



Training managers in a changing world driven by innovation

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*In: Atomexpo, Panel Education 4.0: how to prepare
engineers of the future*



WNU is a global network committed to training

- Created in 2003 on the 50th anniversary of 'Atoms for Peace' initiative
- Declaration of Commitment signed initially by 28 participants and 4 founding supporters
- Recognized as a "Partnership for Sustainable Development" by the UN Commission on Sustainable Development
- A not for profit organization
- Awarded by the Nuclear Engineering International magazine in 2013
- Internationally recognized by the nuclear industry
- New branding in 2015
- Finalist in Atomexpo Human Capital Development Award 2018



Founding Supporters represented at the WNU Advisory Panel:



The WNU statements

Vision:

- to develop competencies of the future world class nuclear leaders
- a leading global nuclear educational organization developing talents for the advancement of the nuclear science and technology

Mission:

To enhance international education and leadership in the peaceful uses of nuclear energy and the applications of nuclear science and technology, by providing top level training for future world class nuclear leaders

WNU Programmes



Summer
Institute



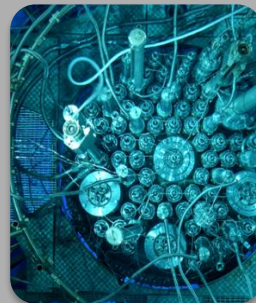
School on
Radiation
Technologies



Short
Courses



School of
Uranium
Production



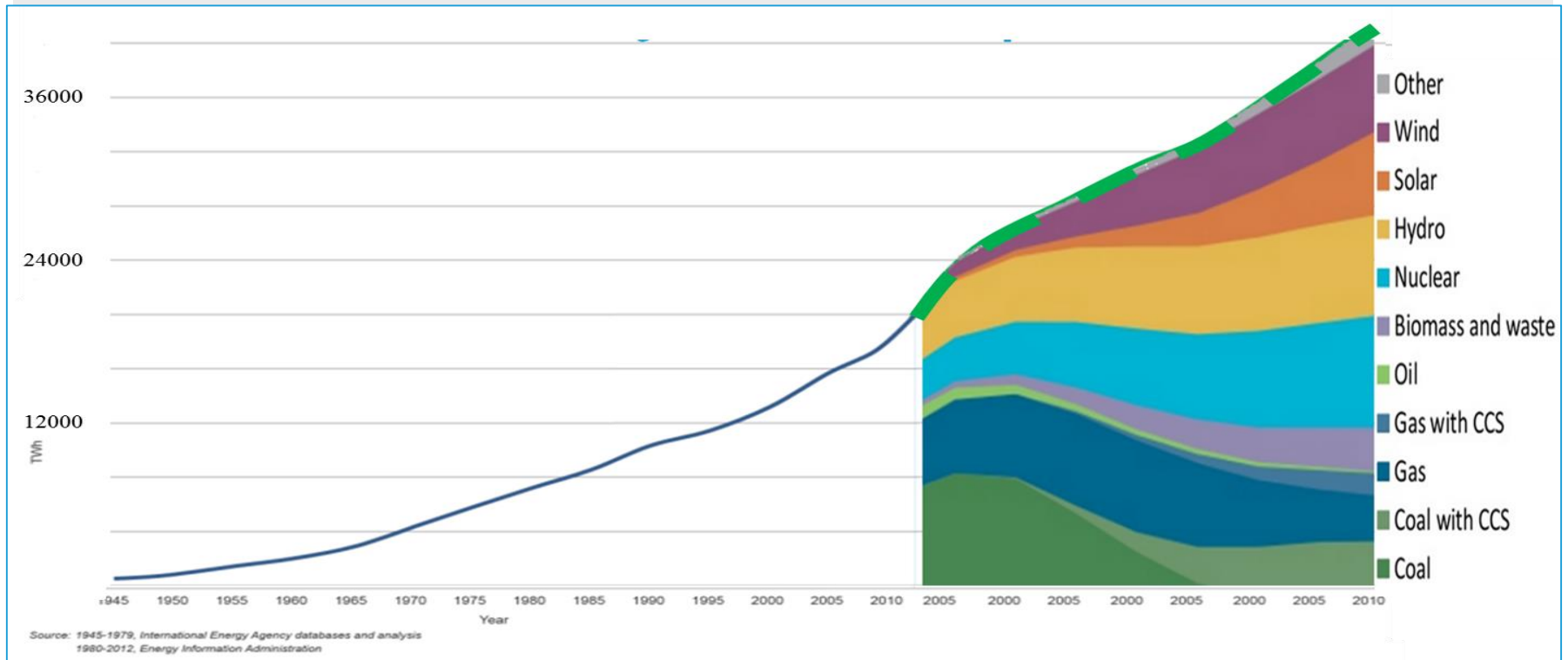
Nuclear
Olympiad



Executive
Enhancement
Course

Clean energy for global sustainable development: IEA 2-degree scenario

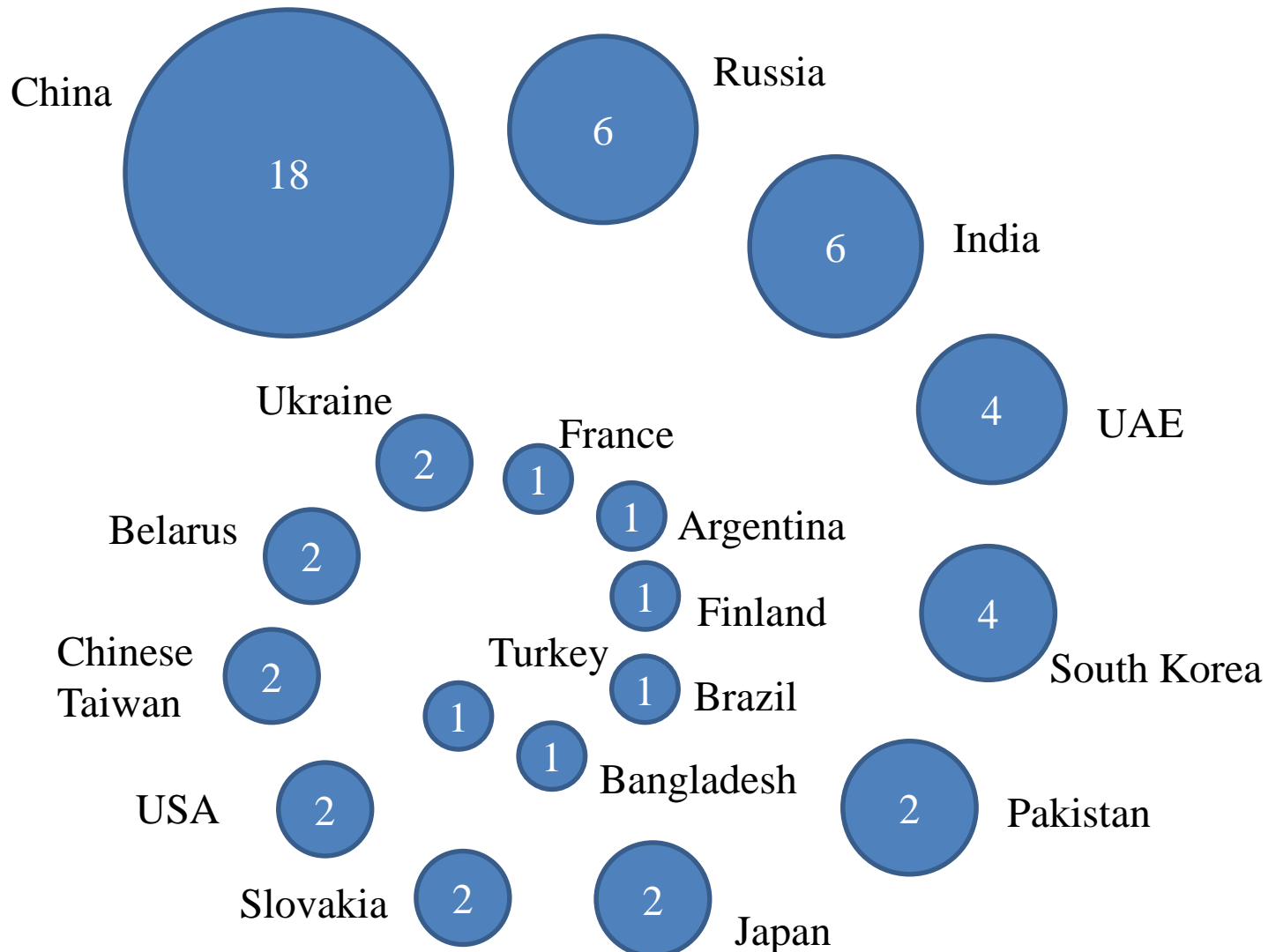
The world needs **a diverse and sustainable mix of low carbon generating technologies** deployed in such a manner that the benefits of each are maximised while the negative impacts are minimised.



Nuclear Industry by 2050

- The target for nuclear energy is to provide 25% of electricity in 2050, requiring roughly 1000 GWe of new nuclear capacity to be constructed, depending on other factors like reactor retirements and electricity demand growth.
- The current nuclear power plant technology proves itself as reliable and safe over more than 60 years of operation and in many countries, however, achieving the new build target by 2050 will require an international cooperative effort by many players.

Highest level of construction in twenty five years: 58 reactors worldwide



Real barriers to nuclear growth

- Distorted energy market due to subsidies to renewable
- Lack of standardization in regulatory process leading to long time for licensing and adding unnecessary costs
- Lack or diminished presence of a broad public perspective on the safety of all energy sources, among which nuclear clearly shown its benefits



Basis for achievement: Harmony in nuclear energy deployment

Strong
framework in
policy and
regulation

Confidence
among
stakeholders



Demand for
reliable,
affordable and
clean electricity

Nuclear Future + Industry 4.0

- Evolution is the only certainty we have, and change comes quickly, with new devices, apps, frameworks, and a variety of solutions to be assessed.
- The route to a future based on innovations are guided by the Internet of Things, Big Data, machine learning and remote interactions.

How these new technologies can aid or affect the nuclear industry?



How flexible one company is to evolve based on high tech?

We encourage innovation in our training and exchange of information meetings, but are we ready?

With the machine capacity to analyze huge amounts of data, recognize speech and facial expressions, and even learn human conversations, it is no doubt it is capable of:

- **Making better predictions**
- **Analyze complex multi-risks**
- **Even make decisions on our behalf with the virtual personal assistant - Siri, Alexia, Cortana)**
- **Improve quality of life.**

"Can you handle this?"

tap to edit

Who, me?

Technology has always been destroying jobs, and it has always been creating jobs

PRO

- Simple decisions like buying air tickets or arranging meetings (my VPA talks to your VPA)
- Safer workplace as hazardous work is taken over by robots
- Faster new products and markets (print at home)
- Longevity enhanced by better diagnosis and therapies
- Easier transportation and faster communication with lower costs
- Social technologies drive new forms of value creation
- Diversity and adaptability are a must

CON

- Security of data and maintaining privacy
- Trust in decision making by VPA
- Ethics
- Risk of greater inequality in labor markets (affects mobility and standardization of certification in different countries)
- Displacement of workers by machines and artificial intelligence
- Investment in new regulations, organization structure and training (remote interactions will increase)
- Liability (owner, supplier, user)

Fast tracking research breakthroughs to the industry

- Developing an **increased interaction between the industry and R&D** is key for advancing nuclear technology, for better design of the research projects, funding, staff training on new technologies, among other advantages.
- **Engaging young professionals in complex projects at an early stage.** Attract and retain students and researchers for the nuclear field must be a continuous effort given the long time required.
- **Improve critical thinking, the ability to innovate, optimize processes, and make balanced and reasonable decisions, develop leadership and communication skills** - to reach out and provide factual basis to better policy decision making.
- **Continuous professional development** - given the fast technology evolution

Never stop learning and adapting

The context changes

- Technology, geopolitics and culture evolve constantly and training future global professionals needs to **follow the trends, respect diversity and use up to date methods.**
- Content is more and more readily available in the internet, but knowledge management will always be a challenge on **implicit knowledge transfer and selection of relevant data.**
- Nuclear industry moved from national to international, which requires continuous **international cooperation.**
- **Networking** is critical to survive in a globalized world and social tools are helping.

New skills

- Transdisciplinary approaches
- Work productively in a virtual network, with social intelligence and self driven to results
- Face new challenges with courage
- Filter, analyze and process important information
- Critical thinking and creativity
- Persuasive communication in new forms (assess needs and develop content - video)



Training challenges and opportunities

- Information is everywhere and anytime, but sometimes inaccurate
- Text is not attractive - videos and emotions are. Virtual is dominant
- Built self-esteem to stimulate innovation
- Learning 24/7 - continuously throughout working life
- Tendency to be more critic against lecturers than before
- Difficult to make an assessment and follow up the improvement (what is improvement, what is the standard to compare with?)
- Stimulate group work, self-assessment tools, feedback and global peer review

The role of the lecturers (mentors)

- Find out what is relevant to add value, improve performance, what cannot be found in internet
- Stimulate social interactions and face to face communications
- Motivate curiosity
- Maintain a relationship of trust and respect
- Correct wrong concepts
- Unsuccessful case studies are rich in learning opportunities
- Stretch – give challenges to solve in short time
- Keep self-updating, learning, sharing, interacting

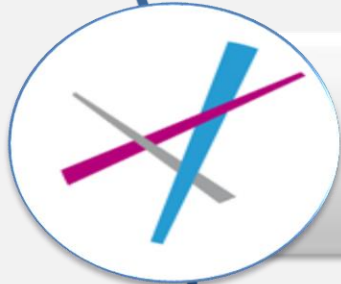
Key trends for innovation in educational technology

- Learning Libraries
- Adaptive Learning
- Multimodal Learning
- Shifting to a Culture of Coaching
- Evolution of Gaming Theory and Mechanics
- Smaller Class Sizes

Ref: <https://trainingindustry.com/magazine/nov-dec-2016/key-trends-for-2017-innovation-in-educational-technology/>



Gateway to global networking



Stimulating multicultural learning experience



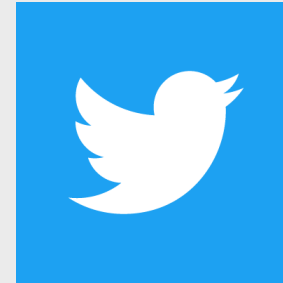
Up-to-date content and methods



Recognised training in nuclear industry

Thank you

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