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MANUFACTURERS GET SMARTER TO MEET SUSTAINABILITY GOALS

Interview with Matt Holland, Vice President and Chief Commercial Officer, Manufacturing and Digital Plant, GE Vernova

Matt, what are you hearing from companies about sustainability? What's changing?

Our customers are facing skyrocketing energy prices that are driving unfavourability in their operating budgets as well as their sustainability agendas. In some markets, this is to the point that business viability is in jeopardy.

Furthermore, regulations are forcing industrial companies to act quickly to comply with new environmental rules.

More than ever, manufacturers need to understand the tradeoffs and synergies inherent in their decisions, especially when adding sustainability factors to existing performance metrics. They need to understand their products' carbon intensity to meet climate commitments and carbon goals. The ability to attribute energy usage directly to products is a prerequisite for these calculations.

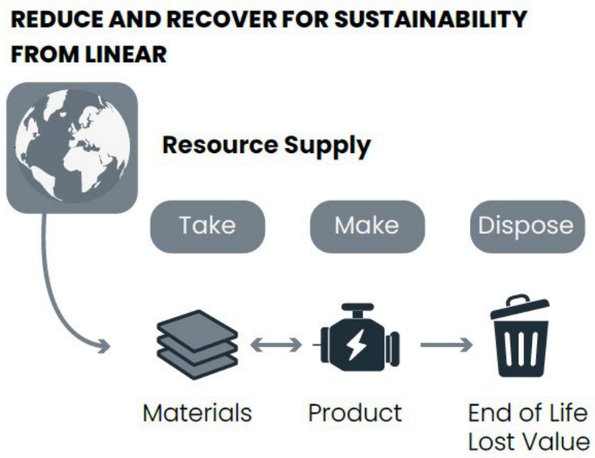
How is GE Vernova helping to address these challenges?

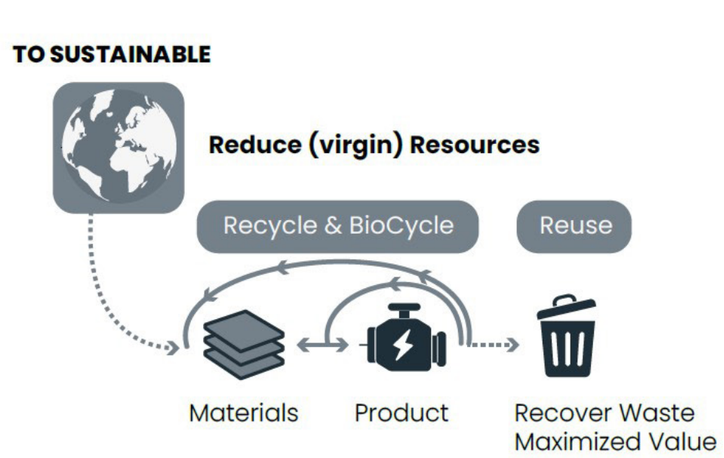
To remain competitive, build resilience, and lower risk, manufacturers need software that provides more granular energy and utilities data, greater visibility, and insights they can act upon.

Software solutions are smart enablers for industrial companies on a digital transformation and lean sustainability journey. Building on our interviews and customer successes, we focus sustainability innovation efforts on three key problems worth solving:

- **Measure use:** To deliver sustainable industrial systems, a holistic set of data is required to build the right metrics/KPIs to drive action. This extends beyond traditional production metrics to include the social, environmental, and economic impact of each resource used.
- **Use less:** There is a pressing need to reduce resource consumption (materials, energy, and utilities) to achieve sustainability goals and meet regulatory requirements. This requires the ability to measure, reduce, and optimize usage at the process, equipment, and product level.

- **Track and Trace:** A major challenge is understanding the history of each product, part, and material. The majority of those interviewed seek to track and trace their raw materials, products, and components to understand their condition, quality, performance, composition, and history (e.g., recycled content). This will inform their operational strategies for reuse, recycling, as well as strategies for product differentiation. This is a foundational component for the "Digital Product Passport."





What are the steps that you recommend to customers?

First, our strategic workouts with customers are critical to guide steps that deliver the most value to meet individual sustainability goals. As general steps, we recommend:

1. Begin to operationalize your energy transition and decarbonization strategies by putting the right data in the hands of employees whose daily actions influence the energy you consume.

2. Lay the groundwork for easy product carbon intensity calculations for all your SKUs and prepare for future operational carbon management requirements.

3. Lower conversion costs of making your products and the variable industrial costs (VIC) of running your factories - whether you have one or a hundred - while making your business quantifiably more sustainable by improving efficiency, absolute consumption, and waste of energy and water.

4. Start small and test then deploy across the enterprise. Our software including analytics and optimization runs in the cloud for exceptional availability and scalability no matter the organization's size.

Can you give us some examples?

Absolutely, here are just a few:

- Skjern Paper partners with Novotek, and they use our Proficy CSense analytics software to improve product quality and reduce waste. In fact, analyst firm IDC recognized Skjern Paper for its use of industrial analytics to improve quality and support its commitment to sustainability.
- For background, paper plants have hundreds of PID control loops that can cause process variation and contribute to quality issues and waste, if not maintained in a healthy condition. At the same time, while Skjern Paper has extensive quality assurance systems, the team did not have many real-time ways to measure paper quality, making real-time quality control difficult. Operators would check quality samples for a whole reel of paper at the end of a production run, which involved a delayed lab analysis and the inability to adjust production earlier in the process.
- With a goal of avoiding or reducing 5% of quality rejects, especially when switching between different products, Erik Møller, technical manager at Skjern Paper, took advantage of free consulting with a GE Vernova AI and ML expert to jump start the analytics project. After just six hours of consulting, Skjern Paper was able to gain insights and take the project to the next steps. "Decreasing scrap and chemical usage and increasing production capacity through CSense are all ways that we are helping the environment," Møller explained.

- A major automotive manufacturer reduced inspection costs by 40%, experienced a 20% improvement in equipment utilization, a 30% reduction in inventory, and 80% reduction in required storage space with GE Vernova's CIMPLICITY HMI/SCADA and Proficy Smart Factory MES manufacturing software. Paper process elimination enabled accurate and meaningful data for decision making, as well as the sharing of data with value chain partners.

Any final thoughts?

Digital transformation is a critical part of the journey to sustainability. We can develop smart factories that support sustainability goals by modernizing our technology infrastructure – connecting OT systems, collecting data, gaining visibility for action, and optimizing operations.

In combination with a lean culture, smart factory technology reduces waste, energy usage, chemical usage, and more.

You aren't on this journey alone. GE Vernova can help with the full breadth of our proven sustainability solutions, our ability to deliver on key metrics, and our vast experience with our own manufacturing as well as co-innovation partnerships with industrial organizations around the world.

One of the world's largest glass container manufacturers improved quality, safety, and efficiency by adopting GE Vernova's software. The company has helped protect the environment by significantly lowering energy needs and reducing furnace emissions by 80%. Optimizing production also reduced defects by 25%, downtime by 25%, and annual operations costs.

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GE Vernova's Proficy® Software & Services empowers teams, illuminating the path to a greener, more profitable future. Our proven industrial software accelerates innovation, enables connected workers, and operationalizes sustainability. We're driving measurable progress for over 20,000 diverse customers around the world. The Proficy portfolio includes cloud-based and on-prem HMI/SCADA, MES, industrial data management, and analytics. Our software solves the toughest industrial challenges and is used in applications such as discrete, hybrid, and continuous manufacturing; utilities automation; metro transit; and much more. Proficy offers architecture flexibility including single machines, remote substations, and complex, distributed networks that span multiple factories and geographies.

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