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What is necessary to secure human resources in the wind power industry? – An appeal of a growing industry that attracts talented engineers

Tomoko MURAKAMI

Senior Fellow, Electric Power Industry Unit

It is common sense across sectors that relying solely on training new workers from the ground up, tailored to a specific industry, is not sufficient to meet the growing demand for personnel, particularly in rapidly expanding fields. This paper examines recent developments in the wind power industry and considers the conditions necessary for securing a skilled workforce.

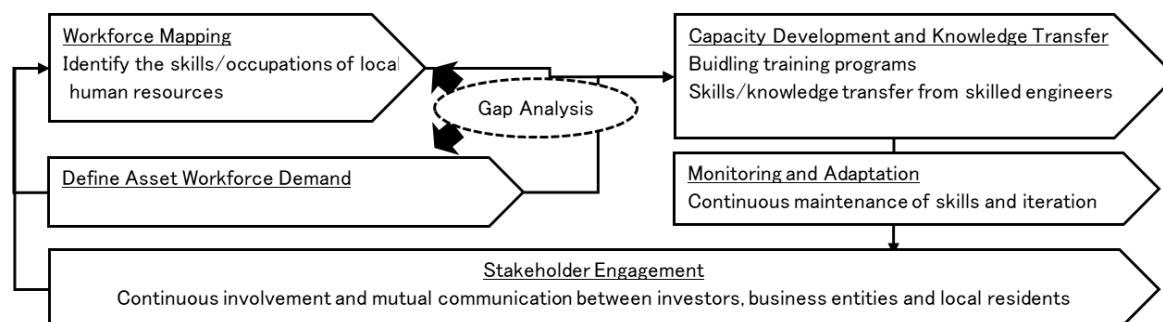
On 4 December 2025, the Global Wind Energy Council (GWEC) released its workforce outlook for the wind industry, “Global Wind Workforce Outlook 2025–2030”¹. Based on global projections that installed wind power capacity will nearly double over the next five years, the report analyzes future labor requirements for both new construction and ongoing maintenance. It focuses specifically on two areas in which on-site technicians are essential—Construction & Instrumentation (C&I) and Operation & Maintenance (O&M)—and estimates regional demand for technicians in each field. Both existing installed capacity and the scale of future deployment vary widely across countries and regions. Moreover, the skill sets required for C&I and O&M differ between “emerging markets,” where new installations are expanding rapidly, and “mature markets,” where installed capacity is substantial, but growth has stabilized. The report identifies the types of skills demanded in the wind power industry and offers implications for strategies to secure and develop the necessary workforce. It highlights five core activities essential to workforce development and retention, and notes that these activities should be undertaken not only by public-sector bodies such as government agencies and municipalities, but also by private stakeholders, including investors and project developers.

In many countries, including those in Europe and North America, the wind power industry is a relatively latecomer to regions that previously supported other industries such as coal-fired power generation, shipbuilding, and steel manufacturing. Many wind power component manufacturing bases and maintenance hubs are located in such areas. The report emphasizes the need to begin by identifying the skills and occupations that local workers possess, based on the industrial development of the region (Workforce Mapping), and then determining the skills required for C&I and O&M of wind power assets (Define Asset Workforce Demand). By aligning these needs and existing strengths, stakeholders can identify gaps and design training programs specifying what skills must be built, by when, and to what extent. Skill transfer from experienced technical specialists to local workers is then carried out as part of this process (Capacity Development and Knowledge Transfer). Continuous

¹ GWEC, Global Wind Workforce Outlook 2025 – 2030, 2025-12-4, <<https://www.gwec.net/reports/global-wind-workforce-outlook/2025-2030>>.

repetition of these activities allows stakeholders to verify whether ongoing skill retention by local workers is taking place (Monitoring and Adaptation). The report describes this approach as a “PDCA cycle for technical transfer” and introduces examples of its application, including efforts to transfer skills to the offshore wind power industry in Gippsland, a traditional coal-mining region in Victoria, Australia².

The figure below shows the concept of the “PDCA cycle”.



Source: Figure 7. Local Workforce Readiness Assessment and Development

Let us turn to the example of the nuclear industry. In Japan, the period of greatest expansion in the nuclear sector was the 1980s, when one or two new reactors began operation each year. During this time, both electric utilities and plant manufacturers expanded their workforces and technical expertise accumulated through extensive construction experience. The increase in personnel was supported not only by graduates of nuclear engineering departments but, in fact, largely by engineers from other fields such as mechanical, electrical, chemical, and civil engineering. Although growth in the nuclear industry had already slowed in Europe and the United States by that time—further affected by the Three Mile Island Unit 2 accident in the United States and the Chernobyl Unit 4 accident—the Japanese industry as a whole remained committed to improving safety, reliability, and economic performance.

To put it plainly, growing industries attract capable people even without special policy measures. Until the 1980s, the nuclear industry exemplified a field that attracted talented individuals because it was an appealing area in which to build a career. I do not particularly wish to see how the circumstances are in 2025.

How, then, does the wind power industry look in 2025?

Many countries already regard the wind power sector as part of their national strategic industries and are working to develop it further while securing the next generation of skilled workers. As noted in the GWEC report mentioned earlier, one example from Australia involves a partnership between

² Energy Australia, Transition Opportunities: Coal to Offshore Wind, August 2024, <https://www.energyaustralia.com.au/sites/default/files/2024-08/Transition%20Opportunities_Coal%20to%20Offshore%20Wind%20%28007%29.pdf>.

the wind power developer Ocean Winds—a joint venture between EDF Renewables and ENGIE established in 2019—and Federation University to train personnel for offshore wind projects in the Gippsland region³. Japan, which has been actively supporting offshore wind power development, is no exception; numerous universities and research institutes are participating in the Offshore Wind Talent Development Promotion Council (ECOWIND), established in 2024, to advance workforce development.

However, as the experience of the nuclear industry suggests, the essential factors that attract talented individuals lie elsewhere. Although the execution of wind power projects has become increasingly challenging across countries and regions in recent years, choosing to avoid these challenges by framing them merely as “risks” is unlikely to appeal to capable personnel. Instead, presenting these challenges as opportunities to bring together diverse expertise and achieve meaningful results—and demonstrating a willingness to confront them—may be the most effective way to attract highly skilled individuals.

Contact: report@tky.ieej.or.jp

³ Ocean Winds, Ocean Winds and Federation University have partnered to drive offshore wind opportunities and build Australia’s clean energy workforce, 2025-9-25, <<https://www.oceanwinds.com/news/uncategorized/ocean-winds-and-federation-university-have-partnered-to-drive-offshore-wind-opportunities-and-build-australias-clean-energy-workforce/>>.