CASE STUDY

ACCELERATING TAIWAN'S ENERGY TRANSITION - LM2500XPRESS

MIAOLI - TAIWAN

BACKGROUND

Fast-Tracking Low-Carbon Energy in Taiwan

Taiwan is pursuing an ambitious energy transition to achieve a 50% gas-fired power generation mix by 2025, aligned with the Renewable Energy Development Act (REDA). To meet urgent grid demands and support renewable integration, the Power Plant in Miaoli County deployed six aeroderivative gas turbines from an industry-leading turbine manufacturer and global energy technology provider, adding 180 MW of flexible, low-emission capacity to the national grid.

With a modular design and 95% factory preassembly, these units were installed rapidly demonstrating Taiwan's commitment to innovation and environmental stewardship.

KEY OBJECTIVES

Tung-Hsiao project aimed to

- Add 180 MW of fast, flexible generation capacity to Taiwan's grid
- Rapidly deploy turbines to meet short project timelines (Feb 2022–Jan 2023)
- Enable cold-start to full-load capability in ~8 minutes for renewable backup
- Support future decarbonization with hydrogen-ready turbines (35% today, 100% by 2030)
- Achieve significant emissions reduction (>90% reduction in NOx and CO)

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FROM CHALLENGE TO IMPACT

How Prismecs Delivered

	Challenge	Our Solution	Impact
Heavy Equipment & Port and Harbor Coordination	Specialized logistics were required to move large, sensitive turbine units securely from port to site.	Coordinated specialized logistics and managed port clearances for turbine delivery	Ensured **secure, on-time** movement of large, sensitive equipment from factory to site
Rapid Deployment	Effective port clearance and scheduling were critical to avoid customs delays and project slowdowns.	Utilized pre-assembled LM2500XPRESS design and fast-track project management	Installed all **six turbines within 10 months**, meeting tight timelines
Grid Integration & Site Readiness	Fast-tracked installation was essential to meet Taiwan's urgent grid demands within a 10-month timeline.	Engineered seamless turbine-grid tie-ins and led all civil, mechanical, and electrical preparations	Enabled **immediate turbine dispatch** and full operational readiness
Skilled Workforce Deployment	Mobilizing and training specialized local teams ensured reliable, long-term plant operation.	Trained local teams and mobilized technical specialists for installation and O&M	Built **sustainable, local operational** capabilities
Government Approvals	Comprehensive civil, mechanical, and electrical preparations were required for swift turbine installation.	Navigated Taiwan's permitting and regulatory certification processes	Achieved **full regulatory compliance** without project delays
Environmental Compliance	Strict emission standards necessitated the integration of Dry Low Emissions (DLE) technology.	Deployed Dry Low Emissions (DLE) technology to meet Taiwan's stringent air quality standards	Reduced **environmental impact** and **secured regulatory** approvals
Hydrogen-Readiness	Systems had to be future-proofed to enable hydrogen fuel blending as part of Taiwan's decarbonization goals.	Installed and future-proofed systems to accommodate hydrogen fuel blends	Positioned assets for Taiwan's long-term **decarbonization goals**
Component Sourcing	Global supply chain management was critical to avoid material shortages and maintain project schedules.	Managed global supply chains for critical turbine and BOP components	**Avoided supply delays** and kept project on track despite global disruptions

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PRISMECS' TURNKEY SOLUTIONS

Multidisciplinary Technical Execution	Prismecs mobilized experienced teams to oversee mechanical, electrical, instrumentation, and BOP integration at Tung Hsiao, ensuring flawless turbine installation and commissioning.
Logistics and Transport Management	Handled the complete supply chain from international shipping to site delivery, overcoming logistical bottlenecks to maintain project momentum.
Training and Knowledge Transfer	Delivered structured training programs, on-site workshops, and operational support to empower local staff with the skills needed for long-term turbine operation.
Ongoing Operational Support	Provided post-commissioning maintenance, performance monitoring, and technical troubleshooting, ensuring continuous turbine reliability and efficiency.
Safety & Compliance Leadership	Prioritized Health, Safety, and Environmental (HSE) standards, partnering with Taiwan Power Company to maintain best practices across all project phases.

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MEASURING SUCCESS

180 MW

Flexible Capacity Added to Taiwan's Grid

Strengthening Taiwan's energy infrastructure, the new capacity supports growing energy demands with lower emissions and higher flexibility.

Prismecs' Expertise in Turnkey Power Solutions on Display

The project highlights Prismecs' global capabilities in delivering end-to-end power plant solutions with precision and agility.

Boosting Taiwan's Energy Resilience and Low-Carbon Goals

This development marks a major step in securing energy reliability while advancing Taiwan's clean energy transition.

Fast-Start Turbines Enhance Renewable Energy Integration

Advanced turbines ensure quick ramp-up times, enabling smoother adoption of intermittent solar and wind power sources.

Hydrogen-Ready Technology Future-Proofs the Grid

Designed to operate with hydrogen fuel, the plant positions Taiwan for a sustainable, decarbonized energy future.

On-Time Delivery Amid Global Challenges

Despite supply chain disruptions and complex regulations, the project was completed on schedule, demonstrating operational excellence.

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