Skill Building for the Energy Transition

TUESDAY, 23 FEBRUARY 2021 • 12:00-12:30 CET
Samah Elsayed
Programme Officer- Renewable Energy Education
IRENA
The slides and a recording at https://irena.org/events/2020/Jun/IRENA-Insights & in the handouts section

You are all currently muted and will remain so throughout the webinar
If you have **Questions** to the speaker please use the **Q&A**

Tell us how we did in the **survey** to help us improve

If you encounter any technical issues, please connect via **phone** or contact the **Help Desk**:
888.259.3826 or [https://support.goto.com/webinar](https://support.goto.com/webinar)
Overview

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

2019: 11.5 million RE jobs

2030: 29.5 million RE jobs

2050: 42 million RE jobs

Need to match the skill demand and supply.

Plus:
- Energy Efficiency - 29.2 million
- Energy Flexibility - 12.1 million

Plus:
- Energy Efficiency - 21.3 million
- Energy Flexibility - 14.5 million

Plus:
- Energy Efficiency - 9.5 million
- Energy Flexibility - 7.4 million
Objectives of Renewable Energy Education and Skilling

Transition Workforce

Knowledgeable Society
Building the Skills for the Energy Transition

- 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!
## Curriculum Design

### 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
IRENA is Developing Learning Resources for Schools

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
Building the Skills for the Energy Transition

- What is being taught?
- How is this being delivered?
- Who is it being taught to?
Use of Innovative Instructional Methods

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
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
Technology Enhanced Learning

1. Authentic Learning
   - Models and simulations
   - Replicate workplace environment

2. Improved Access
   - Remote learning
   - Flexible learning - own pace

3. Personalised Content
   - Learning management systems
   - Different starting points of learners

4. Collaborative Learning and Teaching
   - Experts can contribute to curriculum development and delivery
   - Peer learning

IRENA Brief: Technology Enhanced Learning
IRENA hosts internships, associate professional programme; and capacity building for young professionals from LDCs.
Building the Skills for the Energy Transition

What is being taught?

How is this being delivered?

Who is it being taught to?
Building the Skills of....

Who?

- Women
- Teachers
- Youth
- Underrepresented Groups
- Mature learners (e.g. FF worker)
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

![Graph](image)
Reskilling of Fossil Fuel Workers

Interventions
- Identification of transferable skills
- Transition training funds

Net energy sector jobs in 2050, global and regional
Upskilling of Teachers

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

**Interventions**
- Targeted professional development
- Access to resources and learning materials for adaptation
Spotlight: Role of Industry

- Curriculum design
- Course delivery (expert lecturers/trainers)
- Work based learning
- Apprenticeships
- Equipment transfer
- Funding
Policies and programmes addressing education and vocational training are vital for building a skilled workforce.
Thank you for your attention!

Samah Elsayed: selsayed@irena.org

www.irena.org

www.twitter.com/irena

www.facebook.com/irena.org

www.instagram.com/irenaimages

www.flickr.com/photos/irenaimages

www.youtube.com/user/irenaorg
Q & A
10 min
9 MARCH 2021 • 12:00 – 12:30 CET

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”

For more information and to register:
https://irena.org/events/2020/Jun/IRENA-Insights
THANK YOU FOR JOINING US!

SEE YOU IN OUR NEXT WEBINARS

www.irena.org/events/2020/Jun/IRENA-Insights