

## Assessing the Effects of Recent Consolidations in the Energy Business

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Various mergers and acquisitions have been occurring recently in the power and energy equipment manufacturing sector. The three major OEMs (GE, Siemens and MHI) have engaged in acquisitions that may eventually elevate their overall competitiveness as they pursue complex new market opportunities, such as fracking and others.

The motivation for the acquisitions seems to be aimed at quickly accessing products, technologies, and services that overcome gaps or limitations in their existing portfolios. For example, MHI and Siemens have acquired the aeroderivative engine business of Pratt & Whitney, and Rolls Royce, respectively. By adding the lighter aeroderivative engine capability, MHI and Siemens seem to have strengthened their capability to compete more effectively for off-shore Oil & Gas platform market opportunities.

Another significant benefit from the acquisitions is the ability to quickly meld proven design concepts, proven manufacturing experience, etc, into their existing design and manufacturing practices, thereby advancing their respective product innovation capability substantially. Also, the long development time, cost and effort that is typically associated with new design concept validation from scratch, is reduced significantly. Therefore, it is generally easier

to achieve market acceptance faster, as a result of the fewer risks associated with the new product introduction.

The market barrier may be greater in the case of other GT developers that largely rely on their own in-house resources (or co-development) for new product developments.

Future competition may take on a greater “cradle-to-grave” scope, that would maximize the various different equipment capabilities, and service support holistically under “one umbrella”. Such an approach would be effective for maximizing the overall system considerations such as performance, reliability and life cycle cost capability, and profitability. e.g. IGCC, waste heat utilization, off-shore wind farms, CSP, etc.

The future demand for distributed energy is anticipated to grow globally. Consequently, the demand for small gas turbines will continue to be strong. Likewise, the need for better waste heat recovery utilization will continue to spur demand for Organic Rankine cycle, and other new technologies such as Supercritical CO<sub>2</sub> that are able to harvest waste energy efficiently. The potential attraction for displacing water with sCO<sub>2</sub> as a working fluid, may actually be more attractive in locations where water may be associated with cost and availability issues.