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INDUSTRIAL DEVELOPMENT ORGANIZATION



Partners:  UK Government



Demonstration as a Catalyst: Scaling Emerging Clean Energy Technologies for Resilient Energy Systems

United Nations Industrial Development Organization (UNIDO)

Thematic Track 1

Session 1.4: Technological Innovation and Smart Integrated Systems
Asia Clean Energy Forum 2026

Wednesday, 10 June 2026, 11:00 a.m. – 12:30 p.m



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Audience Poll: which innovative digital solution will have the greatest impact on enhancing the resilience and security of energy systems in the next 5 years?

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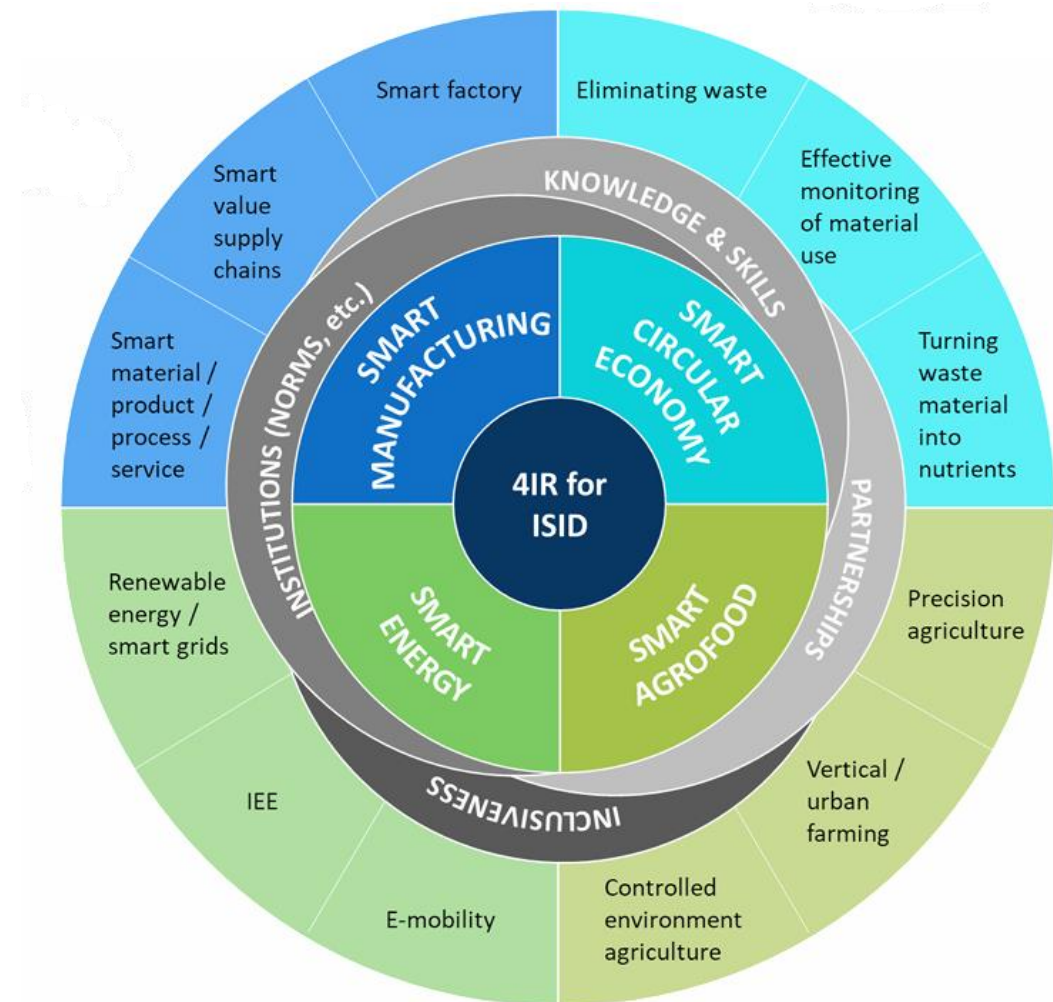


UNIDO's Vision 2050 for Digital Transformation for Resilient, Secure and Intelligence Energy Systems

UNIDO is the specialized agency of the United Nations that promotes and accelerates inclusive and sustainable industrial development.

UNIDO Vision 2050 calls for a digitally empowered, climate-resilient industrial future, leveraging advanced technologies, innovation ecosystems, smart design and infrastructure to accelerate clean energy transitions, whilst bolstering energy security and resilience.

This includes innovative digital solutions, such as 5G, IoT, smart systems and digital platforms at the heart of modern industrial development to enable real-time management, whilst decentralized solutions, such as micro-grids and off-grid internet, expand access.



UNIDO Industrial Development Report 2026: Trends in Asia-Pacific

- ❖ Opportunities: digital industrial solutions, energy-efficiency, innovation ecosystems and the importance of digital transformation in secure, resilient energy systems.
- ❖ Challenges: digital divides within countries continue to slow adoption of emerging technologies – e.g. 5G coverage more prevalent in upper-middle (and higher-income) economies in Asia-Pacific.

Main Megatrend	Sectoral Opportunities	Drivers
Energy transitions	Renewable energy equipment and clean hydrogen	Growing demand for clean-tech and geographical positioning close to end-markets



Importance of Accelerating Demonstration Projects in Smart Energy

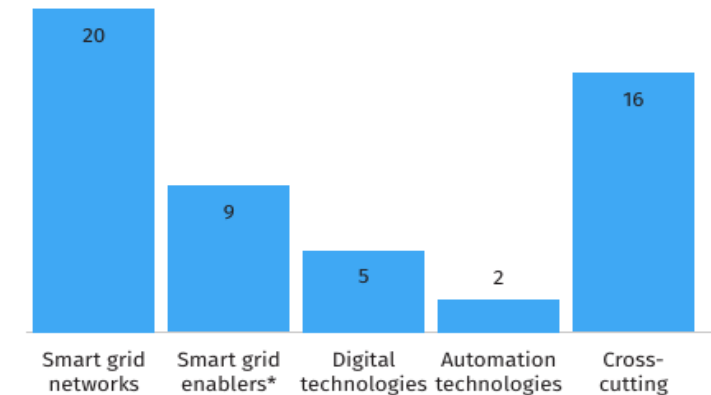
- ❖ Almost **35% of emissions reductions necessary** for achieving climate targets by 2050 will come from technologies that are still in the pilot or demonstration phases (IEA).
- ❖ At least **USD 90 billion in public funding needed globally by 2026** for clean energy demonstration projects to be commercially ready by 2030 (IEA).
- ❖ Clean energy investments in developing Asia has grown 900% since 2013 but **USD 23 billion annual financing gap** remains for digitalized, resilient grid infrastructure (ADB/WEF, 2025).
- ❖ UNIDO's smart energy market assessment assessed 50 relevant smart energy technologies within TRLs 3-7 range – **50% at pilot-test stage.**



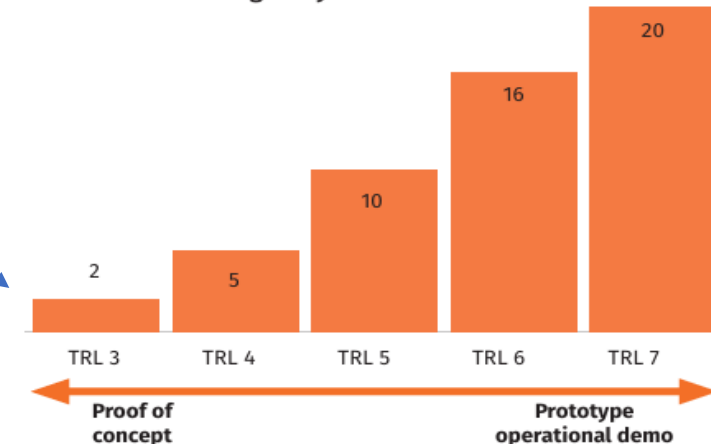
Access the
report here

Technology types and distribution among TRLs

Number of technologies by tech type



Number of technologies by TRL





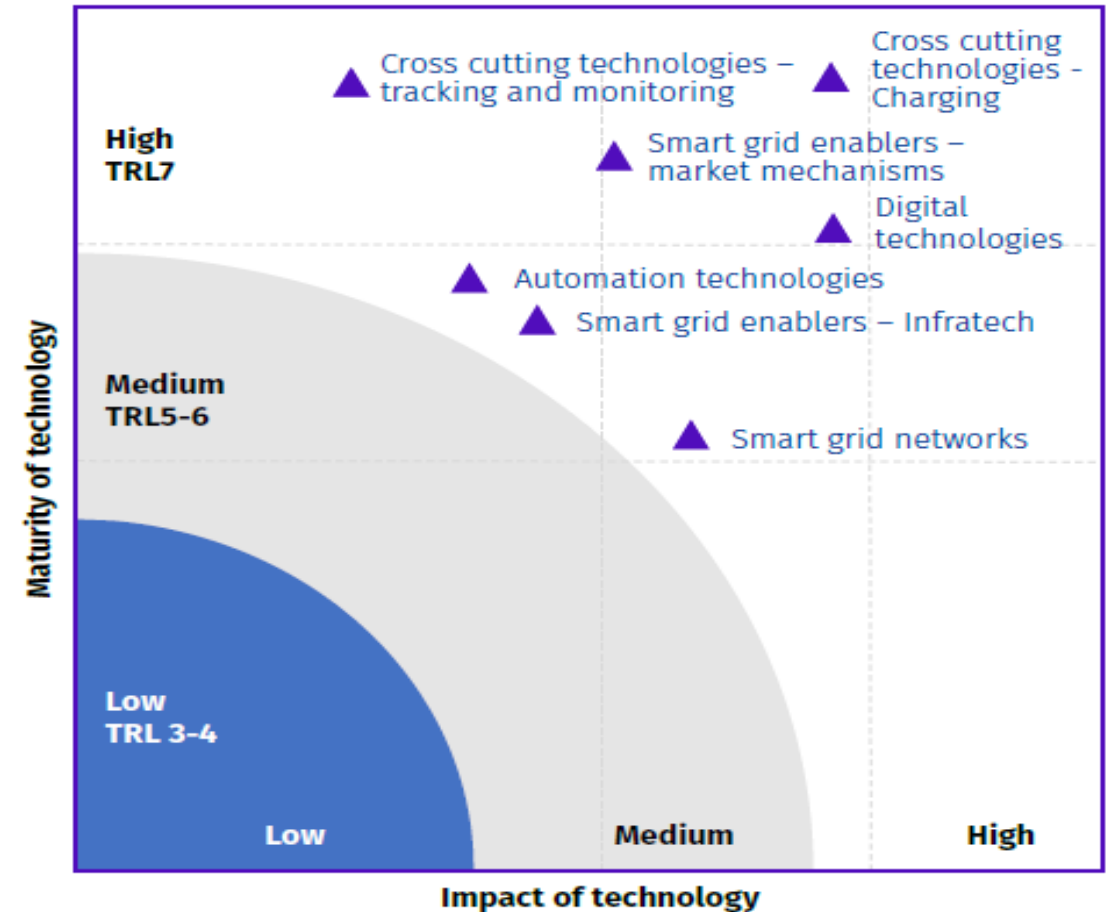
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UNIDO Smart Energy Market Assessment

Case studies: India and Thailand's policy frameworks are advancing continued reduction in renewable energy costs, enhancing accessibility, including infrastructure (such as smart grid network projects).



UNIDO Smart Energy Financing Case Study: *Accelerate-to-Demonstrate (A2D) Facility*

Objectives

The **A2D Facility** aims to accelerate the **commercialization of innovative climate solutions** in developing countries by supporting catalytic and scalable 'lighthouse' demonstration projects in:

- Smart energy
- Clean hydrogen
- Critical minerals
- Industrial decarbonization



Initial Funding and Timescales

- **Initial contribution of ~USD 85 million** from the UK Government
- Initially operates from **April 2023 to March 2029**
- Global (**developing country-focused**) Facility
- **Grants of USD 1-5 million** per demonstration project for ~3-year projects
- **First cohort of demonstration projects** supported through first call-for-proposals in 2024 (in Kenya, Namibia, Nigeria, Nepal and Tanzania)
- **Second cohort of demonstration projects** supported through second call-for-proposals in 2025 (in Kenya, Namibia, Nigeria and South Africa).
- **Third call-for-proposals** open from **14 April–18 June 2026**.
- Main Sustainable Development Goals (**SDGs**)-of-focus:



Activities bringing **transformational solutions** to the market at scale.

Providing grant support for implementing transformational demonstration projects with strong scalability potential, and which create and **disseminate knowledge and experiences** to foster collaboration, learning and scalability. Planning-related activities for demonstration projects are out-of-scope.

A2D Facility Third Call-for-Proposals Open

Further information and how to apply:

Please visit UNIDO's Procurement portal (RFX No. 7000008435) for detailed information on the eligibility requirements, selection criteria and submission guidelines: [UNIDO Procurement portal](#) and [United Nations Global Marketplace](#). Proposals can be submitted up until **16:00 CET on 18 June 2026.**

All enquiries on the call must only be sent to:

- Procurement Officer Ms. Ziniel (email: C.Ziniel@unido.org)
- with copy to Ms. Gavranic (email: J.Gavranic@unido.org),
- with copy to Ms. Dorner (email: E.Dorner@unido.org)
- with copy to Mr. Hemetsberger (email: M.Hemetsberger@unido.org)

A2D Facility Project Case Study:

Grid Resilience through Intelligent PV-Storage in Nepal

Objective

The project will support Nepal's clean energy goals by providing a concrete demonstration of the cost-effectiveness and reliability of smart solar and storage systems, paving the way for larger-scale deployments.

Transformational Project

Deployment of Nepal's largest battery-based microgrid (2 MW / 4 MWh battery, 1 MWp solar PV) provides 100% generator-free backup for critical systems to facilitate decarbonizing the steel sector. The Microgrid Management System (MMS) optimizes battery and solar performance, ensuring reliable power without diesel and preparing the site for future grid services.

First-year impacts (2025)

519 tCO₂e
reduced/avoided

15 jobs
created/supported

204 trained

68% women's
participation

PROJECT KEY INFORMATION

LEAD ORGANIZATION

Practical Action

CONSORTIUM PARTNERS

- Gham Power Private Limited Nepal
- Swanbarton Private Limited UK

DURATION

01 Feb 2025 - 01 Mar 2028

LOCATION

Nepal





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Video: A2D Facility Project Case Study: Grid Resilience through Intelligent PV-Storage in Nepal



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Progress by innovation



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SMART ENERGY DEMONSTRATION PROJECT SUPPORTED UNDER THE ACCELERATE-TO- DEMONSTRATE (A2D) FACILITY

Grid Resilience through Intelligent Photovoltaics and
Storage
UNIDO

UNIDO Smart Energy Financing Case Studies

Examples of Initiatives

Programmes, Projects and Initiatives:

- 4IR Strategic Framework to accelerate attainment of sustainable industrial development by 2030
- AI Centres of Excellence
- Global Alliance on AI for Industry and Manufacturing (AIM Global)
- ScaleX and the Innovation Lab
- Transformative Actions for Climate and Ecological Protection and Development (TRANSCEND) – Philippines project (smart roadmaps, training and investment proposals)
- Global Eco-Industrial Parks Program – Viet Nam project (rooftop solar project at Amata Bien Hoa industrial park)

Country Case Studies

SE Asia: Indonesia – enhancing SMEs’ resilience, competitiveness and access to domestic, foreign and blended capital in the lagging regions.

CW Asia: Azerbaijan – development of an innovation ecosystem and support infrastructure, including a Digital Education and Innovation Centre. Tajikistan – industrial upgrading and modernization of carpet-weaving, embroidery and traditional textile sectors.

West Asia: Jordan – project to strengthen the implementation design of an AI ecosystem.



Further Information

- **A2D Facility Website:** [Visit the website here](#)
- **A2D Facility LinkedIn Account:** [Follow the LinkedIn page here](#)
- **A2D Facility Mailing List:** [Join the mailing list here](#)
- **A2D Facility Year 1 Annual Report:** [Access the Annual Report here](#)
- **A2D Facility Year 2 Annual Report:** [Access the Annual Report here](#)
- **A2D Facility Year 3 Annual Report:** [Access the Annual Report here](#)
- **A2D Facility Market Assessments:** [Access the reports here](#)
- **A2D Facility GESI Framework:** [Access the GESI Framework here](#)
- **A2D Facility ESMF:** [Access the ESMF here](#)
- **A2D Facility third Call for Proposal:** [Procurement Portal](#) or [UNGM](#)

