

# 2021 GTI SUSTAINABILITY MANAGEMENT PLAN

Natural Environment



Wise Water Use



Energy Savings



Waste Reduction



Employee Engagement



## Letter from the President and Chief Executive Officer



The urgency of climate change and energy security have never been more evident than in 2021. The UN's Intergovernmental Panel on Climate Change (IPCC) report and COP26 further amplify the call for intervention of low carbon energy solutions. The weather events including the winter storm in Texas, heat waves in the pacific northwest and tornados throughout much of the country reinforce the need for a resilient and clean energy infrastructure.

At GTI, we innovate technology solutions spanning energy supply, delivery, storage, and use to enable the integrated energy system of the future. Our collaboration with the Electric Power Research Institute (EPRI) on the Low Carbon Resource Initiative (LCRI) is bringing resources to advance technologies for deep decarbonization by mid-century. The Hydrogen Technology Center (HTC) is enabling the generation, transport, and use of clean burning hydrogen that has the benefits of gaseous fuels while minimizing carbon emissions. And our Veritas initiative establishes accurate, transparent tools for calculating measurement-informed methane emissions intensities for natural gas systems.

The recent acquisition of Projeo Corporation strengthens GTI's expertise, capabilities, and resources related to the storage of low carbon fuels and the sequestration of carbon dioxide. This complements the ongoing activities of our other subsidiaries. Frontier Energy provides energy efficiency solutions to consumers, utilities and government agencies. SunGas Renewables enables the conversion of biomass into renewable gas, hydrogen, and green gasoline.

GTI exemplifies our commitment to environmental sustainability in our internal operations through our Sustainability Management Plan. As Peter Drucker simply stated, "What gets measured, get's managed". This year's report is the first to present GTI's key environmental performance indicators from our baselining of energy, waste, and water at our Des Plaines location. More are underway for 2022.

As we enter the third year of a global pandemic and adjust to a new sense of normal, we are finding efficient ways to work, communicate, and provide value to our clients, stakeholders and communities. Throughout this report, you will find our company's efforts to raise awareness on environmental topics, save energy, and lower our environmental footprint.

Please join me in our continuing these efforts and truly making a difference.

David C. Carroll,  
President & CEO

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**Ron Snedic**

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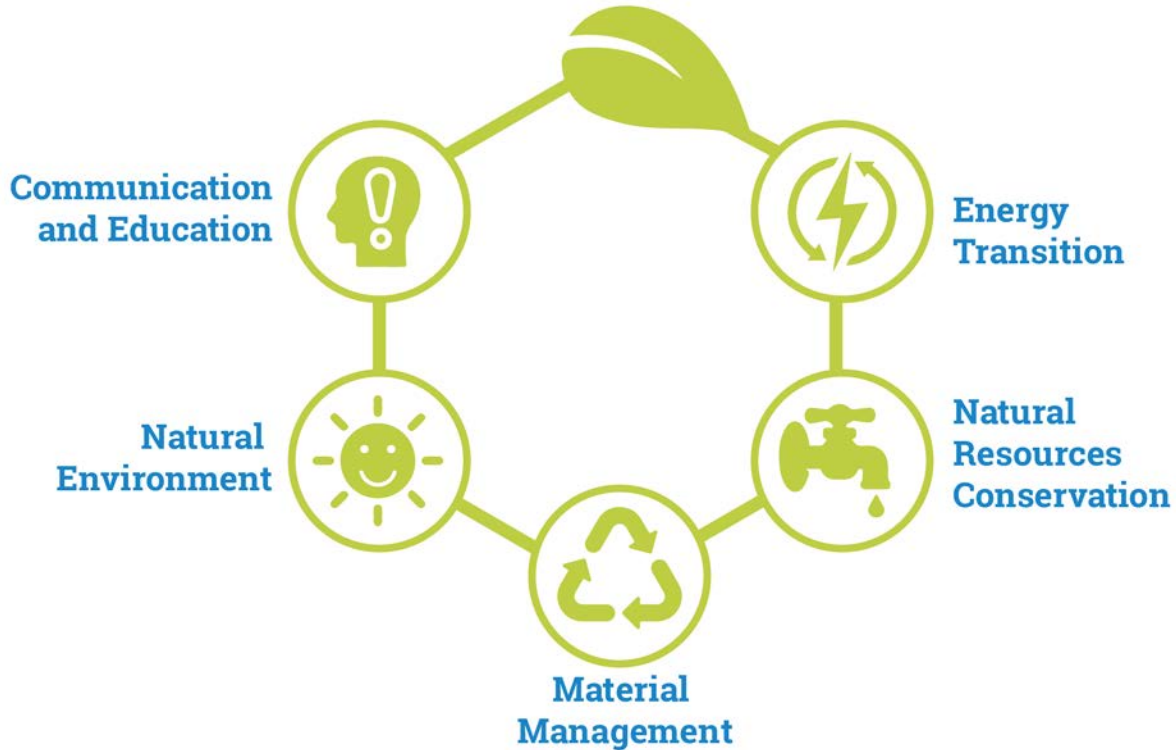
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### Mission Statement



GTI is committed to extending efficiency and sustainability through all phases of technology research and development. From the projects we manage to the way we run our operations, GTI believes everyone has a key role in protecting the integrity of our planet for future generations.

We approach our commitment to a sustainable future from five angles:

- Energy Transition – Use energy efficiently and responsibly towards a low-carbon future
- Material Management – Responsibly manage material re-use, recycling, and disposal
- Natural Resources Conservation – Conserve resources strategically through building upgrades, research operations, and day-to-day activities
- Communication and Education – Promote a culture of environmental sustainability at GTI
- Natural Environment – Provide productive, outdoor spaces for work or casual enjoyment

## Introduction

Climate change, resource scarcity, and pollution are pressing societal challenges that require a concerted effort across all angles. GTI innovates technology solutions against these problems and this management plan brings these efforts back to GTI's operations and work culture.

Sustainability is where the environment, economics, and society meet. These values are central to the goals laid out in this document and are reflected in the objectives.

### Our 2020-2022 focus areas:

- Baseline electricity usage, gas usage, water usage, municipal waste disposal, hazardous waste production, and transportation at GTI's Des Plaines location
- Recommend strategies to enhance energy efficiency, water efficiency, and waste reduction at GTI's Des Plaines location
- Determine Scope 1 and Scope 2 greenhouse gas emissions of GTI's Des Plaines location
- Extend outreach and education events to a larger variety of pressing environmental issues
- Create a more welcoming and useful front courtyard with the native garden

## 2021 Update

In 2021, GTI's Sustainability Committee carefully returned to the Des Plaines location to host our sixth annual consecutive Electronic Recycling Event, an on-site energy assessment with ComEd, and field assessments of the Front Courtyard. The emergence of new COVID variants limited our Earth Week celebration to webinars of Zero-Net Energy Homes and postponed the front courtyard renovation, but it did not deter our progress towards environmental baselining.

GTI's environmental footprint is becoming measurable; therefore, manageable. This year's report is our first presentation of key environmental performance indicators from our baseline of gas usage, electricity usage, water usage, and municipal waste at GTI's Des Plaines location. Transportation and greenhouse gas emission baselining are on track to completion by end of 2022.

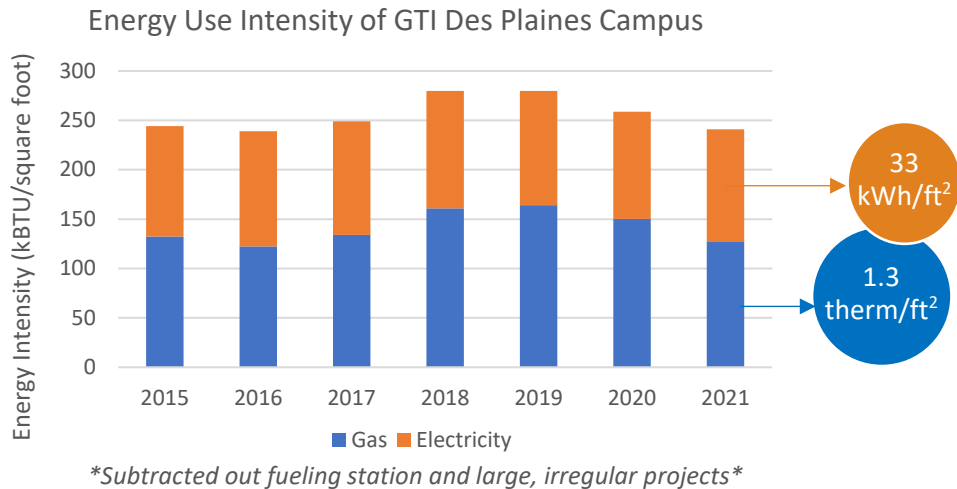


## Energy Transition

GTI relies on energy to power our innovations, laboratories, offices, and more. Although a large portion of our energy expenses fluctuate project-to-project, GTI is committed to reducing non-project related energy uses. Energy efficiency is not only our professional service, it is also one of our core missions.

**Current Activities:** Over the past several years, GTI undertook several building upgrades. We decommissioned 35 hoods in early 2017, replaced 50% of office lighting with LEDs in 2019, and installed a high efficiency boiler. Current building renovations are installing light occupancy sensors in our meeting rooms, offices, and restrooms.

**Goal:** Reduce non-project related energy use by 2% yearly



### Objectives:

1. Recommend improvements to decrease non-project energy usage by 2% yearly – the Sustainability Committee will research building improvements and propose low-effort and high-impact projects. Focus is on reducing peak demand where financial costs and greenhouse gas emissions are highest.

**Priority/Timeline:** High, 2022

**Champion:** Ram Dharmarajan, Jason Stein, Karen Crippen, Jack Tripoli

**Status:** Completed baselining from 2015-2020, ComEd conducted facility assessment in 2021

2. Calculate Scope 1 and Scope 2 greenhouse gas emissions from non-project energy usage to approximate GTI's carbon footprint at the Des Plaines campus.

**Priority/Timeline:** High, 2022

**Champion:** Ram Dharmarajan, Michael Mensinger Jr., Jim McNelis, Jason Stein

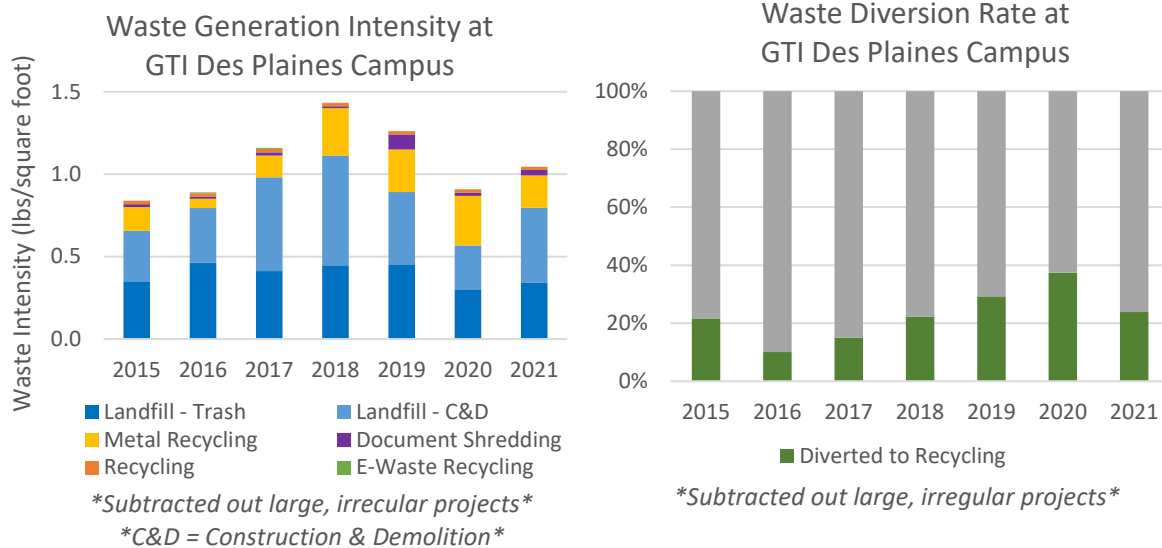
## Material Management

Developing technologies, experimentation, and building operations generates waste. GTI routinely cycles through office supplies, chemical reagents, and appliances that can be sourced locally or from more sustainable companies. Most of GTI's waste goes into landfills but more can be diverted by recycling to close the loop on the materials we acquire. We approach this area from disposal and purchasing perspectives.

**Current Activities:** Baselineing was complete for landfill waste, recycling, document shredding, and metal recycling in 2021.

### Disposal

**Goal:** Decrease the amount of waste we send to the landfill, as well as the amount of money we spend for hauling the waste.



### Objectives:

1. Recommend solutions to decrease municipal waste –Sustainability Committee members will propose low-effort and high-impact projects with Facilities and Leadership. (Ex: composting network, double-sided printing)

**Priority/Timeline:** Medium, 2022

**Champion:** Marta Guerrero Merino, Karen Crippen, Jack Tripoli

**Status:** Completed baselining from 2015-2020

2. Setup a system to monitor hazardous waste by quantity - Each department manages hazardous waste disposal independently. Inefficient pickups are costly.

**Priority/Timeline:** High, 2022

**Champion:** Karen Crippen, Marta Guerrero Merino

**Status:** Baseline of hazardous waste was indeterminable – the committee will setup a more *quantity-focused* method of record keeping moving forward.



Purchasing

**Goal:** Develop a materials management program including purchasing

**Objective:**

1. Assess blanket PO vendors for local vs out of state vs out of country. Determine if vendors have sustainability programs.

**Priority/Timeline:** Medium, 2023

**Champion:** TBD

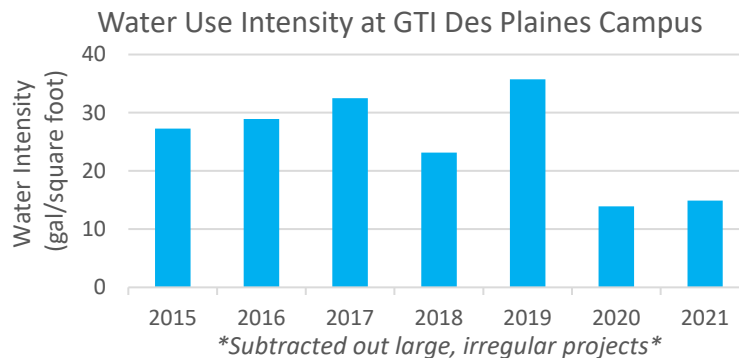
Natural Resources Conservation

GTI realizes our institution’s activities have impact connected to our planet’s land, water, and air. To conserve our natural resources strategically, GTI will establish a baseline of operation water use, decrease our impact from daily commuting, and develop a comprehensive plan for sustainable building upgrades and maintenance.

**Current Activities:** GTI encourages public transit by running a vanpool to the nearest light-rail stop. We actively advocate for alternative means of transportation in Des Plaines like bus stops. Current building renovations are replacing our restrooms with high-efficiency toilets and sinks to reduce water use.

Water Use

**Goal:** Decrease the amount of non-project water usage



**Objective:**

1. Recommend solutions to decrease water use –Sustainability Committee members will propose low-effort and high-impact projects with Facilities and Leadership. (Ex: low-flow sinks, efficient irrigation systems)

**Priority/Timeline:** High, 2022

**Champion:** Eric Brown, Brent Grossman

**Status:** Completed baselining from 2015-2020

### Building Upgrades

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**Goal:** Have facility management consider sustainable options during building upgrade planning

**Objective:**

1. Develop a plan of alternative, sustainable options for anticipated building upgrades in the next 5 years.

**Priority/Timeline:** Medium, 2022

**Champions:** Jack Tripoli, All

**Status:** On hold due to limited access onsite, will resume in 2022

### Transportation

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**Goal:** Decrease our carbon footprint from transportation at the Des Plaines campus by promoting GTI's vanpool, electric vehicles, and carpooling.

**Objectives:**

1. Baseline business travel and employee commute – Most employees drive to GTI in a standard combustion vehicle. Transportation comprises one of the largest carbon footprints in the US and should be substituted with low-emission options when possible.

**Priority/Timeline:** High, 2022

**Champion:** Brent Grossman, Karen Crippen, Abinesh Ravi

2. Establish a solar-powered electric vehicle charging station for employees in Des Plaines

**Priority/Timeline:** High, 2022 (Energy Delivery Utilization)

**Champion:** Ted Bukowski, Alejandro Baez Guada, Tim Kingston

3. Identify a low-carbon future replacement for the GTI vanpool.

**Priority/Timeline:** Low, 2022

**Champion:** TBD

4. Generate carpooling pipeline app to encourage employee ride sharing.

**Priority/Timeline:** Low, 2022

**Champion:** TBD



*GTI's Vanpool to local Light-Rail Transit*



*Drawing for EV Charging Station*

## Communication and Education

The most important source of sustainable development is human ingenuity and persistence. GTI is investing in its people through the communication and education program.

Plans may be developed, but transient habits and underutilized resources do not result in lasting change. The sustainability committee raises awareness of today’s pressing environmental problems and educates our community to act through the behavioral changes.

### Education and Employee Engagement

**Goal:** Increase GTI employee engagement in sustainable actions and activities

**Objectives:**

1. Organize monthly events, training, or activities around sustainable practices. Inform GTI members that dollars saved through these efforts will be routed back to employee benefits.

**Priority/Timeline:** High, ongoing

**Champion:** Mary Bazan, Sarah Townsend

**Status:** Electronics Recycling Event collected 3,675 pounds of residential and company waste. The team wrote and published 11 internal articles on eco-friendly options for printers, cleaning solutions, and more.



2. Plan fun, educational Earth Day events each year to raise awareness on environmental issues and practical solutions not normally encountered.

**Priority/Timeline:** High, yearly

**Champion:** Sarah Townsend, Mary Bazan

**Status:** Earth Week 2021 webinars featured Frontier Energy’s project on Zero-Net Energy Homes with Habitat for Humanity and energy efficiency installs across our employees’ homes.

**Earth Week 2021 Spotlight**

**Affordable Zero Net Energy Homes**  
Featuring Larry Brand, Rob Kamisky, and Chris White  
Moderated by Kevin Leodinh  
Presented by Sarah Townsend

**Glanville Residence – Attic Conversion**

Applied ~4" closed cell foam insulation to roof & unfinished attic space (R-30)

Blower Door Test before / after: 28% reduction in air leakage

= \$500 rebate from Gas Utility (~11% of job)

gti GTI Enterprise Sustainability

### Communication

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**Goal:** Reach out internally and externally on sustainability at GTI annually

**Objectives:**

1. Produce an annual report to describe sustainable efforts, results, and plans.

**Priority/Timeline:** High, yearly

**Champion:** Kevin Leodinh, Ron Snedic

## Natural Environment

The human / social aspect of sustainability is central to a functioning sustainability program. GTI believes everyone deserves the ability to reap the benefits the planet provides, such as fresh foods and green spaces. Currently, GTI offers healthy, seasonal, ecologically conscious food options for all employees. Now, we are focusing on improving our outdoor spaces to provide areas for gathering, socializing, and thinking in an “out of the box” environment.

### Outdoor Spaces

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**Goal:** Work with Management and Facilities to develop usable, ecologically conscious outdoor space for the courtyards

**Objectives:**

1. Develop front courtyard into a functional patio with the native plant garden. Native plants are already adapted to the Illinois terrain and climate. Design will include tables, chairs, and benches to encourage education of sustainable landscaping.

**Priority/Timeline:** Medium, 2023

**Champion:** Rachel Kunz, Kimna Chak

**Status:** On hold due to limited access onsite, will resume in 2022

