sector as professionals.

Outreach to upper secondary school students

For several years, the NEA has undertaken activities to engage with upper secondary school students. Most prominently, it has conducted International Mentoring Workshops in Science and Engineering since 2017. Through these events, the NEA has reached over 550 upper secondary school and university students in countries ranging from Japan to Kenya, enabling open dialogue and discussion between highly accomplished scientists and engineers and young people who are facing important decisions on their futures.

Over the years, these events have provided opportunities for NEA officials to meet upper secondary school students in member countries. Whenever possible, NEA Director-General William D. Magwood, IV visits upper secondary schools to give lectures and talk with students about their future prospects and interests. The most recent have come during his official visits to Czechia, Japan and Poland.

Beyond its activities, events and partnerships, the NEA has set up initiatives to attract young talent to the nuclear sector, in particular the Global Forum on Nuclear Education and the Nuclear Education, Skills and Technology (NEST) Framework, which engages with academia and students at the tertiary level of education (i.e. university). Establishing an instrument within the NEA, as part of **Plan 2035**, to conduct outreach to upper secondary-level students, as well as their teachers, will create more awareness and attract more students to STEM fields and the nuclear sector in particular.



NEA Director-General William D. Magwood, IV talking to students at Toyama high school in Japan.

The NEA Global Forum on Nuclear Education, Science, Technology and Policy

The NEA Global Forum on Nuclear Education, Science, Technology and Policy is an inclusive network of representatives from mostly educational institutions that focuses on the challenges of building human capacity in nuclear science and technology and modernising nuclear education. This first-ever international standing body of nuclear science and technology academics is governed by a Council of Advisors comprised of representatives from NEA member countries' universities.

The work of the Global Forum on Nuclear Education is focused on the following areas: achieving gender balance in the nuclear engineering and technology and in academic workforces; shaping the future of nuclear engineering education; rethinking the relationship between nuclear energy and society; and re-establishing nuclear law education programmes. Members of the Global Forum on Nuclear Education have already identified the need to affiliate with upper secondary school students and teachers to generate a flow of STEM talent to universities and meet the needs of the nuclear industry.

An initiative to engage with upper secondary schools

While the Global Forum on Nuclear Education has thus far focused its efforts on engaging with university professors and students, its members have long recognised the vital need to assure that there is a robust pipeline of talented and interested students to consider STEM paths at the tertiary level, including those related to nuclear science and technology.

Pursuant to this and in sync with the NEA's expanding engagement with upper secondary schools, the Global Forum on Nuclear Education created a Working Group focused on outreach activities to upper secondary school teachers and students to build awareness of STEM career options and, when appropriate, provide non-promotional education about nuclear science and technology. The "*Working Group on the STEM Pipeline*" has been established to enable the Global Forum on Nuclear Education to facilitate activities such as:

- The **NEA Global Upper Secondary School Network**, which would include schools that have already co-operated with the NEA in its International Mentoring Workshops, as well as up to three additional schools designated by NEA member countries or key partners. This network would provide participating schools with access to bimonthly lectures by experts, professors and government officials on a specific topic aimed at students and teachers. Teachers will be provided online access to professors participating in the Global Forum on Nuclear Education to ask



The NEA International Mentoring Workshop in the United Kingdom, 7-8 March 2023.

questions and seek advice on various topics. Furthermore, as appropriate, experts attending NEA events close to schools that are part of the network will be encouraged to contact the schools to arrange visiting lectures.

- **Emerging scholars' webinars and workshops**, which would be organised online or hosted by universities associated with the Global Forum on Nuclear Education and where students would learn mostly about STEM, nuclear science and technology, and job opportunities in STEM.
- **Webinars and workshops for teachers** that would raise awareness on topics relating to STEM and the nuclear sector. These events would be organised online or hosted by the NEA or Global Forum universities.
- **The NEA STEM summer schools**, where students would deepen their knowledge of the STEM disciplines through training provided by students from Global Forum universities. The training sessions would be organised in NEA countries and conducted in an informal setting.
- **Educational materials** – the NEA would work with partners to help develop educational and online materials for upper secondary school students and teachers.
- **Tours of nuclear facilities** – the NEA would work with partners to organise tours of nuclear facilities for upper secondary school students and teachers.
- **Engagement with informal student organisations** to build relationships to expand the platform of nuclear education to activities in which students participate.

To achieve these goals, the NEA is seeking to **create a network of donors** to invest in building a robust STEM pipeline. To do so, they will help fund the development of engaging activities and outreach methods.

Through all the above-mentioned activities, the **Working Group on the STEM Pipeline** will strive to promote diversity and inclusivity.

Further information

For further information, please contact the Global Forum on Nuclear Education, Science, Technology and Policy by email: globalforum@oecd-nea.org or visit www.oecd-nea.org/globalforum.

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