CUSTOMER PRESENTATION BRIEF
As presented at the 2015 EMEA Users Conference

OSIsoft.

SUMMARY

Qatar Power®

Industry

Power and Water Utilties

Business Value

- Regulatory Compliance
- Resource Conservation
- Employee Safety
- Real-time Analysis
- Analytic Rich Visualization
- Energy Efficiency

PI System™ Components

- PI Server™
  - Data Archive
  - Asset Framework
  - Event Frames
  - Notifications
- PI DataLink™
- PI ProcessBook™
- PI Manual Logger™
- PI Vision™

The PI System helps Qatar Power reduce costs, improve safety, and conserve resources

Qatar Power is an Independent a in the Ras Laffan Industrial City in the Gulf State of Qatar. Since implementing the PI System, it has been named Power and Water Utility of the Year within the Gulf Cooperation Council in 2012, 2013, and 2014, and, in 2014, was the first Middle Eastern company to receive a Commended Electricity Industry Sector Award. In his presentation, Parshu Borkar, Senior Engineer – Commercial and Performance, explained how his company has leveraged the PI System to optimize O&M, reduce resource consumption, and improve worker safety.

Supplying reliable power & water to a growing population

“Our main focus is to make power and water available,” Borkar began. However, that mission has become increasingly difficult because “the power demand and water demand has grown… exponentially” in Qatar to support population growth and “changing lifestyle and life expectancy.”

An additional challenge is that the plant is configured to maximize flexibility in water availability and reliability. “Any HRSGs (heat recovery steam generator) or any GTs (gas turbines) in service, we can always produce the water,” Borkar explained, but “it is very tough to optimize the performance of the plant… as it is integrated so much.”

The desert climate exacerbates these challenges. “Every day, our load fluctuation is more than 45%, and during the summer, our weather conditions are adverse…. the relative humidity goes to more than 90% at very high temperatures,” Borkar said. “To support this business environment and to operate the plant in the most efficient way, I require the data.”

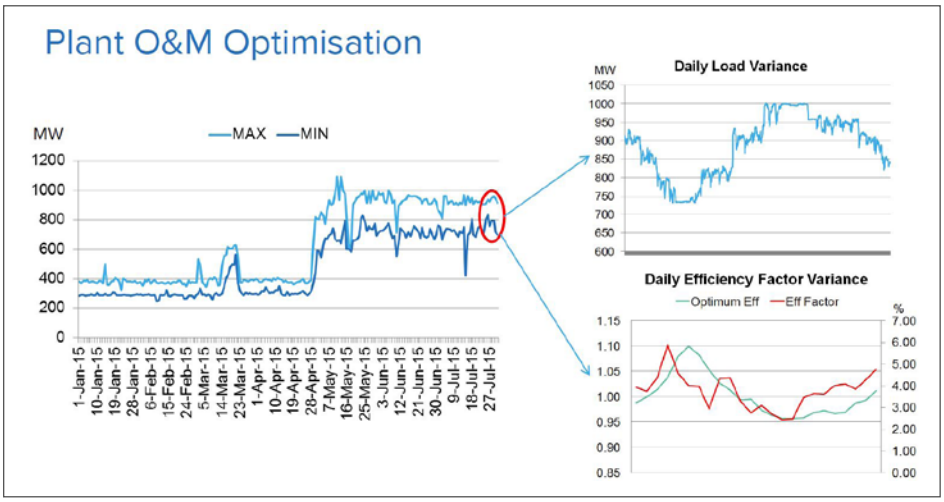
Optimizing O&M through the PI System

The PI System has provided that data. Borkar showed a snapshot of gas turbine “cycle efficiency, compressor efficiency, operator efficiency, the inlet and outlet conditions along with the environment monitoring.” Because the plant has “three gas turbines which are identical, [there is] a great advantage to monitor the performance of [all] three. With these PI ProcessBook reports, real-time reports can be generated, which can be compared with the other gas turbines.”

Borkar and his team review these reports every morning to optimize the plant processes. “Our O&M meetings start with energy inefficiency,” he explained. “We discuss plant efficiency, loading, equipment efficiency, seawater consumption, and any other related parameters. If we have any deviation, we are required to take some actions. We discuss early in the morning so we can make decisions during the day time.”

ROI through Reduced Seawater & Fuel Consumption

As it has optimized O&M, Qatar Power has reduced its consumption of fuel and seawater which are "the main resources that we are using for power and water generation." Because water is scarce in the region, seawater must be purchased and represents a substantial overhead for the company, which uses "almost 90,000 cubic meters per hour." Through the PI System, "seawater **margins have been improved by $1.3 million (USD) in the last two years**." In addition, Qatar Power has "**improve[d] the fuel efficiency factor by almost 0.98%... which has result[ed] in $1.4 million (USD) per year**." These reductions in fuel and seawater consumption equate to a strong ROI. "I spent almost $300,000 for the PI System, and within a short span of time, I recovered the money," Borkar said.



Improved Worker Safety & HSE Compliance

In addition to O&M efficiency and ROI, Qatar Power has improved worker safety in conditions of high heat and humidity. "Initially, it was very difficult to monitor this heat index [because] we were using the conventional method," Borkar said. Now, Qatar Power uses Asset Framework "to calculate the heat stress" and Notifications for heat-stress index "categories of yellow, brown, and red," "In the last three years, we did not have a heat stress related incident, even with the high humidity and the extreme working condition within Qatar, which helped us to achieve **4.2 million man hours in 3,452 days without LTA (lost time accidents)**."

The Future for the PI System at Qatar Power

Borkar concluded by summarizing the multi-faceted benefits of real-time data and analysis. "This is the business impact after the implementation of the PI System. We could really improve our HSE performance. We improved our availability and reliability…. We improved the fuel efficiency. Also, we reduced the seawater consumption, which has improved our seawater margin…" In the future, as the company and the region strive to provide reliable energy and water amid increasingly stringent global environmental initiatives, Qatar Power plans "to cover Event Frames" and "to develop the displays in the [new PI] Coresight[1]... work that will help us to create value for the stakeholders."

At Qatar Power, we are using this PI System not only for operations, but for maintenance and for the well-being of people who are working in extreme conditions.

– Parasram Borkar
Sr Engineer – Commercial & Performance

[1] PI Coresight was renamed to PI Vision in 2017

Borkar, Parshu. *Optimisation of O&M Efficiency at Qatar Power using the PI System*. OSIsoft.com. 13 Oct. 2015. Web. 11 January 2016. <http://www.osisoft.com/Templates/item-abstract.aspx?id=12817>.