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Electrical India

India's oldest magazine on power and electrical products industry



Smart Metering Technology Promotes Energy Efficiency


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Energy Management with
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Energy & Environmental
Protection towards
sustainable Development



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India's first large capacity
new series Turbo Generator

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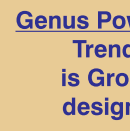


GE launches Power Plant:
technology integrates use of
Wind, Solar and Natural gas

Aspen Technology
AspenTech is the only
dedicated software company
for process industries
Mark Gallant



Rajya Vidyut Utpadan Nigam
RVUN is concentrating on
three ongoing projects of
aggregate 1860 MW capacity
P N Singhal



Genus Power Infrastructures
Trend which we foresee
is Group Metering and is
designed to help utilities
Jitendra K Agarwal



‘AspenTech is the only dedicated software company for process industries’



AspenTech's
Power industry
customers use
our advanced
optimization
solutions

Mark Gallant
Director, Industry Marketing-Power Industry
Aspen Technology

AspenTech is a supplier of software that optimizes process manufacturing – for energy, chemicals, pharmaceuticals, engineering and construction, and other industries that manufacture and produce products from a chemical process. AspenTech solutions bring together a combination of industry leading technology with cross-industry best practices to allow companies and owner/operators to achieve their business objectives. In an online interview with **Electrical India**, **Mark Gallant** shares his views that reducing energy intensity for a process plant saves direct energy costs and reduces GHG, but may allow the process plant to continue operating when energy supply is extremely tight instead of having to shut down.

Interview

EI In changing scenario of global economies, the demand for energy continues to grow. With your vast and variety experience in the process and power industry; what pragmatic solutions do you envisage for optimizing operations of process industries?

Increased energy efficiency is a strong global movement that we see. Right from initial plant designs, energy optimization is now part of global best-practices in engineering. Every solution within AspenTech's engineering suite support that goal. Today's newest plants operate at an efficiency level way above what was previously attainable. With existing assets, today's technology offers optimization solutions that were not available when many process and power plants were originally designed. Adding optimization solutions to existing units not only drives immediate efficiency benefits, but can typically be accomplish with minimal to no interruptions. Those companies and regions that seize these opportunities certainly increase their competitiveness in the global marketplace, but also insure sustainability.

EI How would you evaluate nuclear power generation in wake of the recent shutdown of nuclear plants in Japan as a measure to circumvent the disaster that took place there? How it has impacted power industry and energy development globally?

While the industry impact of the nuclear power plant crisis continues to unfold, nuclear power has been and will continue to be a part of the global power supply. Even if desired, generation capacity replacement will take time. That said; it is clear that the tragedy in Japan has certainly changed the risk/benefit/cost equation for nuclear plants. This has resulted in new Nuclear Plant Projects around the globe being cancelled, which we read in the news regularly. Many of those projects were marginally viable before the crisis, and with today's

risk/benefit equation, they just no longer were financially viable. Replacing that capacity with other sources will take time. Because most nuclear plants are considered for dispatch as 'base-load' units, many generation companies have turned back to large coal or thermal units. Many of our customers have reported a renewed interest in

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carbon capture and sequestration (CCS) projects, it can be costly but one that offers a cleaner solution against fossil fuel generation sources.

EI Would you suggest focusing on alternative sources of power in view of nuclear installation's safety concerns amid dwindling preference for nuclear energy?

Every state, country and region needs to have a balanced portfolio of generation types to insure a predictable and reliable source of energy. A variety of generation sources balances a myriad series of risks and insures stability. Each type is subject to supply and price variability. We have seen extended droughts impacting hydro in South America, natural gas price swings in the US, wind variability in the US and in Spain – these have all impacted

power generation balance. While nuclear was always thought to be one of the most reliable, stable and predictable energy sources, those conventions are being questioned today. Given regional and geographic resource availability and costs, the portfolio will certainly be different in every region though, so I strongly advocate a balanced portfolio. India's very high reliance on coal units today needs to be assessed.

EI Do you see a renewed focus on green technology? In what manner a green management may help an organization ameliorate its desired objectives? Would the green concept drive optimization of power plant operations to a greater extent?

Our customers have reported not just sustainable and public relations benefits from 'going green,' but clear financial and business benefits. For example, reducing energy intensity for a process plant saves direct energy costs and reduces GHG, but may allow the process plant to continue operating when energy supply is extremely tight instead of having to shut down. We see this in some areas of Japan today. The same can be said for some regions of India for some time already. Supported by political mandates and/or subsidies, the value proposition for 'green' power generation is also changing. Dirtier plants are being replaced by newer, highly efficient, clean plants. Other plants are receiving substantial retrofits, based on these new economics.

EI Recently there had been expanding focus on Aspen Tech's presence in the Middle East. What tools would you suggest for energy management in India since the cost of power is increasing and demand for more power plants is becoming a necessity?

AspenTech is the only dedicated software company for process industries that offers energy optimization solutions for Design, Plant

Interview

Operation and Control, and for Supply Chain Planning and Fleet Optimization. These solutions help our customers around the globe design the most efficient plants, operate and control them to the highest levels, as well as insure optimal planning for energy efficiency. It is simply a fact that many industries and geographies are at different levels of technological sophistication today. AspenTech's focus on the inclusion of 'cross-industry-best-practices' throughout our solution suites, provides customers with achievable optimization, not just a goal. Given India's appetite for power and growth forecasts, quickly integrating energy optimization is not just a desire, but quickly becoming mandatory.

EI Would you elucidate upon advanced process control applications and integrated solutions and technology suitable to Indian power sector as power infrastructure too is aging?

Advanced Process Control (APC) is a technology that is simply a 'must have' in many industries today. For example, no one would build a chemical plant or refinery without it today. While this technology is proven and certainly considered mature, in the power industry it is an emerging trend. We first observed that industrial power (captive power) plants first adopted this technology well over 10 years ago, but merchant power plants previously did not see the value or need. In travelling the world and speaking with owner operators of industrial power and merchant power generators, two primary reasons for this are clear. The first is that in industrial power generation, the complexity and therefore the value of optimization is much higher. Industrial power often employ many boilers burning a variety of fuels, with often many primary and step-down steam turbines, with a variety of steam loads – high, medium and low pressures. Add in high

variability from production and batch processes, and the number of variables becomes simply too great for an operator and even an advanced DCS system to optimize. Merchant power plants that employ a single boiler/turbine combination, that operate in a steady state can be served very well by DCS systems. With today's complex new plants, with all the new environmental controls, they are looking much more like chemical plants today. Add in the fact that many are now cycling and not just run in steady state, and the need and ROI for APC is now there.

The second reason we have seen industrial power generators adopt APC much quicker is their access to trained APC engineers right within the companies own plant complex. With access to these resources, a previously significant barrier to entry was removed. Add in the desire of these control engineers to improve their production processes by improving the consistency and reduce the variability of the steam headers, and they have driven APC into many industrial power units. Other significant benefits are being realized from 50-70% improvement in steam control to energy savings of 3-15%, but also a dramatic drop in operator demands. Some installations have reported a drop of over 73% in DCS set point changes, enabling previously overloaded operators to focus on improving the overall plants efficiency. In some geographies, this benefit alone has driven quicker adoption, as they struggle with an aging and retiring operations staff. In other regions where they just can't find or train enough operators, these 'auto-pilot' systems insure a higher level of performance across shifts. Reliability and availability improvements are also being reported, as the regular and normal plant disturbances are handled automatically, long before a trip condition becomes present. The older the facility (as long as it has the basic digital controls required) the greater the potential

benefits can be. Today, many units are experiencing cycling and grid variability outside of the normal operating envelope that they were not originally designed for. APC can improve the control of these units in many of those situations also.

For all these reasons, at the recent PowerGen India conference in Delhi, we observed extremely high interest in APC optimization solutions for both new, and of course aging units.

EI What will be Aspen Tech's role in optimizing power plants to maximize profit, for Indian power industry; for energy efficiency measures vis-à-vis reducing cost and increasing capacity addition?

Today's power generation fleets are simply getting much more complex. Not just in the variety of generating types, but also in their management and optimization. Wind and solar, which are renewable energy sources, while highly desirable, are often non-patched and intermittent in nature. The resulting grid intermittency is just one additional complexity to deal with. As the fleet expands, with different constraints like startup and cycling, fuel costs and now emissions regulations and permit constraints - fleet optimization is at a level of complexity never seen before. With the exponentially increased number of variables to consider, traditional optimization techniques deliver sub-optimal results, limited simulation and 'what-if' modeling. Starting up a unit too early will result in wasted fuel, too late and you not only lose revenue, but could drive a negative reserve and penalties. AspenTech's Power industry customers use our advanced optimization solutions to optimize fleets of over 230 units, generating 45,000 Mw of power. In summary, the greater the complexity, the more likely you are running below optimal performance. Those that can seize the opportunities will be the ones to drive the greatest returns. ■