

Solar PV Industry & TVET Training Landscape in Nigeria

Population

> 200 million

In Africa
most populous country
largest economy

Energy Access and Solar PV Sector

Electricity Access

60% of the population has access to electricity

85M Nigerians don't have access to electricity

Energy Mix

Installed electricity generation capacity

15,000 MW

Solution to energy deficit

Solar PV technology is viewed primarily as a solution to address energy access.

Governance Frameworks

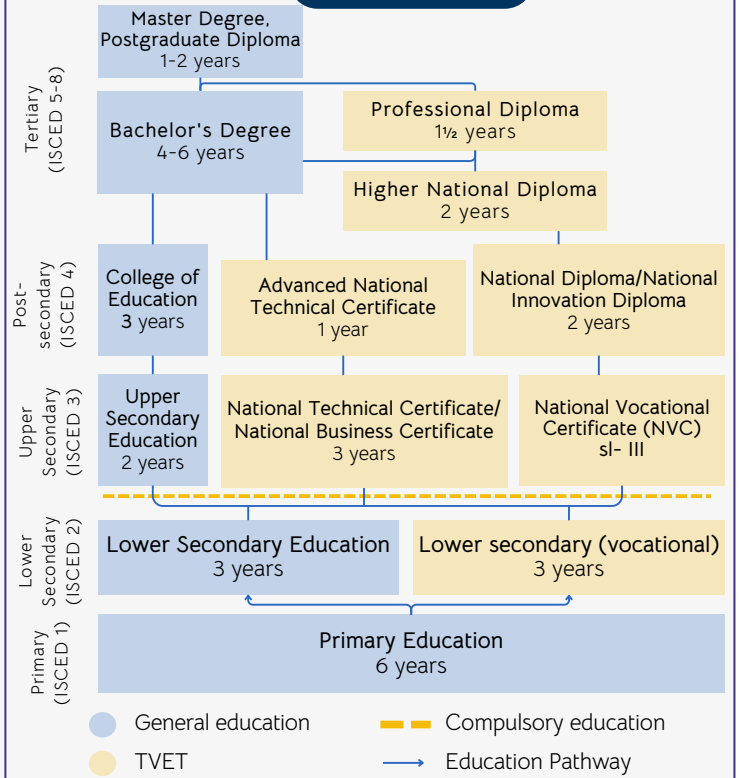
Key agencies responsible for TVET

- NBTE** National Board for Technical Education: Supervises and regulates TVET institutions.
- NABTEB** National Business and Technical Examinations Board: Conducts exams and issues certifications.
- FEDERAL MINISTRIES** Federal Ministry of Education, Federal Ministry of Science and Technology and Federal Ministry of Labour and Productivity.

The Nigerian Skills Qualification Framework

NSQF: It recognizes skills acquired formally, informally, and on the job, with modular certification offered for solar systems installation.

TVET System



TVET Challenges in the Solar Sector

- No defined solar-specific TVET programs:** Solar energy is integrated as a module in broader programs.
- Rigid curriculum structures,** limit innovation and adaptability to industry needs.
- Lack of practical entrepreneurial and soft skills training.**
- Predefined curricula** reduce flexibility, making it hard to include new modules like solar technology.

Key Drivers and Barriers to Solar Adoption

- Drivers**
 - Energy Access:** Solar PV can bridge the gap for millions without electricity.
 - Skilled Manpower:** Growing need for skilled solar technicians and installers.
- Barriers**
 - Governance Challenges:** Lack of a long-term vision for the solar sector and coordination between stakeholders.
 - Financial Constraints:** Limited funding for training and infrastructure development.
 - Technical Deficits:** Gaps in technical knowledge for integrating solar infrastructure.
 - Behavioural and Market Risks:** Lack of awareness of the long-term benefits of solar and risks to infrastructure.

Best Practices in Solar Training

University-Level Solar Programs	TVET Programs with Solar Modules	Specialized Solar Training Academies
<p>Specialized postgraduate programs on Renewable energies with focus in solar energy (18-24 months) in several universities.</p> <p>Top examples University of Nigeria (Nsukka), Obafemi Awolowo University, and the Usman Danfodiyo University.</p> <p>Short courses with hand-on experiences (2-4 weeks) in few Universities: Pan-Atlantic University, Lagos State University's Open and Distance Learning Centre</p>	<p>TVET Programs with Solar Modules embedded in Electrical engineering curriculums (around 6 months of training). Top cases are: John Bosco Institute of Technology and the Institute for Industrial Technology.</p> <p>Specialized training programs in Solar from other organizations such as: ASteven Academy, RETTI, Wavetra Energy Academy, and Green Academy Africa offer specialized short courses to equip individuals with key skills for the solar energy industry.</p>	<p>Several companies offer training in solar for their labor force: Gennex Academy, Green Academy Africa, Ecowatt Nigeria, and Rubitec Academy.</p>