Interview Transcript 2: Participant P2 (Plant Manager, Delhi)

Interviewer: Can you share a little bit about your current job? What experience do you have in the solar power area?

P2: As the Plant manager, I lead a large solar power plant in Delhi. For almost ten years, I have overseen the daily operations, which include maintenance schedules and performance reviews.

Interviewer: How long have you been looking after solar power plants?

P2: Having spent ten years working in this field, I've seen a lot of challenges come and go.

Interviewer: What obstacles have you faced while maintaining the efficiency of your solar power plant?

P2: Dust collecting is a major issue, especially in the urban environment of Delhi. The ongoing management of shading resulting from nearby structures and infrastructure is another important concern.

Interviewer: In your experience, do you think dust on the panels affects how well they work?

P2: Efficiency can decline by 10 to 12 % if dust is not cleaned on a regular basis. It's especially problematic during dust storms, which occur frequently in this area.

Interviewer: How does shadow impact the plant's ability to produce electricity?

P2: Shading is a serious issue. There have been cases where a single panel's tiny, shaded patch has caused the string's overall output to drop noticeably. It has been demonstrated to drop by as much as 70% depending on the shade layer. We had to rearrange a few parts of the building to mitigate this.

Interviewer: What upkeep procedures are in place now to deal with problems like dust buildup and shade?

P2: Our cleaning is done manually twice a week. Also, to lessen the influence of shading, we've put sensors to track it and change panel angles as needed.

Interviewer: How frequently do you maintain or clean the solar panels? Which techniques do you employ?

P2: Every two weeks, we manually clean the panels. Although it requires a lot of work, this is currently the most efficient approach available.

Interviewer: Have you seen any adjustments in performance following maintenance or cleaning tasks?

P2: Definitely. Efficiency usually improves by 8–10% immediately following a cleaning session.

Interviewer: What impact do weather conditions like wind, humidity, and temperature have on solar panel performance?

P2: High temperatures, particularly at the height of summer, diminish efficiency. Dust is more difficult to remove in humid environments, and wind can occasionally do more harm than good by bringing in more material.

Interviewer: Have you put any plans in place to lessen these environmental factors' detrimental effects?

P2: To reduce the effect of dust, we've experimented with cooling systems and anti-reflective coatings. Additionally, we've started scheduling cleanings more efficiently by utilizing predictive data.

Interviewer: What tactics, in your opinion, might be used to raise the efficiency of the solar power plant?

P2: I think there would be a significant impact if more automated technologies were used for cleaning and monitoring. It would increase consistency and lessen reliance on physical labor.

Interviewer: Do you think any cutting-edge methods or technologies could be implemented to improve performance?

P2: Using drones for airborne examination could revolutionize the field. They would cut down on downtime and enable us to locate issue areas much more quickly.

Interviewer: How do you keep an eye on the solar panels' performance? Which metrics are you monitoring?

P2: We track temperature, shading effects, and power output in real time using a combination of software and on-site sensors.

Interviewer: Have you seen any trends in the performance data that point to certain areas that need work?

P2: It is true that we have noticed that the increasing dust around construction sites causes the panels to lose efficiency more quickly. This implies that regions require more frequent cleaning.

Interviewer: Would you like to add anything more about the efficiency of solar power plants or the difficulties you encounter?

P2: Just that maintaining efficiency is a never-ending struggle, particularly in a densely populated area like Delhi. But we can get better if we use the appropriate tactics.

Interviewer: Do you have any suggestions for additional study or areas that require more investigation?

P2: I believe that further study is needed to determine how exactly urban settings impact the efficiency of solar panels. Investigating more affordable cleaning options may also be advantageous to all parties involved in the sector.