

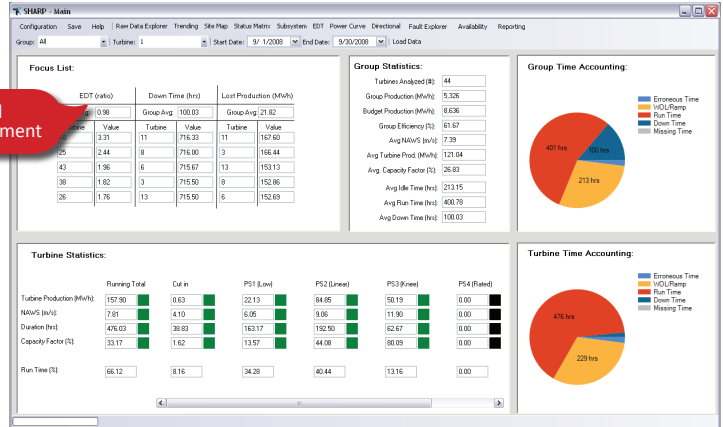
# Take Control of Your Assets

*Extract the Value of Your SCADA Data with SHARP*

Your wind farms generate massive amounts of data which, if utilized properly, can provide significant insight for operational improvements resulting in more proactive plant management and better return on investment.

Improved Asset Management

Automated analysis routines are essential for streamlining the process of identifying items of interest so that plant management personnel can efficiently schedule and manage daily activities. To put the power of SCADA data to work for you, and free up valuable time and resources for plant operators, AWS Truepower developed a comprehensive System Health Analysis Report Program (SHARP).



## SHARP

### Putting Your Data to Work

SHARP is a state-of-the-art software application that integrates seamlessly with industry standard SCADA systems and data historians, placing analytical tools aimed at managing both performance and availability, in the hands of wind farm operators. Key benefits include:

**Maximize Current Resources:** designed to work within, and optimize current O&M practices and resource allocation, SHARP metric reporting for asset managers, daily decision support for plant managers, and failure detection for engineering will enable more proactive and efficient plant management practices.

**Manage Expectations:** plant metrics to improve tracking, maintenance prioritization practices and performance improvement all allow for more realistic expectations on performance and return on investment.

**Quantify System Benefits and Recoverable Yield:** understand how your farm is performing under all conditions and use deeper-dive analytics to redefine normal operation for improved farm production.

**Integrate with Existing Tools:** configurable and adaptable to existing data streams, sensors and interfaces.

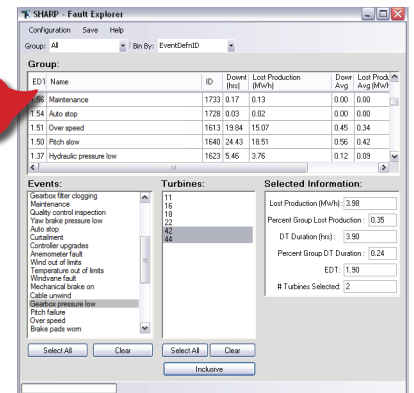
**Identify Key Performance Indicators:** SHARP translates raw SCADA data into benchmarking metrics and related key performance indicators (KPIs). From an independent evaluation of OEM metrics, to consistent owner specific metrics that may be applied across a fleet of varying turbine types and models, this reporting system translates data to powerful asset management information.

**Provide Visibility to all Stakeholders:** from wind plants to corporate sites, SHARP facilitates fluid discussions on operations and maintenance priorities.

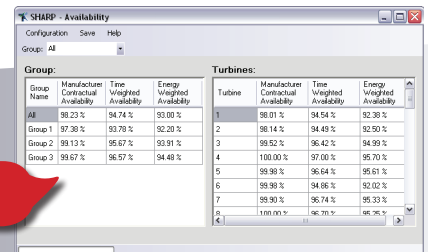
Decision Support



Fault Explorer



Fleetwide Transparency



## Application and Support

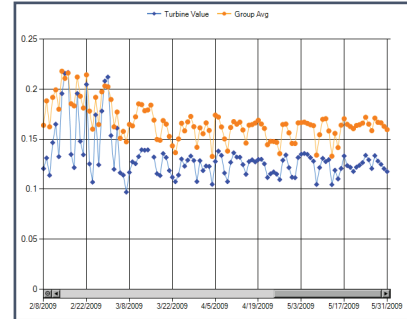
SHARP is designed to work as an extension of your plant's O&M staff to maximize resources and bring order to a complex environment. The application is configured by AWS Truepower prior to on-site deployment and then can be used purely as an internal tool or as a conduit for further support from AWS Truepower's Operational Performance staff.

## Technical Highlights

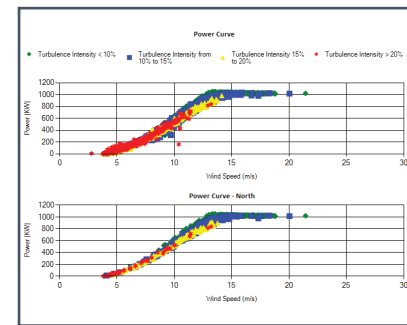
SHARP can ingest voluminous amounts of data inputs from various sources to quickly organize, analyze and present normal operational performance metrics based on group statistics. By understanding what is normal for the fleet, plant managers can diagnosis and treat underperformance issues at specific turbines, which in turn can improve overall plant performance and your bottom line.

## Defining Normal

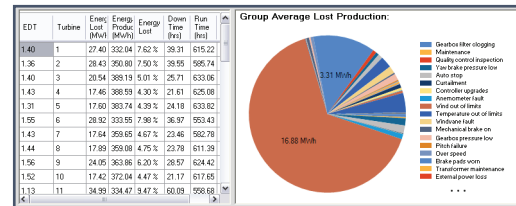
Wind as an energy source is variable which presents challenges for operating, evaluating and optimizing individual turbines and plants for year-round operation. SHARP has been thoughtfully designed, applying over 25 years of experience in the wind industry, to screen out the variance induced by inlet conditions and farm dynamics, define normal operation and allow for identification of sub-optimal and treatable performance shortfalls.



Capturing Underperformance



Defining Normal



Lost Energy per Event

## What's Next

SHARP is only the initial step toward measurable improvements on plant performance. AWS Truepower is actively developing advanced diagnostic and prognostic applications that can be run on-top of the SHARP platform. Moreover, the program has been built with the flexibility and capability of integrating additional data sources.

## More Information

For more information on AWS Truepower's Operational Performance services and how SHARP can improve your O&M practices, plant performance and overall return on your assets, contact AWS Truepower at SHARP@awstruepower.com or +1-877-899-3463.