



**Twin Rivers  
Technologies**

SUSTAINABILITY: INTEGRITY,  
DEPENDABILITY & VALUE  
2017 Corporate Sustainability Report



# ABOUT TWIN RIVERS TECHNOLOGIES

Twin Rivers Technologies (TRT) is one of the largest oleochemical producers in North America. Our hydrolysis, distillation, fractionation, crystallization, and partial and complete hydrogenation capabilities allow us to produce a product line that includes **over 80 different fatty acid and glycerin products**. We use a variety of feedstocks, including coconut oil, animal fats, soybean oil, and palm oil to create products for a variety of industries and purposes, including food, textiles, plastic, soap, and detergents. TRT's products are shipped throughout North America, South America, Asia and the European Union.

By operating with integrity and dependability, and providing superior value to our customers, we have become the supplier of choice for naturally based specialty chemicals. TRT has achieved this high level of performance through our dedicated people, our commitment to performance, and our focus on responsible and sustainable business practices. Our sustainability statement guides us in this quest.

Twin Rivers Technologies strives to be the sustainability leader within the oleochemical industry. Our business model incorporates three sustainability pillars into its values:

- **PEOPLE**
- **PLANET**
- **PERFORMANCE**

These foundational pillars serve to meet the current and future needs of our customers and stakeholders, with sustainability at the core of our business model.

## TRT History

TRT's headquarters and base of operations in North America are located at the confluence of the Fore and Town Rivers in Quincy, MA. As part of Boston Harbor, TRT's deep-water port made it a unique manufacturing site when it was developed by Proctor & Gamble in 1939. The maritime location combined with access to the national railroad transportation system through Fore River Transportation allows TRT to have a logistical advantage that not many other specialty chemical manufacturers have.

Operated as a soap and detergent facility until TRT acquired the facility in 1994, the business changed its focus to the production of fatty acids. Since its inception TRT has executed major expansions growing production volumes diversifying offerings while becoming the preferred choice for naturally based specialty fatty acids within the oleo chemical market. Expansion projects since TRT began operations have led to new opportunities in fatty acid production, glycerin refining, improved environmental compliance, energy independence and an improved sustainability model. Acquired by the Felda Corporation of Malaysia in 2007 TRT was able to vertically integrate its supply chain with the largest producer of coconut oil and palm kernel oil in Southeast Asia.

Today, TRT continues to grow the business with its independent sales force. This effort has helped to bring our products customers and provided unmatched support directly to our end users. All these initiatives have made TRT a leader in the oleo chemical market in the Western Hemisphere.





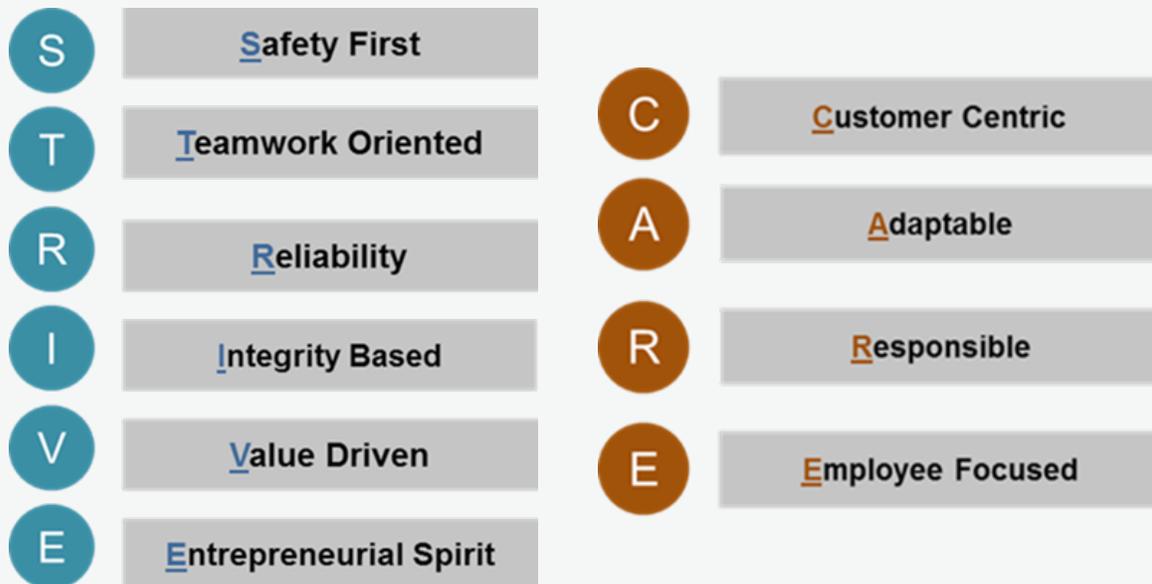
## Statement from Our CEO, Scott Chatlin

In order to be able to talk about sustainability and how our business practices support the Sustainability movement, we must first take a moment to answer the question “What is Sustainability?” According to the EPA, “sustainability is based on a simple principle: everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations.”

At Twin Rivers Technologies, sustainability is not just a part of our work; it is a guiding influence for all we do. In 2017, one of our main efforts was to renew our mission, vision and core principles. To reinforce the importance of sustainability, we needed to start with a vision and mission that aligned with that idea. In 2017, we announced that “our vision is to be the preferred choice for Naturally Based Specialty Chemicals by consistently manufacturing and delivering high quality products through a sustainable and diversified supplied chain.”

In conjunction with our vision, Twin Rivers Technologies’ mission is to deliver superior value to our stakeholders by:

- Providing uncompromising customer satisfaction by continually meeting or exceeding expectations for quality and service
- Focusing on home and personal care, food and industrial markets in line with our competencies
- Fostering an engaged culture that empowers our employees to achieve goals and provide an exceptional customer experience
- Ensuring competitive returns and viable growth to our shareholders



Through these beliefs and our initiatives, Twin Rivers strives to be a responsible and sustainable member of the global business community.

# PEOPLE

To understand Twin Rivers' performance and sustainability commitment, we must recognize the integral role of our people. Our employees, customers, and communities are invaluable assets that form a foundation for our sustainability mission, business and operational success.

## Employees

With 125 employees, Twin Rivers has a mix of both tenured, experienced employees, many with 15-20+ years with our organization, and newer employees who bring their education, experience and innovation. In 2017, TRT's average employee tenure rate was 10.6 years, with a turnover rate of 11.2%. When we do have job openings, current employees help us identify promising candidates through our employee referral program.

Because our employees tend to stay with us for a long time, TRT invests in their ongoing professional development; encourages employees to attend seminars and webinars; participates in discussions through the Associated Industries of Massachusetts (AIM); hosts human resources roundtables and a CEO Connection; and we provides sales and managerial training. Most of our management team is involved in one or all of these programs.

To keep our entire team informed of operational and business issues, we host quarterly State of the Business meetings. During these meetings, the CEO and senior management present information on Twin Rivers' performance, financials, safety, compliance, potential customers, quality, and sustainability performance. The goal: to nurture professional and personal leadership, communication, and collaboration among our employees so that they can develop and grow within our organization.



## Training

The health and safety of our employees is also extremely important to our team and our long-term success. TRT conducts training for our employees on a continuous basis. This training is focused on all aspects our business and is delivered in three ways: through our eTraining program; Management Led Training; and Outside / Contracted Training. The below list outlines some of the 2017 TRT training offerings:

### eTraining

- HAZCOM
- Lockout Tagout
- Job safety analysis
- PPE Use
- Process Safety
- Facility Security
- Process Controls
- Pumps/Valves
- Mechanical
- Electrical
- Chemical Manufacturing
- Quality Compliance (SQF/GMP)

### Management Led Training

- STRIVE/CARE Initiative
- Technical Safety
- Extreme Cold
- Evacuation
- Fire Extinguisher
- Heat Stress
- Job Safety Analysis
- Barricade/Hazard Tape
- Near Miss/Hazard Reporting
- Fork Truck Safety

### Outside/Contracted Training

- OPA 90
- DOT HazMat
- RCRA
- First Aid/CPR/BBP/AED
- Confined Space Entry/Rescue
- Method 9 Opacity Certification
- Hearing Conservation/Testing
- Emergency Resp/HAZWOPER
- FSMA
- Wastewater Tech/Operator



Beyond TRT's Safety Training Program, TRT has resources available to our employees to further their education, skills and knowledge of our business, industry and the technical skills that support both. These resources include tuition assistance; opportunities to participate in lectures, roundtables and seminars; and training systems for technical training. In 2017, TRT expanded our technical training program to include six new curriculums that give employees training opportunities in: Process Safety, Process Controls, Pumps / Motors, Electrical, Mechanical and Operations skills development. By deepening our commitment to continued development of our employees knowledge of the business, safe practices and technical skills, TRT expects to have a more effective, safe and sustainable workforce.

The TRT Safety System also includes comprehensive programs such as Safety Auditing; Incident Investigation; Management of Change; as well as Emergency Response Plans that address: spill response, evacuation and fire systems, winter and tropical storm preparation, flooding, medical emergencies, pandemic procedures and earthquake response. All these topics are communicated throughout our organization regularly and are woven into our sustainability culture. Furthermore, our team reviews our performance on a monthly basis to ensure that we continue to improve upon our safety performance.

## Fitness Program

TRT recognizes that the success of our operations is dependent on a healthy, high functioning workforce. As such, TRT is proud to support the fitness and overall well-being of our employees through the Health & Wellness Program. TRT distributes a monthly fitness bulletin that strives to educate employees on various subject matter ranging from healthy diets, blood pressure, metabolism, eye health, “fat facts”, hydration, gastrointestinal health, dental health, healthy feet, headaches, strength and resistance training, healthy holidays and more.

Approximately 75% of TRT’s employees belong to TRT’s fitness center that was recently upgraded and outfitted with all new fitness equipment to give employees a place to physically and emotionally improve themselves. At the fitness center, TRT holds a weekly fitness Boot Camp for the hardcore workout warriors. Our insurance carrier provides benefits for fitness program reimbursements allowing employees try different fitness options outside of our facility.

However, the most engaging program TRT offers is the Fitness Challenge Program. This program is held twice per year and is a 13-week, team driven program that promotes comradery, health and well-being. In 2017, over half of TRT’s employees took the opportunity to challenge themselves and their coworkers to be healthier! Each fitness challenge’s goal and tasks were different and challenging in their own way. The challenges focused on not only participant’s physical health, but mental wellness and the importance of preventative doctor’s visits. Examples of challenges include water consumption, steps goals, keeping a food log, exercise challenges (cycling, running, gym visits), healthy eating, relaxation and even a donations drive for a local charitable organization that TRT is involved with. Our most successful weight loss challenge resulted in a total loss of 439 lbs by all participants!



## Our Customers

Customer satisfaction is a top priority at Twin Rivers. Our commitment to sustainability is consistent with the sustainability commitments of our customers. Many of our customers are large global companies that have embraced the concept of environmental and social performance, and expect their suppliers to do the same. This reinforces the business value of our programs, and involves all levels of the organization in the commitment to achieve our goals.

To ensure that we are providing consistent, high-quality products and services, we offer our customers surveys that invite feedback on their experiences. These transactional surveys capture our customers’ thoughts on our responsiveness, the quality of our products, and the likelihood that they will continue partnering with us in the future.

## Our Communities

Twin Rivers Technologies is located in Quincy, Massachusetts which abuts Boston and its world class education and hi-tech communities. The surrounding towns are clearly invested in the success of our company as an employer and a responsible member of the community. We work hard to maintain meaningful relationships with all stakeholders in our local communities. TRT also actively recruits from our surrounding community schools and local colleges such as Worcester Polytechnic Institute, MIT, and the Massachusetts Maritime and U.S. Naval Academies. Sustaining our success and commitment to sustainability involves thoughtful engagement with our employees, customers, and community. Our hope is to continuously develop and deepen positive relationships that result in meaningful contributions to our community and the overall satisfaction of our employees and customers.

Most importantly, TRT partners with our local regulatory community regarding health, safety and environmental needs. We offer annual emergency response training for our local Fire Department, mutual aid companies, ambulance services, and police watch commanders. Twin Rivers is a member of the Local Emergency Planning Committee (LEPC) and a member of the Port Operators Group (POG) and both the United States Coast Guard Area Spill Response and Area Security Committees.

As part of our community outreach, TRT also participates in many community level programs. Twin Rivers remains a member of the Mayor's Economic Development Forum; works with the Quincy Parks Department for the Quincy Point Clubhouse redevelopment project that supports renovations of the park, clubhouse boathouse and ball fields both through volunteer efforts and donations; participates in fundraisers for Father Bill's Shelter, Mainspring and the Jimmy Fund. Our involvement with Father Bill's this year included a sponsorship for their Annual Food Festival and employee donations throughout the holiday season for their centers throughout Southeastern Massachusetts. During our annual employee holiday party, attendees participated in a 50/50 raffle that raised funds to be donated to Father Bill's. In 2017, TRT also partnered with Dana-Farber Cancer Institute through the Brigham and Women's Hospital Blood Mobile to have a blood drive at our Quincy, MA facility.

Sustaining our success and commitment to sustainability involves thoughtful engagement with our employees, customers, and community. Our hope is to continuously develop and deepen positive relationships that result in meaningful contributions to our community and the overall satisfaction of our employees and customers.

### ***Putting Down Roots and Growing Our Branches Within Our Communities***

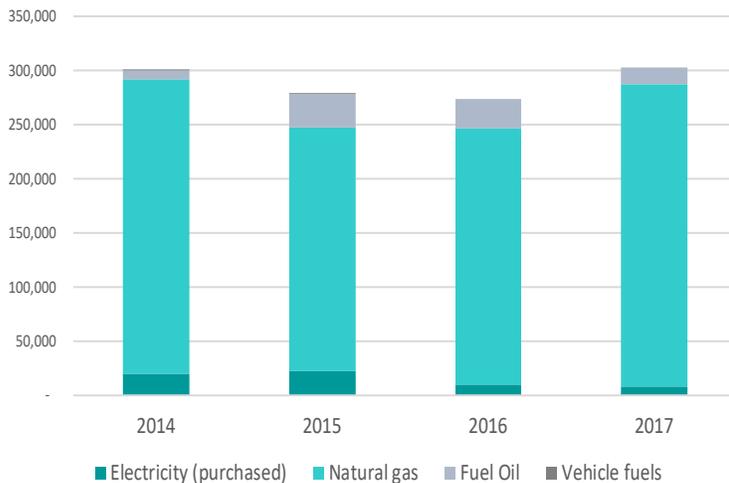
Twin Rivers continues to work within our local communities and build relationships with organizations that have the same core principles that are important to our organization. Our employees continue to work with Road to Responsibility, an organization that has been working to make lives better for adults with intellectual and developmental disabilities throughout the South Coast of Massachusetts for the past 30 years.



# PLANET

We are constantly looking for ways to reduce our operations' impacts on the environment. We do this through efforts in **energy efficiency, water conservation, responsible sourcing, and waste reduction**. Monitoring our environmental performance over time allows us to better understand our impacts on the planet and identify opportunities to improve in the future.

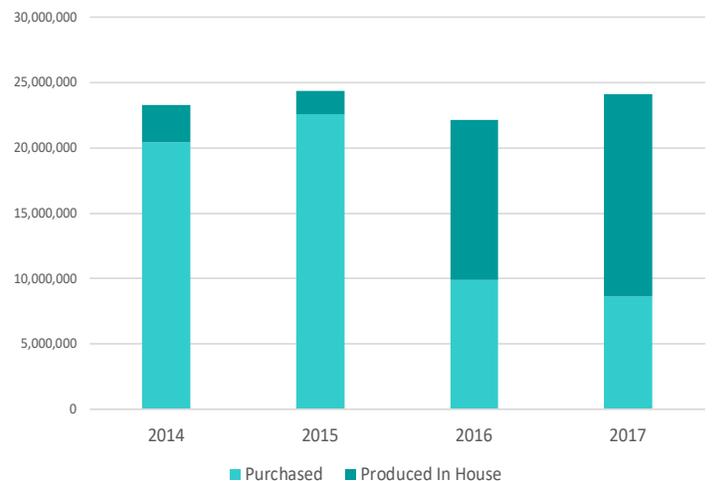
Year-on-Year Energy Use (MWh)



Since the addition of natural gas as a fuel option in 2012, TRT's primary source of fuel is comprised of natural gas but is supplemented by fuel oil when the natural gas supply chain is under stress. TRT works with our supplier to utilize fuel oil when demand for communities is high. TRT's consumption is driven by two main factors: production of product and electric production. Electric production occurs by utilizing the onsite combined heat and power (CHP) plant that was installed in 2014 and came online in 2015. In 2014, production of product was slightly lower and less natural gas was used. Startup and optimization of the CHP from 2015 to 2016, also lead to downtime reducing CHP utilization. However in 2017, the CHP plant was almost fully operational, producing its highest amount of electricity. This did required more fuel than in the previous year but secured TRT's energy supply helping to support sustained operations and energy independence.

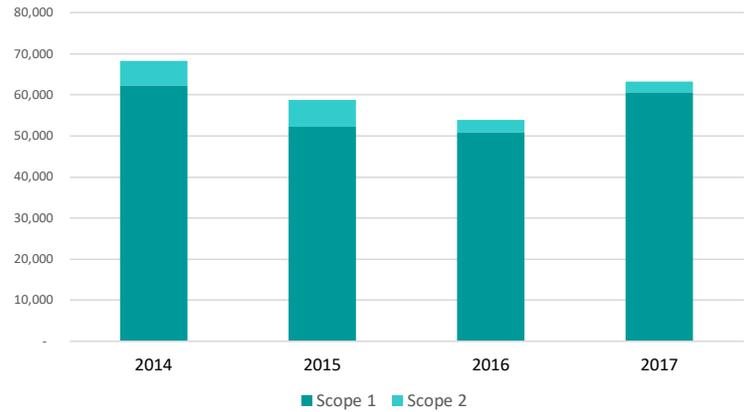
**64%**  
of our total electricity  
demand produced in-house

Electricity Consumption (kWh)



Twin Rivers tracks both Scope 1 and Scope 2 greenhouse gas emissions closely by monitoring fuel usage and overall energy consumption. Those two emissions groups totaled approximately 65,000 metric tons in 2017. The majority of these emissions are due to the combustion of fuels used on-site for steam and electrical production, with a much smaller percentage from vehicles owned and operated by Twin Rivers contributing to the overall GHG Footprint. The remainder of the emissions are Scope 2 emissions, resulting from electricity purchased by Twin Rivers to supply the remaining load the CHP system does not provide or when it is not operational.

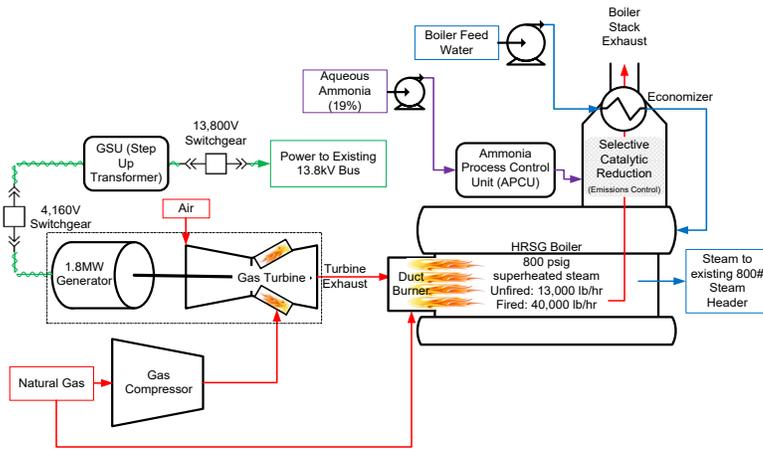
GHG Emissions by Scope (MTCO<sub>2</sub>e)



*Scope 1: Direct GHG emissions from sources owned by Twin Rivers (i.e. natural gas, vehicle fuels and refrigerants). Due to the biogenic differences between fossil fuels and biomass, the Scope 1 data is net of biogenic emissions. In 2014 and 2015 our biogenic emissions were 22 and 41,769 metric tons, respectively.*

*Scope 2: Energy indirect GHG emissions (i.e. purchased electricity, heating and cooling)*

Combined Heat and Power Plant  
Simplified Process Flow Diagram  
For Reference Only  
June 2016



### Emissions from Supply Chain

In addition to our emissions from on and off site sources (Scope 1 and Scope 2), the inbound transportation of raw materials and outbound transportation of products also contributes to our environmental footprint. To better understand these impacts, for the first time we calculated the emissions associated with truck, rail, and ship-based transportation of these materials, and provide these results in the table below. Moving forward, we will be exploring options to reduce these impacts where possible.

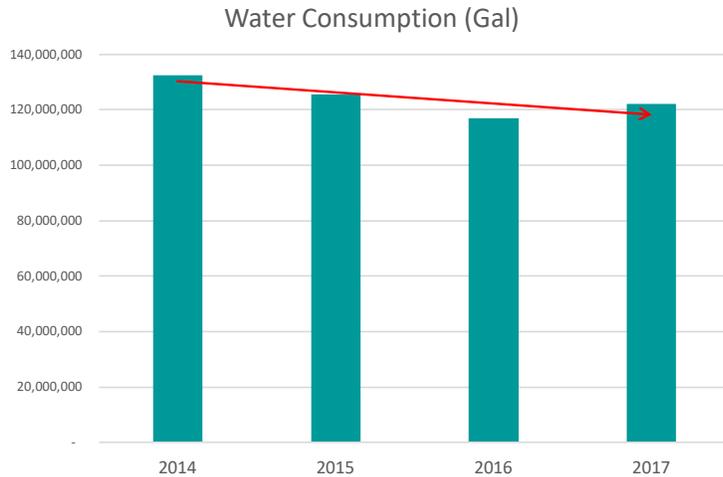
Scope Emissions: Logistics (metric tons GHG equivalents)

	Truck	Rail	Ship	Total
Inbound	1,300	2,200	11,400	14,900
Outbound	10,600	4,200	-	14,800
<b>Total</b>	<b>11,900</b>	<b>6,400</b>	<b>11,400</b>	<b>29,700 Metric Tons</b>

Scope 3: Indirect GHG emissions from sources not owned by Twin Rivers associated with the transportation of raw materials and finished products. Estimated emissions were calculated using the EcoTransIT Platform ([www.ecotransit.org](http://www.ecotransit.org)).

## Water Conservation

Water is a critical resource used in our production processes. We continuously explore ways to optimize our production systems to minimize our total water consumption and discharge. Conservation efforts that minimize the amount of water we consume per ton of product produced has been one of our key strategies.



**33 million**  
cumulative gallons of water  
saved based on 2014 levels

TRT's water conservation efforts have focused on opportunities to replace water supplied from municipal sources with internal sources. TRT has done this by conservation efforts within the production and utilities operations that have included condensate recovery; relocation of storm water discharges; treatment of boiler feed water and use of storm water for noncontact cooling water. Water consumption showed decreases from 2014 to 2016, then an increase in 2017. Discharge volumes are variable and mostly attributable to storm water which is collected onsite, and used for process cooling. TRT's conservation efforts do much more than save money. They have also led to the reduction of chemicals used for boilers, cooling water treatment, and feed water used to operate both systems. This ultimately reduces treatment required by publicly owned wastewater collection systems as well as energy, manpower, and chemicals.



# PERFORMANCE

Twin Rivers is committed to providing high-quality, sustainable products using innovative processes with a high level of service. With the broadest manufacturing capabilities in our industry in the North American market, we continue to make capital investments in new technologies, allowing us to explore new ways to bring continued value to our customers.

## Responsible Sourcing and Sustainable Products

We manufacture a variety of fatty acid and glycerin-based products using many different starting materials. These materials include coconut oil, palm oil, palm kernel oil, soybean oil, and animal fats. TRT's responsibility is to provide the products that our customers request, while recognizing that each of the materials we require for manufacturing present unique environmental challenges. We are committed to upholding **responsible sourcing practices to reduce the environmental and social impacts associated with our products.**

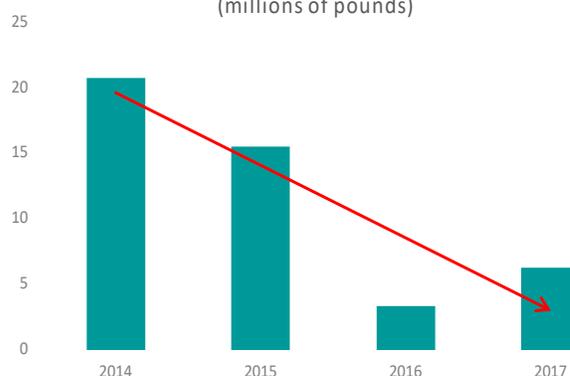
Twin Rivers Technologies' (TRT) goal is to be the sustainability leader within our industry, meeting today's, and more importantly, the future needs of our customers and stakeholders. TRT recognizes the interdependency of people, plant and performance to maintain an effective sustainability program. TRT's Sustainability Program focuses on creating a business model that incorporates sustainable practices with strategic planning to develop the greatest potential in the present while weaving those practices through our culture to preserve and plan. TRT's vision to be the preferred choice for Naturally Based Specialty Chemicals will be achieved by consistently manufacturing and delivering high quality products through a sustainable and diversified supply chain. We will achieve this vision through implementation of our core principles. These principles instill a framework of teamwork, integrity, responsibility, reliability and value driven principles for our employees to follow. The combination of these programs, principles and pillars will ensure that TRT will meet our goal to be the sustainability leader within our industry and with our communities.

## Production Efficiency

Twin Rivers' first priority is to reduce our by-product generation. In doing so, we have discovered innovative opportunities to reduce by-products from our processes. For example, we are now creating animal feed from some of our by-products, allowing us to transform by-products into a marketable commodity, while reducing our environmental footprint at the same time.

**71%**  
decrease in by-product  
quantity since 2014

By-Product Generation  
(millions of pounds)



*\*Estimates based on last year's actual numbers tied to a ratio measuring the changes in production and in utilities and applying a multiplier based on the average difference of the two.*

*\*In 2015, we achieved a 30% reduction in our by-product streams compared to 2013. As a result of our continued reutilization initiatives, we expect to achieve a 70% decrease in by-product quantity in 2016.*

# LOOKING AHEAD

Twin Rivers Technologies' goal is to be the sustainability leader within the oleochemical industry. Meeting today's, and more importantly, the future needs of our customers and stakeholders is of paramount importance. Looking forward, we will continue to undertake initiatives to improve our sustainability.

**In 2017, TRT executed numerous projects that improve our sustainable operations. These projects focused on many aspects of sustainability ranging from community support; to energy conservation; to transparent reporting internationally. In 2017 TRT:**

- Completed full implementation of the Combined Heat and Power Generation project
- Completed full implementation of the Regenerative Thermal Oxidizer Project
- Developed new fatty acid products
- Participated in the Quincy Point Recreation Center Redevelopment Project
- Developed a Supplier Code of Conduct Policy
- Development of TRT's STRIVE / CARE initiative
- Developed sustainability Policy
- Reduction in Wastewater Discharge
- Finalized certifications for SQF, Halal and Kosher
- Joined the EcoVadis Group for Sustainability Reporting
- Became fully GHS compliant
- Began the certification process under REACH
- Participated in a Toys for Tots Drive
- Supported Father Bill's Homeless Shelter
- Participated in several Neighborhood Cleanup Projects
- Supported the Jimmy Fund
- Held a local Blood Drive

**For 2018, TRT has identified the following efforts to continue improving Twin Rivers' sustainability:**

- Development and implementation of a water reuse system to approach a zero discharge target for waste-water
- Completion of the REACH registration process
- Launched FSMA Compliance Initiative
- Installation of the Health Choice Vending Machines
- Reorganization of the TRT Safety Council
- Continued participation in:
  - Quincy Point Recreation Center Redevelopment Project
  - Toys for Tots Drive
  - Support for Father Bill's Homeless Shelter
  - Participation in the Neighborhood Cleanup Project
  - EcoVadis Group for Sustainability Reporting system
  - Support of the Jimmy Fund
  - Local Blood Drive



Integrity, Dependability & Value

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