Environmental Management

Governance and Oversight

Celanese is committed to protecting the environment. This commitment is formalized through our public Environmental, Health and Safety Policy and Guiding Principles, which are overseen by the Environmental, Health, Safety, Quality and Public Policy Committee of the board of directors. Stewardship (environmental, health, safety, and process safety) performance data is shared with the Committee on a regular basis.

As our EHS Policy and Guiding Principles state, we are committed to developing and executing environmental stewardship programs and management systems that will help us to achieve world-class efficiencies in energy, waste management, air emissions, and water use, to ultimately reduce our overall environmental impact. Furthermore, through our EHS Policy and Guiding Principles, Celanese supports the chemical industry’s international Responsible Care® program. Responsible Care® is the chemical industry’s unique global initiative that drives continual improvement in health, safety and environmental (HSE) performance, together with open and transparent communication with stakeholders.

At an operating level, environmental responsibility is embedded in our operations, from the top-down, and through the bottom-up:

- We have established a dedicated Stewardship Steering Committee, comprised of senior individuals who have responsibility to deliver on our environmental, health, occupational safety, and process safety goals. Our Director of Environment, who sits on the Stewardship Steering Committee and oversees all global environmental programs and management systems, reports to the Celanese Senior Director of Stewardship, who reports to our VP of Global Manufacturing, who reports to the CEO.
- We have established a global Environmental Health and Safety and Process Safety management system.
- There are on-site professionals responsible for environmental management at Celanese manufacturing facilities. These individuals report to the site directors who also report up to the VP of Global Manufacturing, who reports to the CEO.

Specific responsibilities of employees working in our central Environment function, and throughout all manufacturing operations, include:

- Overseeing ongoing communication around and appropriate training on Celanese environmental management systems.
- Aggregating and maintaining environmental performance records, both to ensure ongoing compliance with all relevant regulations and to drive continual improvement in operational efficiencies to reduce environmental impact.
- Overseeing regular assessment and internal audit of environmental management systems and related processes and programs.

Celanese Corporation
December 2018
• Regular reporting on environmental issues – Celanese has made public disclosures on energy, GHG emissions, VOC, and waste performance since 2007.
• Engaging with critical stakeholders on environmental issues as we strive to deliver continual improvement towards our goal of world-class environmental efficiencies.

Emissions and Waste Management
For over a decade, we have been focused on delivering improvements in the most critical areas of environmental responsibility associated with manufacturing operations. We have identified those to be:

• Environmental releases
• Cutting energy use, and associated greenhouse gas emissions
• Cutting VOC emissions
• Cutting waste

Celanese has committed to reducing energy intensity by 15 percent by 2020 using 2013 as a baseline as well as the corresponding associated GHG reduction over this timeframe. This is an aggressive target as Celanese already had a strong history of energy management and reduction.

As a result of our investments in these areas and effective management systems, we have been able to deliver significant performance improvements (details can be found by clicking the link below):


• Energy intensity reductions since 2010 = 19%; past 5 years = 14%
  o Energy savings have driven GHG intensity reductions since 2010 = 32%; past 5 years = 28%
  o With more than 180 energy-related projects, we realized $17 million in sustainable energy cost savings in 2018
• VOC intensity reductions since 2010 = 44%; past 5 years = 31%
• Waste intensity reductions since 2010 = 41%; past 5 years = 33%

Energy
Cutting energy consumption, and associated greenhouse gas emissions, is a priority for Celanese. To support these efforts and ensure we deliver effective programs to drive ongoing efficiencies, Celanese has established a dedicated global energy council. The council oversees and coordinates efforts to:

• reduce energy and associated GHG emissions across the enterprise through our energy program;
• share best practices and lessons learned.

In 2018, Celanese further improved and built on its energy program, expanding scope to new sites and areas of the company and continuing to deliver energy intensity reductions and energy cost savings. The program increased ENERGY STAR partnership participation, applied a continuous improvement mindset by completing a detailed energy management assessment program across 12 sites (more than 30% of Celanese wholly owned sites), and grew employee engagement and communications initiatives.

Celanese Corporation
December 2018
As a result of these efforts, Celanese secured the following external recognition:

- The US EPA recognized Celanese with the 2018 ENERGY STAR Partner of the Year, Sustained Excellence for superior energy management
- In 2018, Bay City, USA and Frankfurt, Germany POM plants celebrated receiving the ENERGY STAR Challenge for Industry objective
- German plants were re-certified for ISO50001
- The American Chemistry Council (Exceptional Merit) and Department of Energy Better Plants Program recognized Celanese with project awards for the Energy Management Assessment Matrix.

**Waste**

Celanese manufacturing facilities are continuously seeking opportunities to minimize, reduce, reuse and recycle wastes, helping to increase productivity and reduce environmental impacts.

The Celanese waste management system is facility and country specific based on the type of manufacturing operation and local environmental regulations. Facility systems contain elements required by local waste regulations and our internal procedures. For example, in the US such elements include waste classification, waste storage, transportation and disposal in accordance with USEPA and DOT regulations.

We track and report the absolute amount and solid waste intensity (hazardous and non-hazardous waste) with trends shown in our public stewardship reporting. We also track and report the total amount of waste recycled by our manufacturing facilities.

Since 2010, Celanese waste management programs have resulted in a 41% reduction in solid waste, including hazardous waste, and a 33% reduction over the past 5 years. Just over one-fifth of total waste produced is recycled.

Where waste is sent to offsite waste treatment, storage and disposal facilities (TSDFs), we assess their operations following a protocol formalized in corporate procedures. This has been a long-standing requirement in the U.S., but in 2013, we globalized the assessment requirement globally. Today, we are assessing risk for the TSDFs that support over 30 manufacturing sites globally.

**Water**

In 2018, Celanese conducted a preliminary water analysis, as part of a water conservation program, by looking at our manufacturing facilities’ water usage, risk and cost. Based on this analysis, Celanese has started to implement in-depth water audits at selected facilities with the expectation of identifying and implementing water efficiency improvements.

The vast majority of water used by Celanese is for cooling and crucially most of Celanese manufacturing facilities are located in areas that are not considered to be water-stressed. We reuse and recycle water within our operations wherever possible. Furthermore, we remain committed to ensuring the quality of water that is returned to the environment. We have made, and continue to make, investments in wastewater treatment technology at several of our major manufacturing facilities by owning and operating onsite wastewater treatment systems. We treat wastewater to meet all applicable environmental standards.

Celanese Corporation
December 2018

The water conservation program is led by the Director of Environment and the Stewardship Steering Committee, and ultimately by the Chief Operating Officer, and the Board of Directors.

**NOx and SOx**

We do not release a significant amount of NOx or SOx in our manufacturing operations, but there are some emissions associated with our utilities systems. Celanese collects and reports NOx and SOx emissions data at relevant facilities to ensure we are in compliance with relevant, local regulations. As part of our investments to expand our environmental programs, we plan to aggregate this data at a global level and report it externally as part of our annual stewardship disclosures.

**Certification**

Celanese follows a global Environmental Health and Safety management system that supports the standardization of global best practices and that applies to all Celanese wholly owned sites. The Celanese management system is based on specific ISO and Responsible Care standards and best practices observed throughout industry at peer companies. Our programs have been third-party certified at various facilities and countries worldwide.

Celanese is a leader in Responsible Care®, the global chemistry and industrial performance initiative set forth by the American Chemistry Council. Responsible Care® is instrumental in helping chemical companies implement and maintain world-class management systems that are designed to improve performance, safety and environmental metrics.

Celanese facilities are audited on a defined, risk-based schedule by trained, qualified personnel where systems are evaluated, gaps and best practices identified, and corrective actions implemented and tracked to closure. Findings and learnings are shared with the site leadership teams and stewardship steering committee to ensure we are driving continual improvement across the business.

Furthermore, 48% of Celanese manufacturing facilities and headquarters are certified to ISO-14001 standards, where those standards are considered to be most relevant to specific operations.

**Emergency Response**

In the event of a crisis, we have established company-wide emergency response and crisis management plans which define both site and corporate roles and responsibilities, functions, teams and processes, giving us the capabilities and the flexibility to respond to the most unexpected situations. These plans are ultimately guided by our EHS Policy and Guiding Principles, which clearly state our commitment to implement and escalate incident management and crisis communications processes.

Every manufacturing site has an emergency plan. And we have dedicated facility and regional emergency response teams at major manufacturing facilities. We have a global crisis communications program with a comprehensive screening mechanism to assess severity and risk, ensuring all the appropriate stakeholders are engaged.