OVERVIEW

Sometimes called “the whitest white,” titanium dioxide (TiO₂) is a pigment that dramatically enhances the color capabilities of paint, plastics, and paper.

Titanium dioxide’s value in manufacturing is immeasurable, but the process for making it is very sophisticated and energy intensive, impacting its production cost and leaving a carbon footprint.

As the world’s largest manufacturer of titanium dioxide and one of the world’s most conscientious companies, DuPont consistently seeks innovative methods of reducing its environmental footprint. So in November 1999, the company’s Titanium Technologies business initiated a comprehensive program to significantly reduce energy usage while increasing TiO₂ production. Strong leadership commitment and focus, plus an integrated management approach were key to Titanium Technologies success.

By 2010, the division had increased production by 72 percent over 1990 levels while decreasing energy usage by unit of output by 40 percent.

BACKGROUND: DUPONT AND SUSTAINABILITY

Initiatives like that of the Titanium Technologies business are not at all uncommon at DuPont. The company was one of the first to publicly establish environmental goals, initially around the reduction of emissions to the environment.

Since 2000, when the company adopted “sustainable growth” as its mission, DuPont has been committed to creating shareholder and societal value while reducing its environmental footprint along the value chains in which it operates.

The company’s sustainability commitment emerged from its four core values – respect for people, safety, highest ethical behavior, and environmental stewardship. These values are now integrated into all of the company’s business strategies, functions, and processes, and they even shape and inform DuPont’s product offerings.

Today, DuPont’s sustainability commitments go far beyond footprint reduction to include market-driven targets for both revenue and research and development investment. Titanium Technologies is just one example among the many DuPont businesses that are focused on creating sustainable growth.

HOW THEY DID IT

Organizational Integration at the Corporate Level

DuPont employs an integrated management approach that links the company’s core values to its business strategies, functions and processes, and into every decision that every employee makes every day. The integration starts at the top of the organization and filters throughout, ensuring that all employees are consistently aiming at the same sustainability targets.
Beyond strong leadership and a focused company strategy, achievement of the goal to reduce energy consumption was encouraged, diffused and enacted in several ways.

First, goal setting involved a broad spectrum of representatives from key business team members (operations, business, supply chain, etc.) throughout the company. This was an effective way to create buy-in for the energy use strategies for Titanium Technologies.

Second, while accountability for attaining individual goals was left largely up to the business units, their progress was tracked corporately through a database that captures environmental performance (such as waste, GHG emissions, and energy) annually from global facilities. The database tracks future reductions or increases in alignment with business plans and corporate objectives.

Third, Corporate Sustainable Growth Reviews provided an opportunity to discuss challenges and opportunities within specific business units, including Titanium Technologies. In these reviews, experts from the corporate sustainable growth team meet with business leaders annually to review key performance indicators for safety, health, environment and sustainability in relation to business and corporate commitments and goals.

The discussions focus on how these goals and indicators are integrated into their business plans and strategies, especially in regard to future growth plans and opportunities. The sustainability review discussions are also well integrated into the corporate Capital Planning Process.

By setting a divisional business goal to reduce energy intensity by 3% year-over-year, Titanium Technologies has been able to lower the energy intensity by 40% compared to 1990 levels.

“You need the tension of a very challenging goal to create maximum benefits,” says Craig Heinrich, who served as energy leader for the Titanium Technologies unit’s latest energy-reduction effort.

“Inspirational goals drive an organization to surpass conventional boundaries. An easy goal fails to challenge the creative potential of the organization. Tough goals are built on the premise that real potential is beyond our ability to envision.”

Heinrich’s advice for any company undertaking an energy-reduction program? “Get passionate people engaged and challenge them to do something really extraordinary. People need a vision beyond what they can perceive, and they need leadership to keep them excited about what they can achieve.”

- Craig Heinrich
DTT Energy Leader

ENERGY CHAMPIONS IN ACTION

As part of its integrated management strategy, the company has formed a number of “centers of competency” including one for energy.

The Energy Center of Competency is a network that sponsors technology development and enables communication between energy experts throughout the company. Its goal is to identify, understand and implement best practices across all DuPont plants and facilities.

In DTT, the Energy Center of Competency was an effective forum for DTT to share key learnings, to gain insight into new technologies and to learn from other energy leaders in DuPont. It is an effective resource that helps assure that energy projects receive appropriate priority.
Armed with information from the Energy Center of Competency, the Titanium Technologies unit deployed site teams with the mission of decreasing manufacturing costs by reducing energy consumption.

The Titanium Technologies business team developed a Sustainability Screening process to identify the energy and environmental impacts of every capital project. The team provides management with comprehensive information to evaluate the energy use impact on new projects. The screening process also challenges project teams to develop energy- and footprint-reducing alternatives of all capital projects, when appropriate.

**GUIDELINES FOR ONGOING ENERGY EFFICIENCY SUCCESS**

Such improvement in energy efficiency was accomplished through the efforts of the Titanium Technologies energy champion and site energy teams, who understood and embraced the importance of the need to continuously communicate and network. Through their experience, the following factors have been identified as keys to ongoing energy efficiency success:

1. Demonstrate ongoing Business Team support for the program through their interactions with site leadership.
2. Utilize Six Sigma or other improvement resources and know-how to implement, maintain, and leverage improvement projects as appropriate.
3. Leverage site and business unit resources in the process to broaden development of core competencies.
4. Define and staff champion and change agent roles for the sites.
5. Drive alignment between Operations, R&D, Process/Product development and capital planning process around energy reduction strategies.
6. Utilize IT to enhance compliance monitoring, record keeping, training, etc

For more information on DuPont Sustainable Solutions and its world-class consulting services, call us today at 1-800-532-SAFE (7233) or visit us at www.sustainablesolutions.dupont.com