

Powering the Future for Singapore's Energy Transition

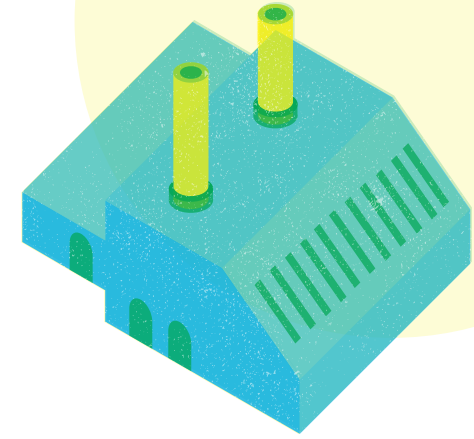
Singapore's energy sector is transforming rapidly as the nation powers towards a sustainable, digital and resilient future. The refreshed Clean Energy Jobs-Skills Insight spotlights emerging areas of work, jobs and skills across energy sub sectors showcasing how new technologies are redefining roles and unlocking new career opportunities for the workforce.



Power Generation

Evolving Beyond Traditional Areas

The **Power Generation sub sector** is evolving existing roles to prepare for the potential adoption of hydrogen and carbon capture technologies, with emerging skills in **CCS application, hydrogen system maintenance, and plant safety protocols** becoming critical for long-term energy security.



Emerging Areas of Work



Carbon Capture Engineering*

Design and implement Carbon Capture Systems for power plants



Hydrogen Engineering*

Manage hydrogen storage, distribution and utilisation, plus maintain auxiliary equipment for hydrogen-ready plants

Skills in Demand

- **NEW** Carbon Capture and Storage (CCS) Technology Application

- **NEW** Hydrogen System Maintenance & Inspection
- **NEW** Hydrogen Handling
- **NEW** Hydrogen Plant Safety

Job Roles Requiring New Skills

In Multi-Utility Operations:

Team Leader

In Engineering and Maintenance:

Manager, Principal Engineer, Engineer, Senior Technical Officer

In Multi-Utility Operations:

Team Leader, Engineer, Senior Technical Officer, Technical Officer, Technician

In Engineering and Maintenance:

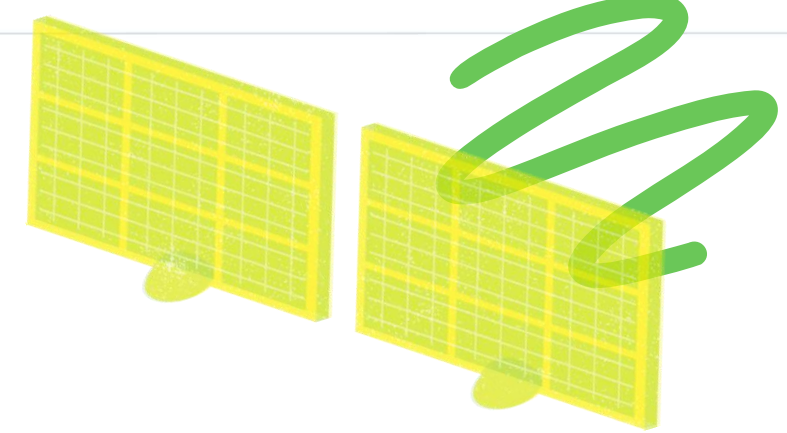
Manager, Principal Engineer, Engineer, Senior Technical Officer, Technical Officer, Technician

* Studies are underway to explore the integration of carbon capture and hydrogen technologies.

Distributed Generation

Advancing Solar Innovation

Solar PV deployment requires specialised skills in advanced **system design, asset performance optimisation, and integration of AI and BIPV technologies.**



Emerging Areas of Work



Solar PV Design and Engineering

Design solar PV systems, including innovative deployments beyond conventional rooftop installation



Solar PV Asset Performance Engineering

Optimise solar PV performance through data-driven maintenance and analytics

Skills in Demand

- Solar Photovoltaic Systems Design

- **NEW** Materials Science & Engineering

Job Roles Requiring New Skills

NEW Solar PV Design Engineer

Solar PV Project Development Engineer

Solar PV Project Development Site Supervisor

NEW Solar PV Asset Performance Engineer

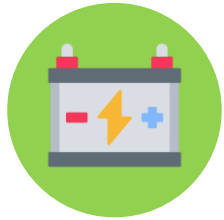
NEW Solar PV Design Engineer

Distributed Generation Scaling Energy Storage System Deployment

As **Battery Energy Storage Systems (BESS)** become increasingly important for supporting renewable energy penetration, niche jobs and skills will emerge in the areas of **BESS design, certification, installation and grid integration**.



Emerging Areas of Work



BESS Design

Design safe and efficient energy storage systems and solutions



Battery Testing, Inspection & Certification

Test, inspect and certify BESS fit for utilisation



Installation & Grid Integration

Install BESS and ensure its smooth integration into the grid

Skills in Demand

- Battery Systems Design Management

- **NEW** BESS Testing & Diagnostics
- Regulatory Compliance
- Quality Assurance Management

- **NEW** BESS Testing & Diagnostics
- **NEW** BESS Integration
- Site & Factory Acceptance Testing Management
- Equipment & Systems Installation & Commissioning Management
- Power Quality Management

Job Roles Requiring New Skills

NEW BESS Engineer

NEW BESS Quality Assurance & Certification Engineer

NEW BESS Test & Commissioning Engineer

Electricity Imports

Building Cross-Border Energy Infrastructure

Requires jobs and skills for assessing project viability and implementing **sub-sea infrastructure** for cross-border electricity transmission.



Emerging Areas of Work



Imports Project Technical Assessment

Assess project viability, evaluate technical, regulatory and economic factors



Sub-sea Engineering

Design, deploy and maintain subsea power cable systems for long distance electricity transmission

Skills in Demand

- **NEW** Imports Project Technical Assessment

- **NEW** Sub-sea Electricity Transmission Engineering Management

Job Roles Requiring New Skills

NEW Technical Feasibility Engineer

NEW Sub-sea Power Cable Engineer

Emerging Roles Across Power Sector

Where Technology Meets Energy Expertise

Rapid technological advancements are creating **emerging areas of work** to enhance operational performance, safeguard critical infrastructure and develop innovative solutions.

Emerging Areas of Work



AI & Data

Transforming energy management and predictive maintenance



Software & Cybersecurity

Develop solutions to protect critical infrastructure from cyber threats



Solutions Engineering

Develop holistic solutions on integration of renewable energy into power systems

Skills in Demand

- Data Collection & Analysis
- Data Mining & Modelling
- Internet of Things Management
- Modelling & Simulation
- Emerging Technology Synthesis

- Software Design & Testing
- Condition Monitoring
- Cybersecurity Framework Application
- Cyber & Data Breach Incident Management
- Regulatory Compliance

- Business Environment Analysis
- Business Needs Analysis
- Electrical Engineering Management
- Solution Architecture
- Strategy Implementation
- Preventive Maintenance

Emerging Jobs in Power Sector

Data Analyst

NEW Digital Twin Specialist

Software Engineer

NEW Cybersecurity Specialist

Solutions Architect

NEW Power System Engineer

Ready to Power your Career?

Singapore's energy transition presents emerging opportunities for career growth and professional development. Whether you're a recent graduate, experienced professional, or considering a career change, the energy sector offers diverse pathways to contribute to our nation's sustainable future.

Visit [Powering Lives](#) to discover:

- Sector overview and industry insights
- Networking events and professional development resources

Discover more about the sector:

- The [Skills Framework for Energy & Power](#) to identify in-demand skills and career opportunities
- [Training programmes and courses](#) that will help you upskill and stay future-ready