August 19, 2025

The fate of local government wind turbines: Considering the business feasibility of wind power generation

Tomoko Murakami
Senior Fellow, Electric Power Industry Unit
The Institute of Energy Economics, Japan

At a consultative meeting of all town councilors in Tottori Prefecture's Hokuei Town on August 5, 2025, the councilors decided upon a plan[1] to transfer the Hojo Sand Dune Wind Farm, which is located in the town, to Enatex. The wind farm was constructed in 2005, and after the town council rejected the budget needed to apply for FIT certification, for a short time, there were plans to remove all the wind turbines.[2] However, in 2024, Enatex[3] approached the town saying it wanted to take on the wind farm, and after examining the company's income and expenditure plan and plan for maintaining and managing the facility, and plan for dismantling it in the future, the town arrived at this recent decision. Discussions and procedures towards the transfer are already underway in Hokuei Town, with a provisional agreement scheduled to be concluded at the beginning of 2026, and operations to commence from FY2026. However, it says there also remains a possibility that the transfer will not occur if the necessary procedures, conditions, and other elements are not in place by the end of FY2025.

The first peak in Japan's adoption of wind power generation occurred around the mid-2000s, when the Hojo Sand Dune Wind Farm was constructed. Prior to that, Japan's annual installed capacity had been sitting at around 100 MW a year, but from 2003 to 2010 it consistently exceeded 200 MW every year. The driving force behind the new uptake of wind power generation around this time was local government-led, publicly operated wind turbines. The RPS system that was launched in 2003 also provided momentum, and renewable energy sources such as solar and wind power were introduced in succession, particularly in municipalities without large-scale revenue sources.

20 years on from that, a variety of "winds" are blowing for these local government wind turbines. While there are examples of wind turbines being successfully transferred to the private sector, such as in Hokuei Town's case, there are also many examples where no entity could be found to take on the wind turbines, or where the wind turbines were removed before they could be transferred. Wind turbines that turn and wind turbines that do not turn—that fate is determined by their "business feasibility," and here I would like to consider that key phrase.

---

[1] See https://www.e-hokuei.net/12582.htm; Hokuei Town, 5 August, 2025: Regarding the transfer of the Hojo Sand Dune Wind Farm,
[2] See https://www3.nhk.or.jp/lnews/tottori/20250805/4040021071.html; NHK, 5 August, 2025: Hokuei Town, Tottori – Town Mayor announces plan to transfer nine power generating wind turbines to company
[3] Enatex is a company headquartered in Kurayoshi City in Tottori Prefecture that undertakes electrical facility work and other projects. Recently it has also become involved in solar power generation facilities, energy conservation facility work, etc. https://www.enatex.co.jp/

In 2020, Joetsu City in Niigata Prefecture decided to remove all four of its wind turbine generators within the city (Unit 1: 600 kW; Units 2 & 3: 750 kW x 2; Umiterasu Nadachi: 600 kW).[4] Work on dismantling Units 1 to 3 was completed in 2021, while work on dismantling Umiterasu Nadachi was completed in 2023. Each of these turbines was installed from 2001 to 2003 in a park that city residents could enter as they wished, and they reportedly became a symbol that drove the local government's environmental governance. On the other hand, these turbines repeatedly underwent long-term shutdowns and repairs due to frequent damage caused by the lightning strikes that are a characteristic of the Sea of Japan in winter. In 2018, Joetsu City decided to cease the operation, saying, "The desired objectives have been achieved." From December 2019, the city put out a call for a private-sector operator to take on the wind turbine operation, but no such transfer was realized.

Prior research[5] reveals some deeply interesting analysis regarding what determines the fate of local government wind turbines. In 2017, the National Council of Municipalities for Promoting Wind Power Generation and the Japan Wind Power Association conducted a survey of local governments and asked whether or not they would replace their wind turbines, and the reasons for that decision. It is worth noting that at this time, the reasons the local governments cited for not being able to replace their turbines were not simply an inability to cope with the high costs or an inability to ensure their business feasibility at the present (FIT) purchase price. Alongside those reasons, the municipalities also noted that: "Wind conditions were poor to begin with, so we are unable to count on a capacity factor."

The goals behind local governments undertaking environmental-related operations (not limited to wind power operations) include using such operations to promote activities in their regions that raise awareness of renewable energy and to play a role in environmental and energy education, thus leaving behind a sustainable region for coming generations. Long-term business feasibility cannot be ignored either. Like other energy facilities, wind turbines do not end with their construction - they need to be maintained for several decades. However, setting aside that the first few years after operations commence will fall within the manufacturer's warranty, the locus of responsibility for turbine operation and maintenance following that is inadequate, and particularly in the case of wind turbines constructed by foreign manufacturers, it takes time and effort to procure replacement parts. The above-mentioned prior research calls a response such as this an "ad-hoc" response, and notes that "It is something that is seen frequently with local government wind turbines." Unlike large-scale operators that possess maintenance expertise, local governments do not have full-time maintenance personnel to begin with, and the fact that fundraising takes place every fiscal year also creates a bottleneck.

That being the case, the answer to the problem of wind power stations that local governments

[4] See https://www.joetsutj.com/articles/70762920; Joetsu Journal, 17 September, 2021: Removal of Joetsu City's "wind power generation" begins Facilities approaching end of service life some 20 years after they were built
[5] See https://www.jstage.jst.go.jp/article/jweasympo/42/0/42_267/_pdf; Future of Local Government Wind Turbines, a lecture at the 42nd Wind Energy Symposium, November 27, 2020; Ideno et al (2022)

have run into problems maintaining would appear to be transferring the replacement, running, and all other aspects of these operations to specialist operators that possess the expertise. Where this solution runs aground, however, is one of the above-mentioned reasons that local governments cited for being unable to replace their turbines—namely, that "Wind conditions were poor to begin with." In establishing wind power turbines, it is expected that scrupulous business feasibility studies will be carried out, including examining the region's wind conditions, topography, and degree of infrastructure development. Wind conditions do not change greatly over a period of 20 or so years, so for it to be said that "Wind conditions were poor to begin with" at a wind power station that has been running for over a decade must surely suggest, in other words, that the operation was embarked upon based on preliminary studies that were inadequate.

In Hokuei Town, which has succeeded in finding a private-sector operator to transfer its wind farm to, the actual operating data for every year since the project began operating in 2005 have been made public.[6] According to that data, the electricity sales achievement rate from 2005 to 2024 was 86.1%, and despite equipment malfunctions and other issues arising frequently, over a track record of almost 20 years, there was not a single instance of a long-term shutdown of over a month. It could surely therefore be described as a successful operation. Enatex, which proposed taking on the operation, no doubt concluded that Hokuei was an appropriate place to develop a business, while giving careful consideration to the wind conditions in the area and the operating track record.

On the other hand, when it comes to the wind turbines in Joetsu City, which were removed after efforts to transfer the operation failed to materialize, Unit 3 had an average annual capacity factor of around 7% in FY2019, prior to its operation being suspended.[7] In light of the fact also that ultimately the city was unable to find a company to hand over the operation to, it can be supposed that one reason a new operator could not be found was that even before considering the damage caused by the frequent lightning strikes, "Wind conditions were poor to begin with," so the operation held no appeal to private-sector operators in terms of its business feasibility.

20 years on from their installation, many local government wind turbines are standing at a crossroads, and the lesson they teach is the importance of "realistic, data-based preliminary studies." Undoubtedly, this is a lesson that can also be put to good use in new operations, including offshore wind power.

Contact: report@tky.ieej.or.jp

[6] See https://www.e-hokuei.net/2382.htm; Hokuei Town, Hojo Sand Dune Wind Farm > Operating situation
[7] See https://www.city.joetsu.niigata.jp/soshiki/kankyo/sinnenerugi-.html; Koetsu City, Power generation situation for renewable energy