



Wind Generation O&M Strategies

Lessons from conventional generation

by Todd Williams

THE NORTH AMERICAN WIND INDUSTRY HAS REACHED AN INFLECTION point. No longer a small but growing part of the electricity mix, wind has reached a scale that calls for a greater focus on how the fleet is operated and maintained. For the past 15 years, the key to success has been primarily driven by development: the ability to bring the project to completion with OEM support. As warranties expire and more wind generation operators choose to insource operations and maintenance (O&M), the key to success in the future will be increasingly derived from the quality of the operations and maintenance of the generating assets.

How can an operator extract the most value from the assets? What does it mean now to run a large fleet of sometimes disparate assets, economically and efficiently? How will wind play the role of good citizen on the grid? The answers to these questions may be informed by the lessons from conventional generation fleet operators who have had to deal with these issues before us.

Lessons from Conventional Fleets: Management Playbook

The American Wind Energy Association (AWEA) has noted, “Wind turbine operations and maintenance (O&M) represents a growing segment and business opportunity in the wind energy industry.”¹ Operators are leveraging a variety of technologies and approaches to improving performance and reducing costs. One approach conventional generators have found successful is to implement an

operational system or management playbook to systematically drive operational excellence and thereby achieve greater value from their fleet of generation assets.

A generation management playbook is a management system used to delineate how the business will operate in order to create alignment and predictability. Benefits include creating greater alignment on specific goals, driving intended results, ensuring predictable and best practice operations standards, and implementing a means of continuous improvement.

Typically, a playbook emphasizes four key components that are critical to ensuring a well-run fleet:

- Vision and values – What we aspire to and how we measure success
- Planning and monitoring – How we improve our business and how we hold ourselves accountable
- Operational controls – How we run our plants
- Organization and accountability – How we assign accountability

While wind has many differences from a conventional generation fleet, the playbook concepts still apply and can bring value. One leading wind generation operator applied the playbook approach to significantly improve the results of their safety program.

As a result of the playbook implementation, contractor safety incidents decreased by more than 50%, and corporate safety incidents remained very low.

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Conventional Generation Playbook	Wind Safety Example
<p>Vision and values brings a shared sense of focus to the organization. In the case of conventional generation, results-oriented measures serve to create clarity and align focus on measures such as forced outage rates, cost per MWhr, and safety. This kind of clarity can prevent mixed signals and drive desired behaviors, investment, and actions.</p>	<p>The overall vision for safety was distilled into a single statement—our work is never so urgent, nor our schedule so important, that work cannot be performed safely. Including contractors in this vision and measurement of safety results represented a fundamental shift in expectations that reverberated throughout the model.</p>
<p>Planning and monitoring provides leadership with the means of ensuring plans exist and resources are properly allocated to achieve desired results. Business plans, performance indicator reviews, and management review meetings are common in conventional generation fleets.</p>	<p>Two employee and contractor metrics were established and benchmarked. Stretch goals were set:</p> <ul style="list-style-type: none"> • Total Recordable Incident Rate (TRIR) • Days Away Restricted or Transferred (DART) <p>Gaps in performance were formally identified and specific gap-closing initiatives were designed and put into the budget. Examples include establishment of minimum contractor safety requirements that were negotiated with each prime contractor, active site indoctrination programs for any new personnel, and safety observations using punch-cards with auto-readers. Results were tracked as part of ongoing management to ensure improvement actions were executed successfully.</p>
<p>Operational controls are the governing process and program standards. They articulate clear accountabilities and represent the “one way, best way” generation fleet personnel execute their work to ensure predictable, high quality results across many plants. Conventional generators have evolved many best practice standards critical to success such as lockout tag-out, outage management, and confined space entry. Done well, this enable a continuous improvement approach allowing the standards to evolve with new best practices.</p>	<p>With legacy assets and organizations as a result of acquisitions, creating a common view on the approach to safety was a critical alignment factor. Two key safety documents were identified and written to establish a fleet-wide standard:</p> <ul style="list-style-type: none"> • Safety Program – defining high-level accountabilities and requirements • Safety Process – defining key safety activities, including communications, hazard identification, observations, and corrective action
<p>Organization and accountability captures the human element of the playbook. Most importantly, it establishes programmatic ownership of the key areas established in the vision. It defines how program owners are to work together with line leadership and makes them accountable for designing, implementing, and updating operational controls. In a conventional generation fleet, there are job titles across sites, succession plans, and incentive programs tied to plan goals.</p>	<p>A fleet wind safety manager was named and charged with leading overall program ownership, and accountability for results. This program owner worked together with designated wind site safety leads to define and implement functional area standards. Together, they formed the peer group to drive consistency and determine best practices.</p>

Conclusion

As wind fleets mature, operators will increasingly face a need to operate and maintain their assets in order to extract value. Conventional generation fleets provide a model for how to successfully manage and operate a fleet of assets through a management playbook. This approach can offer a success path for wind operators faced with the need to manage geographically separate, market-differentiated, OEM-diverse, fleets of assets.

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¹AWEA website: <http://www.awea.org/gencontentv2.aspx?ItemNumber=4613&mainnav=8192&navItemNumber=8213>