

in order to minimise the module level mismatch loss and improve output using DC cables of superior technology, which are manufactured by European companies. All components used in our plants, from the foundation to the cables, are of the best available quality that ensure over 25 years of plant performance.

**What are the common project areas where solar and wind developers usually falter?**

#### Anmol Singh Jaggi

Quality control, especially during the execution stage, is missed by developers in most cases. The time-frame within which projects hit the ground and are executed is so constrained that carrying out proper checks and rectification is generally missed given the larger aim of achieving plant commissioning within the time limit and avoiding penalties.

#### Umakanth Shende

In solar specifically, developers should have more inclusive quality and safety standards. All solar companies need to ensure that they have comprehensive employee health and safety policies in place, especially for construction and maintenance workers. Companies need to make sure that these policies are executed and monitored well. In addition, safety concerns during construction, especially

**“Independent monitoring agencies should be encouraged to ensure a 360-degree check on projects, from conception to commissioning.”**

Anmol Singh Jaggi

for rooftop solar plants, should include environmental and topographical factors.

**What further steps can be taken by the government to ensure quality checks for renewable energy projects?**

#### Anmol Singh Jaggi

Currently, PPAs have the time periods defined, between the signing of the agreement and the commissioning of the project. The government should ensure that the PPA signing is followed by a well-defined timeline for project execution, which captures the time required for the implementation of quality assurance project plans. Organisations should be issued commissioning certificates only after the due diligence of the project is carried out and all checks and balances are in place. In addition, government agencies should draw up plans to check the quality of the projects so that their performance is

**“Uniform quality parameters with strict safety practices comparable to international standards are needed in the country.”**

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maintained throughout their life cycle.

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There are various government agencies that are involved in regular quality checks for approving solar projects. The Department of Electrical Inspectorate and local discom officers typically undertake the inspection process. The government should standardise the approval and inspection processes with national policies and uniform norms for solar plants. Moreover, the Ministry of New and Renewable Energy and discoms should have a common set of guidelines and targets across states while vetting projects. Processes should also be well documented to ensure there are no gaps. Training of the chief electrical inspector, discom employees and nodal agency officers for quality standards is essential.

**What are the quality management steps that should be taken by developers/engineering, procurement and construction contractors to ensure optimum project performance over its lifetime?**

#### Anmol Singh Jaggi

The quality of a solar power project can be encompassed in three different aspects: design quality, project execution and risk mitigation. There should not be any compromise on the project costs, the time needed for execution and the safety standards. Proper implementation of quality tools, along with stringent monitoring, could ensure that quality assurance and quality control processes are executed to enhance project performance, reliability, durability, serviceability and aesthetics, while conforming to the set standards. ■

