Interview Transcript 5: Participant P5 (Maintenance Technician, Delhi)

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

P5: I work as a maintenance technician in Delhi at a small solar power facility. I've been concentrating on the maintenance of the solar panels and associated equipment in this capacity for around seven years.

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

P5: I have spent the last seven years of my career in solar power maintenance at this facility.

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

P5: The main problems are shadowing and dust buildup. Due to our location in a populated neighborhood of Delhi, dust from passing cars and adjacent building sites is a continuous problem.

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

P5: The efficiency of our panels can be lowered by up to 12% by dust. The power output dramatically decreases if they are not cleaned on a regular basis.

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

P5: Shading can result in a power output reduction of up to 75%, particularly in the early morning and late afternoon. To lessen this, we've had to routinely reduce the surrounding trees and vegetation.

Interviewer: What maintenance practices are currently in place to address issues like dust accumulation and shading?

P5: Every two weeks, we manually clean the panels. To avoid shadowing the plant, we also have a group that trims the surrounding vegetation.

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

P5: Every two weeks, we manually clean the panels. Although labor-intensive, maintaining efficiency requires it.

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

P5: Yes, cleaning typically results in a 6-8% increase in power output.

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

P5: Humidity makes dust stickier and more difficult to remove, and high temperatures decrease efficiency. While wind can occasionally be helpful in clearing away dust, it can also introduce additional dirt onto the panels.

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

P5: Since these problems are most noticeable in the summer and monsoon, we've tried changing our cleaning plan to include more regular cleanings during those times.

Interviewer: What tactics, in your opinion, might be used to raise the solar power plant's efficiency even further?

P5: Increasing cleaning frequency and maybe implementing automated technology could be beneficial. To lessen dust adhesion, anti-reflective coatings are another option we're thinking about using.

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

P5: Drones, in my opinion, would be helpful in more frequently checking the panels and rapidly identifying places that require maintenance.

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

P5: We keep an eye on panel temperatures and power output using sensors that are on-site. We can determine when maintenance is necessary thanks to these metrics. This information is helpful as with these metrics we can resolve the issue before it happens.

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

P5: It's true that we've observed a major decline in efficiency following dust storms, and we've been thinking about cleaning more frequently following these occurrences.

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

P5: Just that keeping up efficiency is a never-ending struggle, but we can absolutely become better with the appropriate tactics.

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

P5: I believe that more study should be done on affordable cleaning agents, particularly for smaller plants like ours.