Study reveals renewable energy project lead-times

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Western Sydney University has released new research assessing how long it takes to get renewable energy projects planned, approved, built, and commissioned.

Published in *Energy Economics*, the study investigated the factors determining lead-times for 170 onshore wind and solar photovoltaic (PV) projects completed in Australia between 2000 and 2023.

It found a notable improvement in lead-times for onshore wind and solar projects. However, the study also found that commissioning lead-times, the final step of the process, have increased for solar projects.

According to Dr. Thomas Longden from the University's Urban Transformations Research Center, the feasibility of 2030 renewable targets will be impacted by the time taken to get projects planned, approved, and completed.

"With only about 70 months until 2030, accurate lead-times are needed to track how we are progressing towards our 2030 renewable energy targets," said Dr. Longden.

Despite this, very few studies have explored renewable energy development lead-times across projects in Australia or elsewhere.

"We found that renewable projects used to take longer to go through the processes of getting planned, approved, built, and commissioned," said Dr. Longden.

"While solar projects take about 41 months to complete, onshore wind projects take longer. However, the gap has narrowed with recent onshore wind projects taking 53 months to complete.

"These lead-times indicate that the window for meeting our 2030 renewable energy targets is closing. With 40–50 month lead-times, most of the required projects would need to start being planned in the next couple of years."

In relation to commissioning lead-times for solar projects, the findings show an increase of up to six months or more.

"There is evidence of increased lead-times for existing projects that are nearing completion, especially for solar projects," said Dr. Longden.

"For solar, this step used to take about three months but has increased to six months or more. A couple of recent solar projects have taken more than a year for this final step."

The researchers suggest that despite improvements in lead-times in Australia, more could be done to ensure that these gains are sustained in the future.

Dr. Longden explained that accurate project lead-times are important for an understanding of the contemporary renewable investment environment.

"Administrative procedures could be improved by all states adopting a 'one-stop shop' approach for applications. This should include maximum response times for authorities to assess each step of the process," he said.

"Allowing suitable projects to be treated as expansions of existing sites could also improve administrative procedures. Some recent projects had lower lead-times as they were built in multiple stages using the same or a similar set of approvals. This approach of modifying a previous approval has also been used for installing batteries as a co-located asset."

More information: Lachlan Clapin et al, Waiting to generate: An analysis of onshore wind and solar PV project development lead-times in Australia, *Energy Economics* (2024). DOI: 10.1016/j.eneco.2024.107337