

# Skill Building for the Energy Transition

**TUESDAY, 23 FEBRUARY 2021 • 12:00-12:30 CET**

# SPEAKER



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Programme Officer- Renewable Energy Education  
**IRENA**



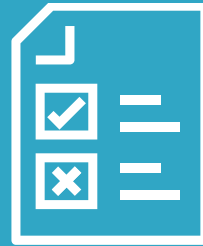
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Why is skilling needed?

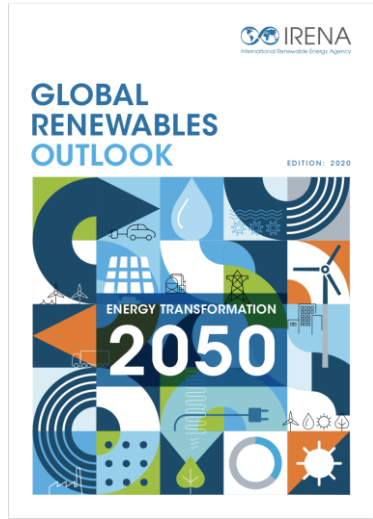
What is being taught?

How is this being delivered?

Who is it being taught to?

Role of industry

# 78 Million Transition Related Jobs by 2050



**Need to match the skill demand and supply.**

## 2030: 29.5 million RE jobs

**Plus:**

**Energy Efficiency - 29.2 million**

**Energy Flexibility - 12.1 million**

## 2019: 11.5 million RE jobs

**Plus:**

**Energy Efficiency - 9.5 million**

**Energy Flexibility - 7.4 million**

## 2050: 42 million RE jobs

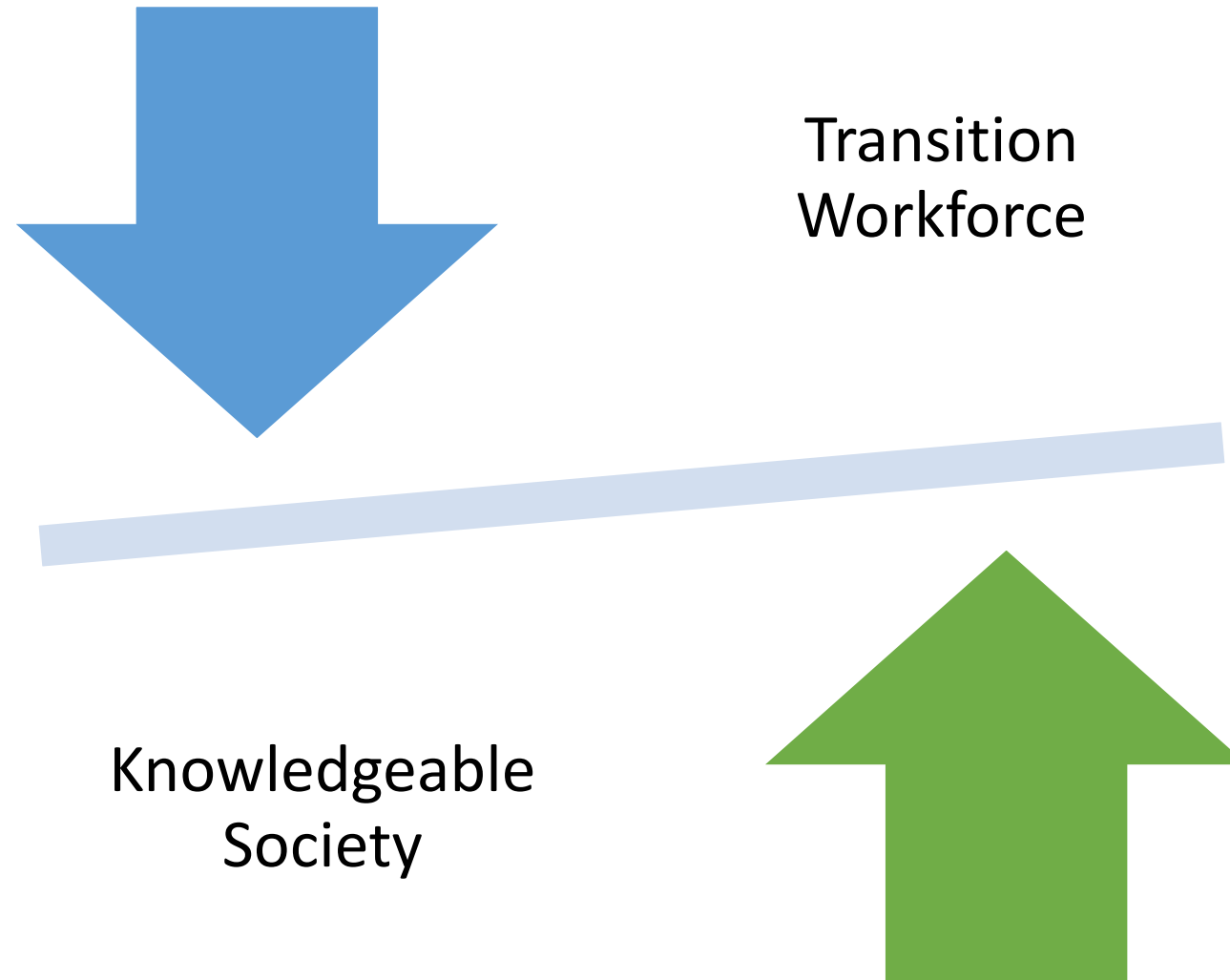
**Plus:**

**Energy Efficiency - 21.3 million**

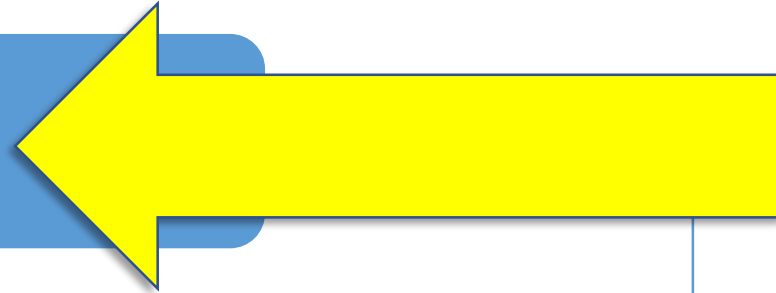
**Energy Flexibility - 14.5 million**



# Objectives of Renewable Energy Education and Skilling



What is being taught?

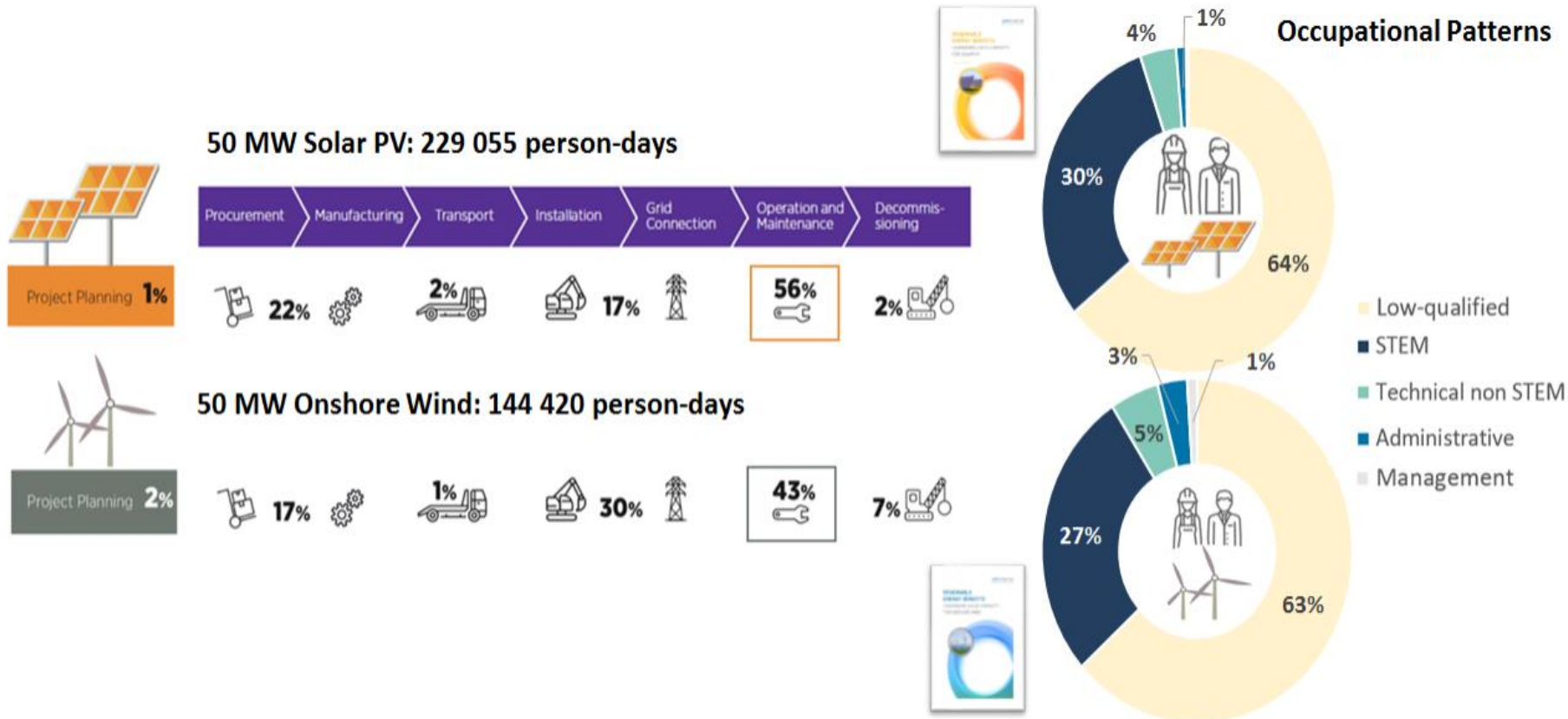


How is this being delivered?

Who is it being taught to?



# Prepare Students to Work in Many Occupational Areas



- Engineers and Technicians
- Finance specialists
- Scientists (R&D)
- Policy and development
- Lawyers
- Sales people
- Inspectors
- Agriculture specialists
- Communications
- And more!

## Schools

- Early exposure
- Knowledgeable citizenry
- Potential to integrate renewable energy into national curriculum frameworks (STEM, social studies, arts etc.)

## Higher Education

- Foundations provided in a number of disciplines- challenge of traditional silos
- Curriculum updates to reflect competences and skills

## Vocational Training

- Courses aimed at technicians/skilled crafts
- Delivered by TVET colleges and industry
- Need for National Skill Standards
- Industry needs

## Professional/Supplementary Education and Training

- Continuing education and training
- Upskilling
- Specialist knowledge

### Curriculums will need to address:

- Need for cross-disciplinary skills
- Emerging skills (storage; digitilisation; bioenergy; etc.)
- Innovation and entrepreneurship



## Science:

- The different technologies and how they work
- Applications of renewables (power, heating, cooking, transport, industry)
- Resource assessment

## Social Science:

- How increasing energy consumption is impacting our planet and its people
- The benefits of renewables
- Role of government policies
- Using energy data to identify global trends (such as changes in consumption; imports exports; energy mix; costs) and the potential implications (climate, energy security etc.)

## Design and Technology

- Understanding project briefs
- Using resource maps to identify suitable sites
- Key sizing and design elements

## Innovation and Entrepreneurship

- Developing innovative RE ideas to address challenges
- Pitch their projects

What is being taught?

How is this being delivered?

Who is it being taught to?



*The renewable energy sector is rapidly developing- we need to prepare students to be problem solvers and innovators...*

## Example: Experiential Learning



### Problem Based Learning

- Examine problems with no well-defined answer
- Forces students to examine body of knowledge and gaps
- Develop problem solving strategies and skills

### Project/ Design Based Learning

- Presented with complex problem
- Challenged to develop a plan/ design (and create) a product to address problem
- Builds critical thinking, teamwork, communication as well as technical skills

# Technology Enhanced Learning

ICT innovations can play an important role in the delivery of renewable energy education and training

Applies both to tech savvy Gen Z....

...as well as mature learners seeking to reskill

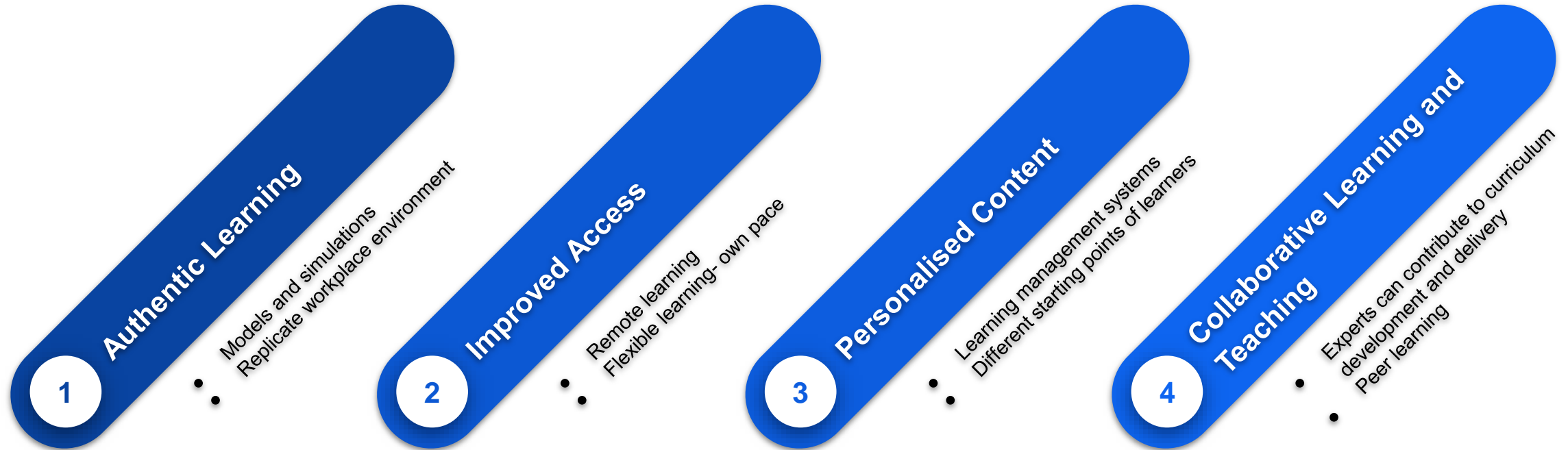
The pandemic has shown us the importance of digital learning for all and has changed the future of education



Image: [elearningindustry.com](http://elearningindustry.com)

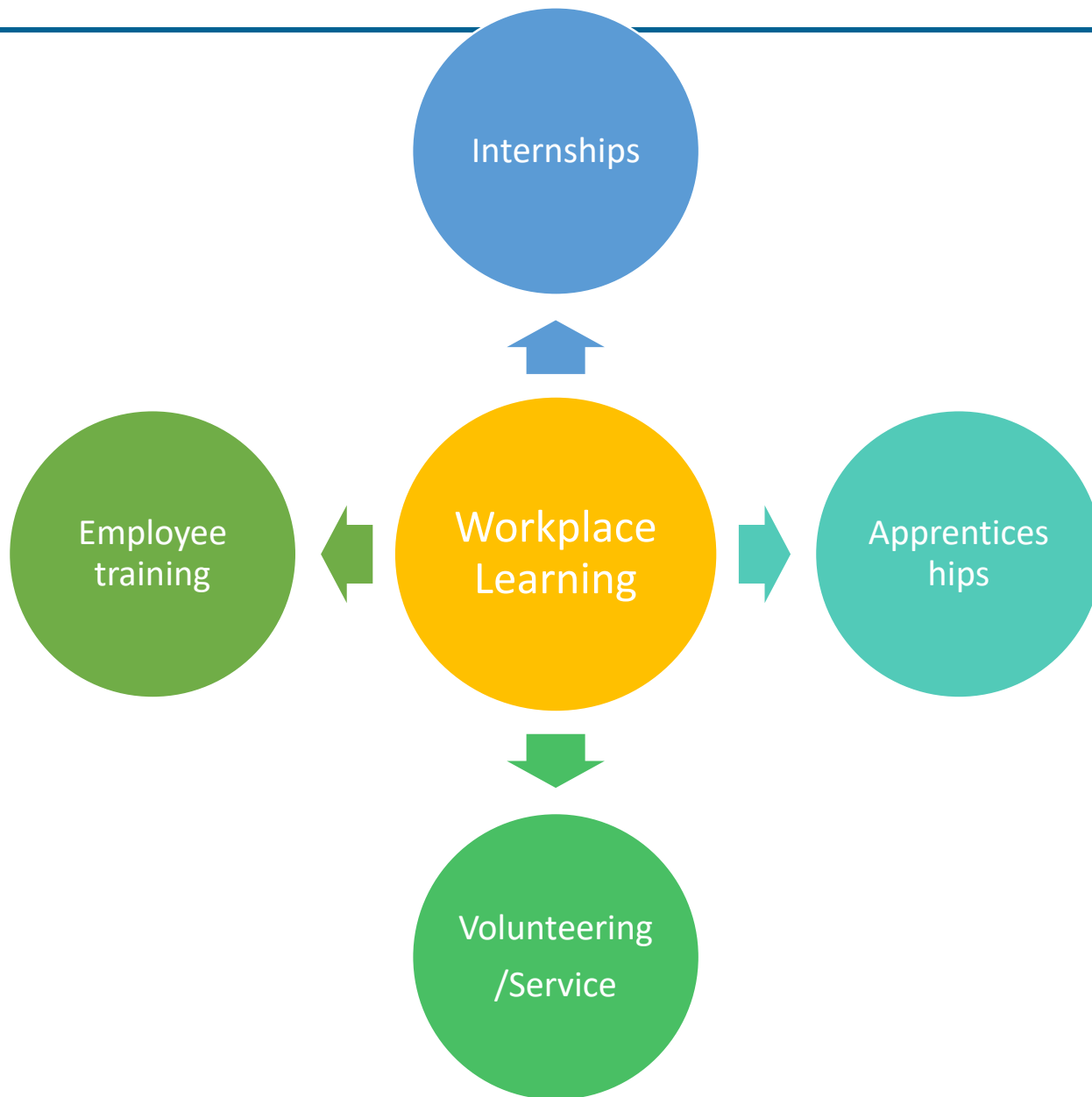


Smart Classroom Workstation Examples from Devotra Smart Classrooms



**IRENA Brief: Technology Enhanced Learning**

# Workplace Learning



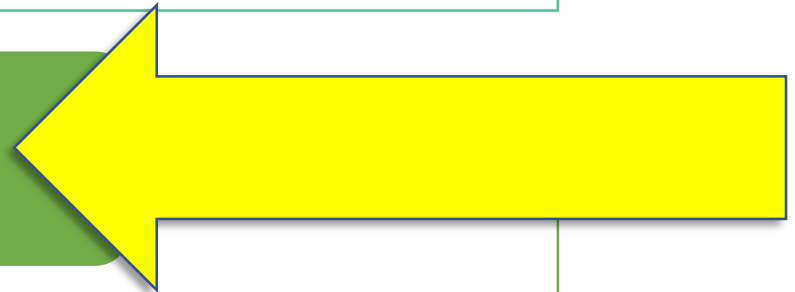
IRENA hosts internships, associate professional programme; and capacity building for young professionals from LDCs.



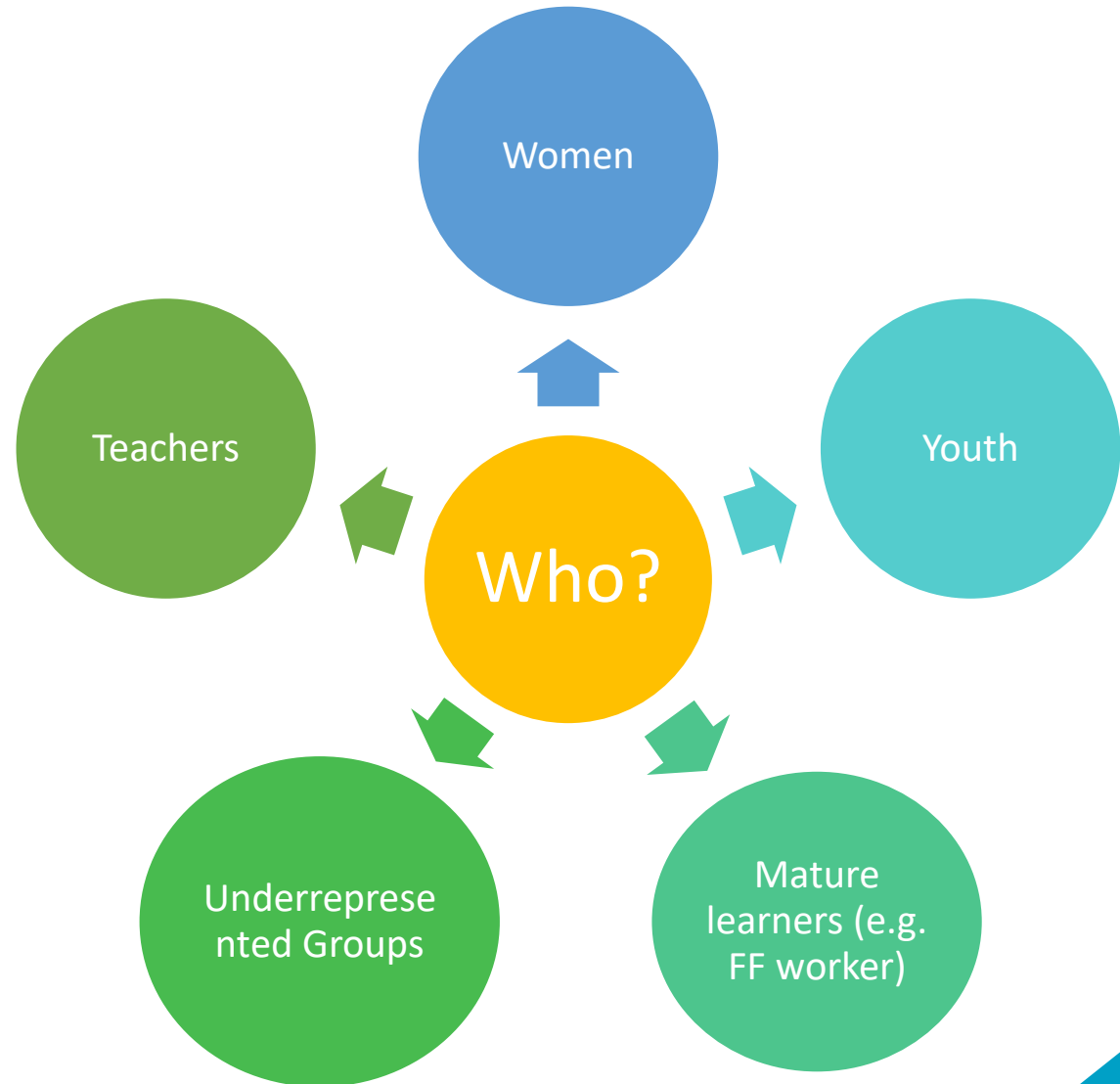
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# Building the Skills of....

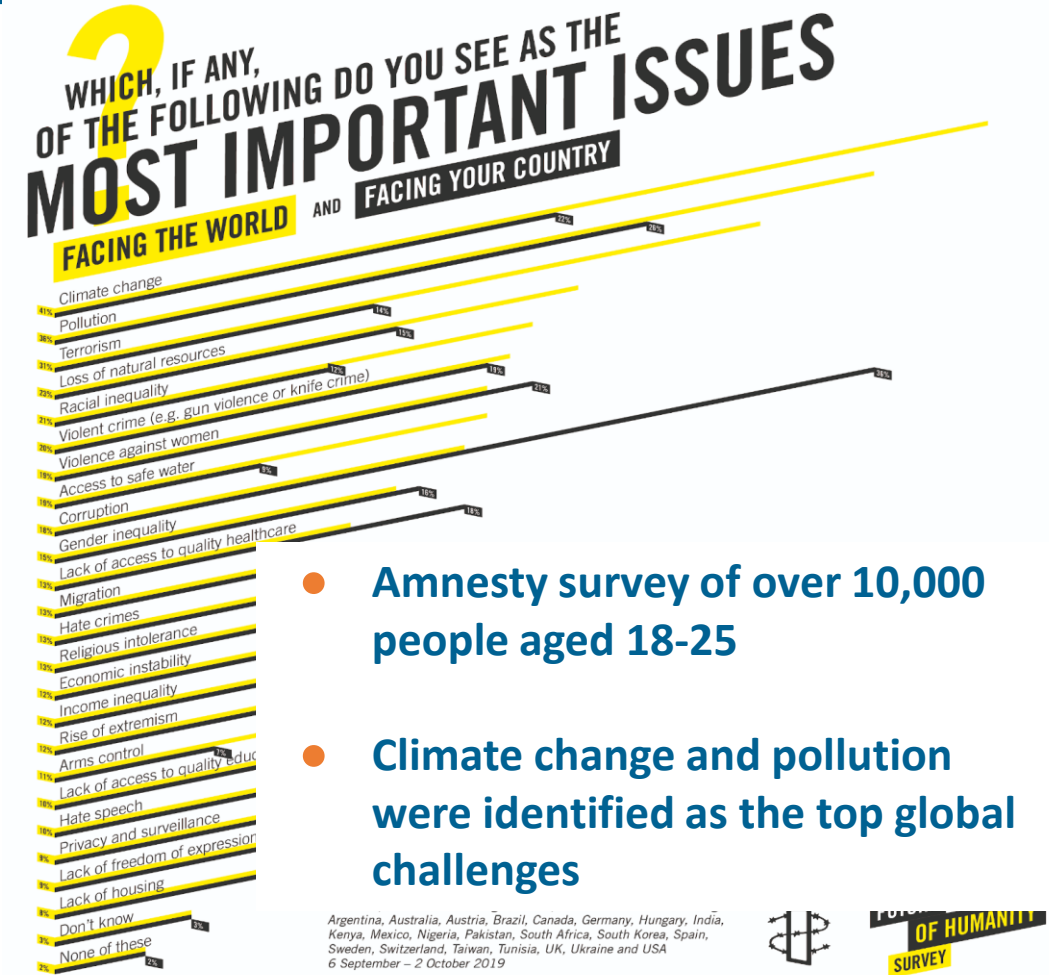


## Who are the Future Energy Professionals?

- Over 40% of the population is under 25
- On track to be the most well-educated generation
- “Digital natives” - little to no memory of the world before smartphones
- Cares about social and environmental justice issues and want to change things
- Entrepreneurial

### This generation is motivated to solve problems! Need....

- Early exposure to renewables
- Curriculum change
- Peer education



“Instead of asking students what they want to be when they grow up, we should ask them what problems they want to solve. This changes the conversation from who do I want to work for to what do I need to learn to be able to do that.” - Jamie Casap

- The energy transition will need to be inclusive- make uses of the skills of all people including typically underrepresented groups such as women, people with disabilities, minority populations, the elderly and low income individuals.

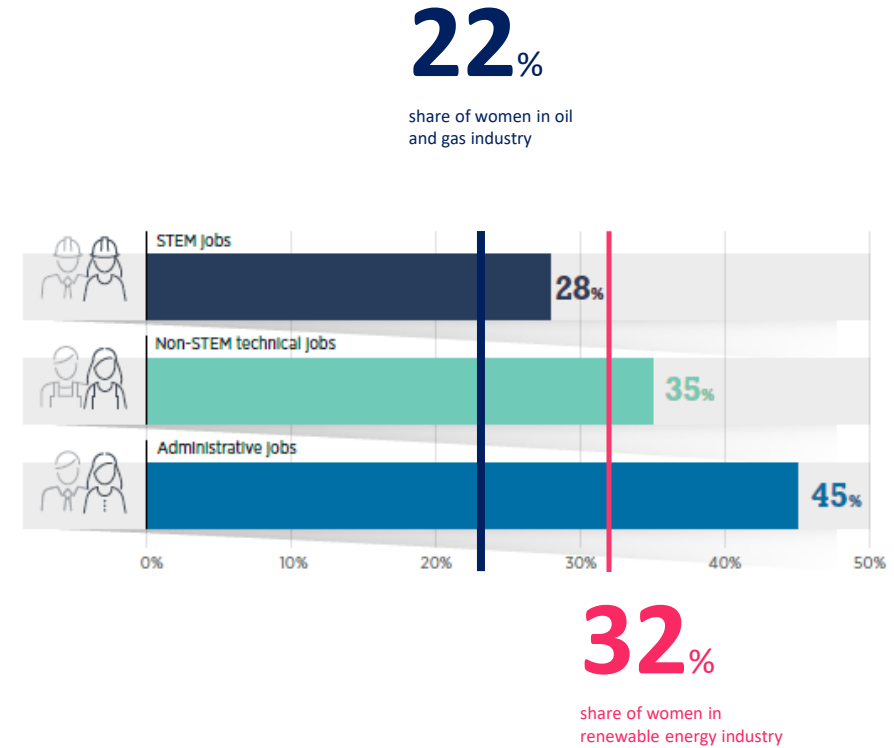
## Interventions

- Targeted recruitment
- Funded training opportunities
- Apprenticeship schemes
- Support for finding work
- Educational and workplace accommodations



**Even when there are no structural constraints gendered cultural norms and perceptions can influence girls' decisions to pursue STEM subjects**

- Gender biased beliefs about occupations (“feminine” vs “masculine” careers)
- Perception of scientists and engineers as men (“draw-a-scientist study”)
- Gender bias in self-assessment (the belief that boys are better than girls at STEM)
- Cultural norms in the classroom (unwelcoming learning environment)
- Gendered physical spaces in work environments (outdoor “masculine” vs indoor “feminine” spaces)



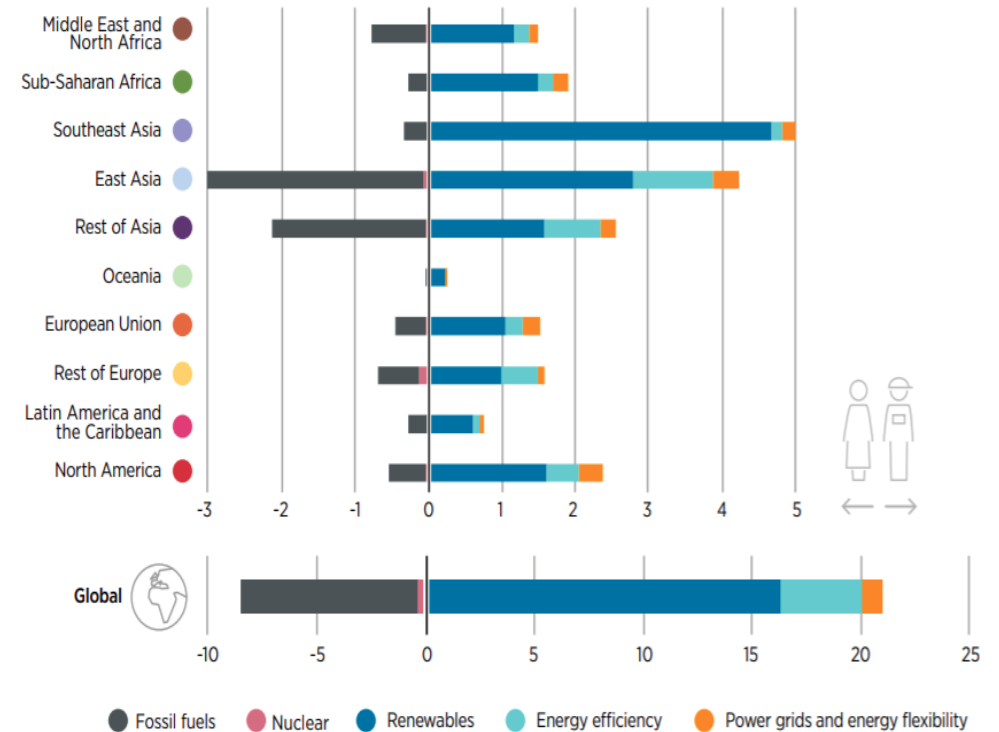
## Interventions

- Early exposure
- Showcase range of career options
- Scholarships
- Mentorship
- Address biases within educational settings

# Reskilling of Fossil Fuel Workers



Net energy sector jobs in 2050, global and regional



## Interventions

- Identification of transferable skills
- Transition training funds



Image source: Silvia Razgova / The National

Teachers and trainers may also need upskilling to strengthen their renewable energy knowledge.

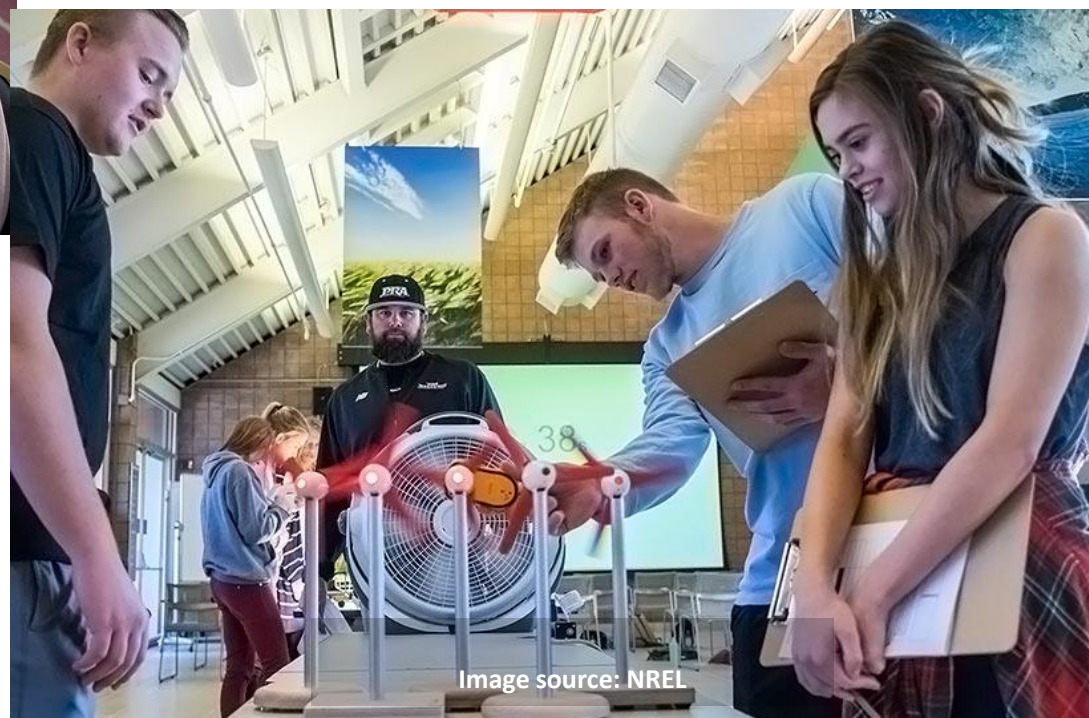


Image source: NREL

## Interventions

- Targeted professional development
- Access to resources and learning materials for adaptation

Curriculum design

Course delivery  
(expert  
lecturers/trainers)

Work based  
learning

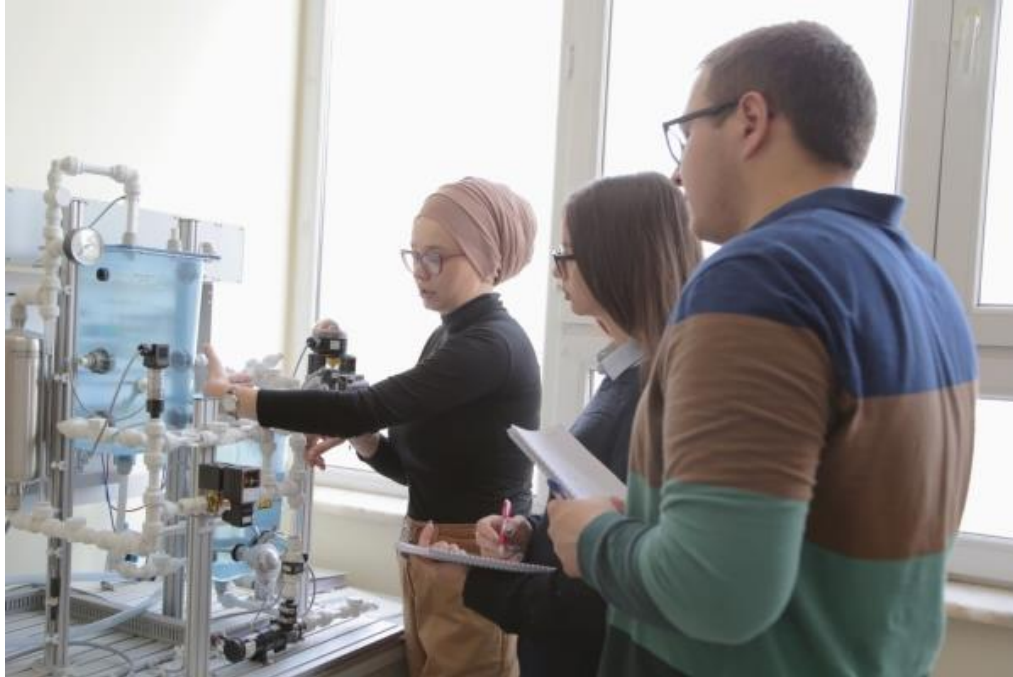
Apprenticeships

Equipment  
transfer

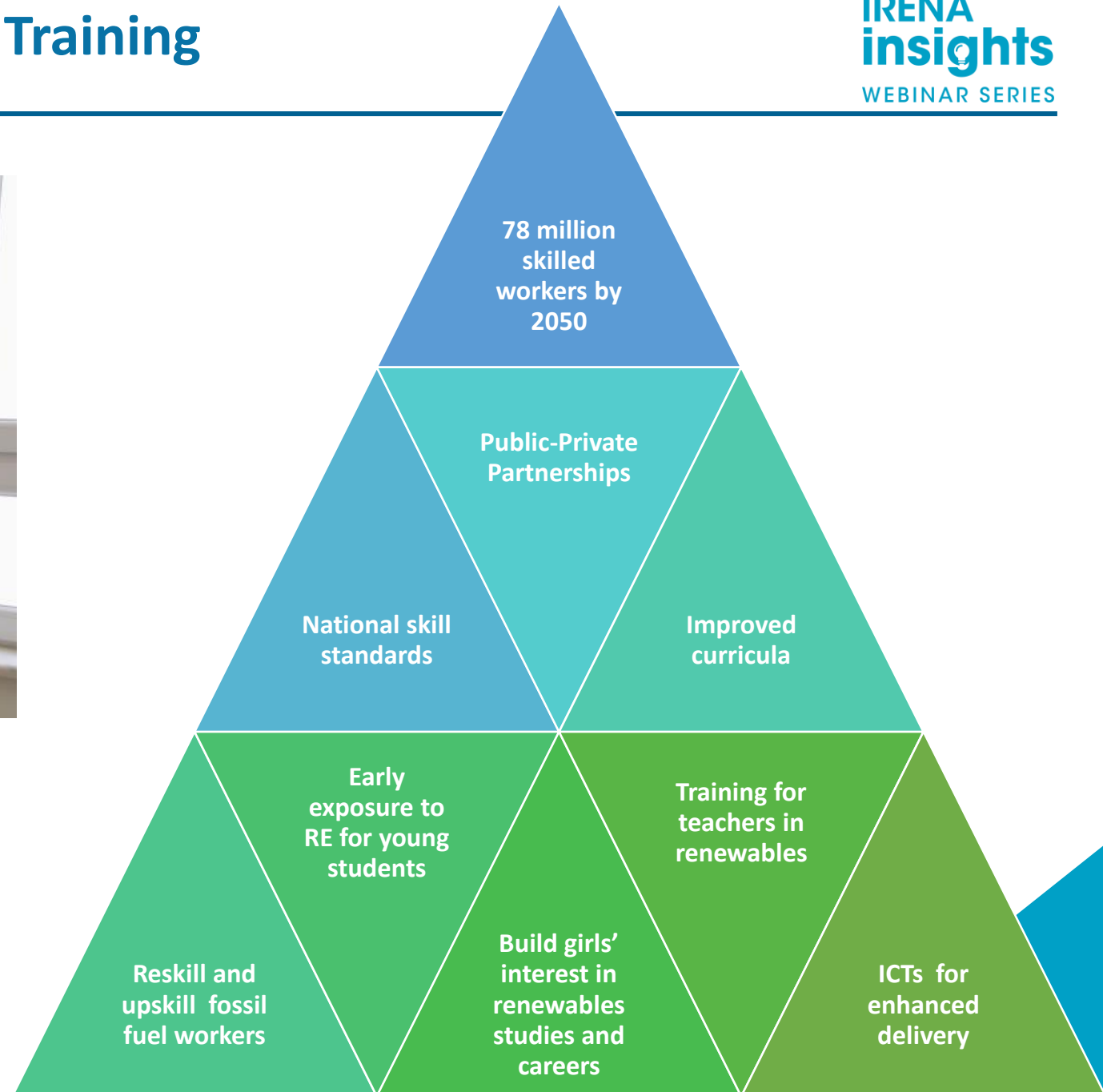
Funding



# Skills Development: Education & Training



Policies and programmes addressing education and vocational training are vital for building a skilled workforce.



# Thank you for your attention!

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**Q & A**  
**10 min**

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“Hydrogen series – Part 1: Green hydrogen: A guide to policy making”
- ☐ **23 MARCH 2021 • 10:00 – 10:30 CET**  
“Hydrogen series – Part 2: Green Hydrogen Cost Reduction:  
Scaling up Electrolysers to Meet the 1.5°C Climate Goal”

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