

# *energetica*

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# High-Power Modules Set New Benchmark for Large Scale Applications **Trina**solar







**Henri van Bortel**

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## Powering the Future by Building on Today's Solutions

***Determining the right format for power generation is only the beginning of a power plant's journey. Once the plant starts its commercial operation, how the power generation assets are managed is critical to its overall performance and profitability.***

**In the energy sector, performance and profitability can be affected significantly by how power plants are operated and maintained.**

For utilities, the decision to establish a new power plant is not made lightly. It is a major investment for the future, but deciding to build a plant and determining what form that plant should take has to be made based on the currently available technology. In these circumstances, the ability of the technology provider to offer customisable solutions that can be adapted as the market changes is critical as customers seek to future-proof their investments.

Finding the right long-term solution for a power plant customer begins with gaining a detailed understanding of the customer's particular situation and needs.

It starts with an investigation – what type of power generation does the customer want? What is applicable for the country or region? What offtake models are valid in that country? A customer may want 24/7 power generation, or they may only want to run power plants at peak hours or during emergencies. Once it has been investigated what model the customer is looking for and what they really need, then there is a need to co-develop a concept that serves the customer's needs.

### **Preparing for a Renewable Future**

This investigative process also offers the opportunity for providers and customers to have a discussion about transitioning towards sustainable energy options that include wind and solar energy, coupled with battery storage and flexible gas engines.



Converting dual-fuel combustion engines to a fully natural-gas powered operation is one way to reduce nitrogen dioxide (NoX) and sulphur dioxide (SoX) emissions and is a critical step in the transition to a carbon-neutral future.

One might argue that if you are running engines, then you are burning fossil fuels. But what is being developed as we speak are synthetic renewable fuels that will be available for use in the engines in the future. Choosing an engine now that can be adapted to these new fuels is a way to future-proof your investment.

Wärtsilä is currently developing a flexible gas plant in Australia that combines renewable resources with its engines.

The engines herein only run when the renewables are not sufficient to meet the demand of power. It's thus an interesting situation because this plant is next to an existing coal-fired



plant that is currently being demolished. So, one can see the old generation being put to sleep while the new generation is being built.

## **Ability to Adapt and Customise**

Determining the right format for power generation is only the beginning of a power plant's journey. Once the plant starts its commercial operation, how the power generation assets are managed is critical to its overall performance and profitability.

Traditionally, plant maintenance was being carried out according to a manual that dictated that after X number of running hours, you should do this and that. However, Expertise Centres which are digitally connected to power plants can also operate or maintain them, in fact in better way, as compared to traditionally.

These centres gather data from each power plant, allowing engineers to identify issues that require maintenance and take proactive steps, rather than reacting to a problem after it occurs or conducting unnecessary maintenance activities. In case operational support is needed, it can be provided remotely from the centres. In 2018, nearly 70 per cent of the operational support cases received by our Expertise Centres were solved remotely and over 50 per cent were resolved that same day.

From the information gathered from the plant and the engines,

we can see whether we perhaps have to work on some engines now, and the others we can postpone for maybe 1,000 or 2,000 running hours. These high-tech centres, which involve asset diagnostics, maintenance management, and operational support, are part of why customers performance guarantees can be confidently offered.

There are efficiency guarantees, consumption guarantees – anything that involves a substantial cost or revenue for our customer. For example, you have availability guarantees – wherein it could be said that a plant is available 96 per cent of the time — which of course has a big impact on the financials compared to it being 90 per cent available.

Data shows that the average annual availability for gas engine power plants operated by company is 96.7 per cent and average annual reliability is 99.1 per cent.

## **Adapting to a Customer's Needs**

This kind of maintenance and operational support is often critical when a new facility starts its commercial operation.

Sometimes customers do not have a lot of experience, so they run a risk of managing the plants themselves. While, others have faith on solution providers that they can run their plant more efficiently than anyone else. These solution providers can adapt and customise service agreement for power plants as the situation evolves.