

Renewable Energies – an Issue for TVET?

Results from the LdV Partnerships project
„Renewable Energy Solutions“ (RES)

Christiane Koeth, Dr. Ludger Deitmer

Research Questions

- What are renewable energies?
- Which sources of renewable energies are relevant in Europe (in which countries)?
- How is the topic renewable Energies integrated in VET throughout europe?
- Which challenges lie within this topic?

RES Partner countries: Romania, Turkey, Portugal, Italy, Netherlands and Germany

Sources of renewable Energy

- Traditional: solid biomass (for heating and cooking) – stays on same level or declining (better ways to use energy)

Modern:

- Biomass solid/gas (for heating and electricity)
- Solar (Photovoltaic and Solathermal)
- Wind energy
- Hydro energy
- Geothermal energy
- Other (e. g. tidal power plants) still in research, no role in energy supply

Current situation (use of renewables)

- Availability of renewable energy sources is spread uneven across Europe:
- North: more biomass, less energy outcome from Sun, Wind energy very far developed
- South: high energy outcome from sun (solarthermal energy can cover large percentages of energy for heating and warm water), with exception of Spain, Wind energy is developing (high potential e. g. in Turkey)
- Sources of geothermal and hydro energy highly depend on local conditions

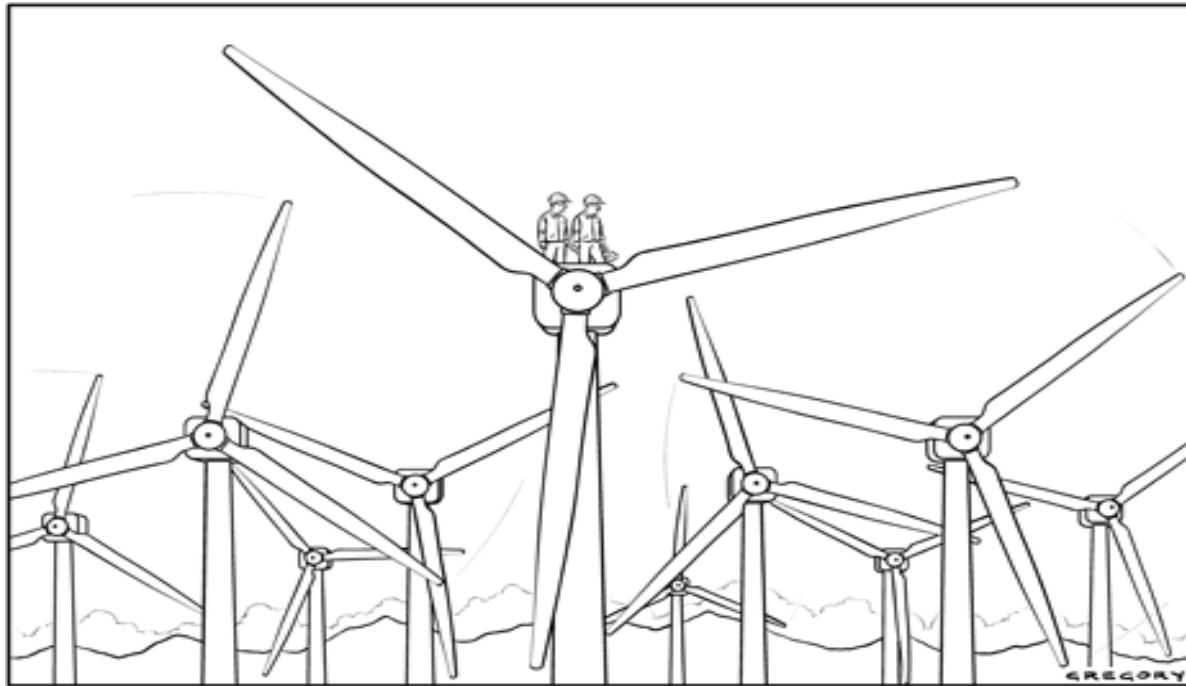
Current situation (Renewables in TVET)

- Germany and Netherlands: training courses and modules are available (especially for solar and wind energy), but topic is not common in all schools)
- Turkey: topic established in some universities, but not necessarily in TVET
- Romania: renewable energy use at its beginning, no topic in TVET
- Italy: use of small-scale RE plants inclusion of some topics in TVET
- Portugal: RE topic in some TVET-institutions

Methodology

- Analysis of Literature about RE and RE in TVET, summarised as Country reports
- Documentation of good practice in the partner countries (visits of schools and companies, expert interviews) to identify qualification needs

Example: Qualification of technicians for the wind industry (north Germany)



“Try blowing on it.”

Qualifikation needs

- North Germany: Area with manufacturers and service Companies for large wind mills (local needs and export)
- Skilled workers with additional skills in Windmill technology needed. They need knowledge about
 - The environmental impact of windmills
 - Communication in int. Teams
 - Installing and maintaining of electrical installations
 - Controlling and examining of communication systems and installations of measuring and controlling systems
 - Additional skills (e. g. for offshore windmills)

Related occupations (Berufe)

- Electrical fitter
 - Electronics technician
 - Electronics technician for industrial engineering
 - Plant mechanic
 - Plant mechanic for sanitary, heating and air conditioning
- > RE issues can be integrated in curricula

Curriculum of Electronic technicians with specification for wind energy

- General classes
 - Communication / German language
 - English language
 - Mathematics
 - Business- and environmental management
- Professional classes
 - Module wind energy turbines
 - Module photovoltaic
 - Module bio energy
 - Module geothermic heat

Results – What can be transferred?

- Windmills with horizontal rotor are all build in a similar way -> traing needs similar
 - Differences in service and manufacturing structures (local markets vs. export markets)
 - Diffences in skilled work due to location of windmills (special training for offshore wind parks)
 - Differences in grid connection (on or off grid)
- > Need for local specification of training modules

Open questions (Discussion)

- What qualifications are needed if we assume that the workers cross borders while seeking employment?
- How can we adapt good practice models to different framework conditions?

Thank you!



Wind energy plant

