

INTREN, LLC

2018 GHG Emissions Report

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Abstract

INTREN's commitment to environmental sustainability has grown in the last couple of years. As the company continues to grow and expand across the country its environmental sustainability efforts will increase as well. In 2018, the company saw employee count increase by **31%** from the previous year while hours worked increased **20%**. The groundwork placed to develop, communicate, and implement a more mature plan for the future will change as INTREN continues to grow.

This report will provide a detailed overview of GHG emission results for measured emitters, a synopsis of the data collection process, and suggested initiatives for the future.

Keywords: GHG emissions, fuel usage, diesel, biodiesel, purchased electricity, LED, renewable energy, employee commuting, natural gas, therms, business travel, water consumption, waste generation, SGEC calculation tool, data collection analysis, Scope 1, Scope 2, Scope 3, MTCO₂e.

GHG Emission Results Summary

The executive summary will list the largest contributor of GHG emissions at INTREN to the smallest contributor. Our overall numbers of GHG increased because our company grew in manpower in 2018, however our emissions per man hour, the real indicator have stabilized in 4 of the 6 categories, showing that our environmental initiatives are working, especially our recycling and grey water programs.

-  **Emissions per man hour have stabilized from 2017-2018.** INTREN's internal programs are making us a more environmentally conscientious company.
-  **Fuel emissions per manhour increased only 1% from 2017-2018.** This increase is due to more efficient vehicles, idle program and better sourcing of fuel.
-  **Employee commuting saw no rise in emissions per man hour from 2017-2018.** INTREN has increased its workforce to accommodate growth but opened up new offices to minimize driving impact on the environment for office employees.
-  **Purchased electricity saw no rise in emissions per man hour.** The increase is due to additional locations and regional offices opening in new regions across the country. The INTREN offset 900,992 kwh by purchasing renewable energy certs which has a zero-emission factor.
-  **Purchased Natural Gas GHG saw a 43% increase from 2017-2018.** The increase is likely due to opening new offices in various regions, obtaining actual bills, and colder weather.
-  **Business travel GHG saw a 55% increase from 2017-2018.** This increase is most likely due to an increase in INTREN's customer base on the east coast and having to travel to California as well. Additional travel to ensure INTREN's continued growth contributed to the increase in business travel GHG emissions.
-  **Recycled Water Usage Remained above 25% of our water consumption from 2017-2018.** Our grey water program continues to make a difference in this area.
-  **Corporate Recycling tonnage increased 6.4% in 2017-2018.** Tonnage of recycling increased from prior year as a total and percentage. Our programs are showing improvement.

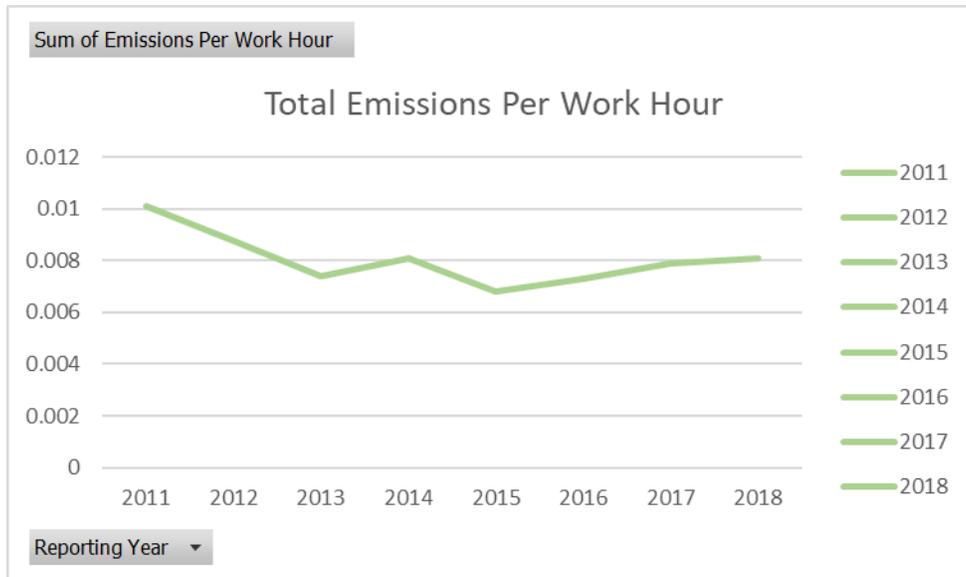
GHG Emissions [MTCO ₂ e]										
Reporting Year	Fuel Use	Purchased Electricity	Employee Commuting	Business Travel	Natural Gas	Total GHG Emissions	Manhours	% +/- GHG From Prior Year	Emissions Per Work Hour	% +/- previous yr. comparison Emission/work hour
2011	8,684	1,060	690	39	117	10,590	1,044,088	-	0.0101	
2012	10,945	1,122	684	82	60	12,893	1,461,616	22%	0.0088	-13%
2013	10,916	1,042	679	78	172	12,887	1,753,086	0%	0.0074	-17%
2014	13,900	1,331	779	48	210	16,628	1,998,087	26%	0.0081	11%
2015	14,061	1,106	715	27	241	16,150	2,359,476	-1%	0.0068	-16%
2016	17,747	943	856	91	371	20,008	2,729,977	24%	0.0073	7%
2017	22,002	625	871	101	374	23,973	3,034,826	20%	0.0079	8%
2018	26,864	736	1,079	159	585	29,423	3,652,206	22%	0.0081	3%

GHG Emissions Results

The information provided in the following report will provide a detailed overview of INTREN’s measured and trended GHG emissions over seven years and an individual data collection analysis for:

- Fuel usage
- Purchased electricity
- Employee commuting
- Natural gas usage
- Business travel
- Water consumption
- Waste Generation

The following data was collected for the GHG emission calculations. The data was then compared to INTREN’s growth via hours worked for the reporting year as well as past years. As INTREN continues to grow, it is important to factor in the amount of growth when calculating GHG emissions.

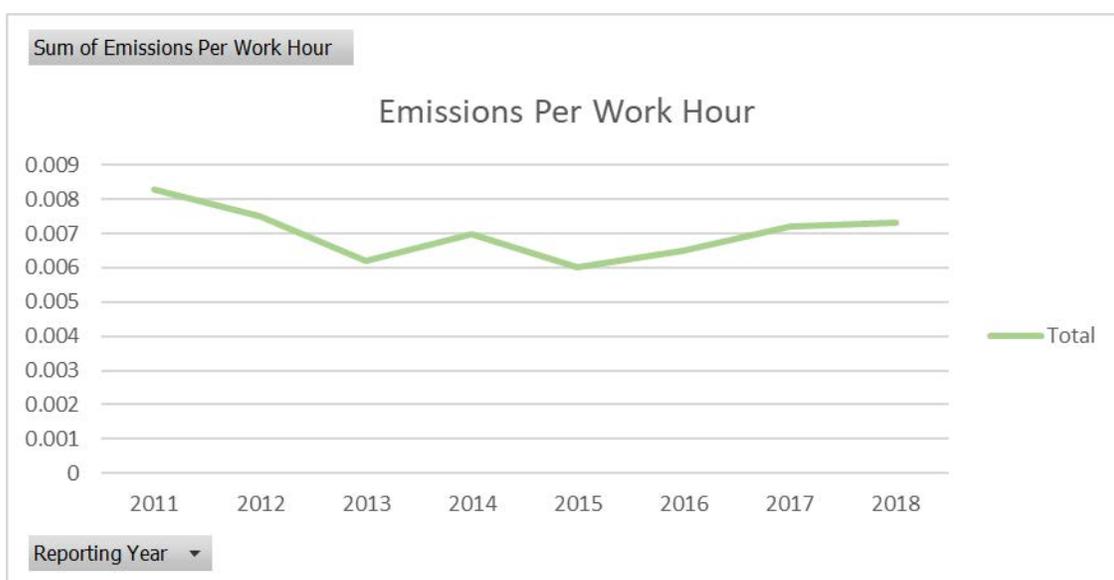


Fuel Use – Scope 1 Emission

The largest contributor of GHG emissions at INTREN in 2018 was fuel use, the same as in previous years. INTREN uses gasoline, diesel, and ethanol fuel for company-owned on-road vehicles and off-road equipment. INTREN has increased its use of biodiesel, and this accounts for **11%** of the organization’s total fuel usage. The total gallons of biodiesel increased **57%** from 2017. Biodiesel is an alternative fuel that is domestically produced, has less harmful emissions compared to petroleum-based diesel, and less harmful environmental impact if spilled. Fuel usage is a Scope 1 emission and increased overall by approximately 1.0% from 2017 to 2018 by manhour. The fuel usage per man hour shows the efficient vehicle programs are having some level of success. Our growth into Transmission work requires larger equipment that burns more fuel and INTREN will have to adjust to biodiesel, smart fleet and improving our idle numbers moving forward to improve.

Below is a breakdown of the past seven years of fuel use and associated GHG emissions. While calculations are made based on the fuel types (regular gasoline, diesel, etc.), for simplicity the table below only shows the total gallons of fuel used and the associated GHG emissions.

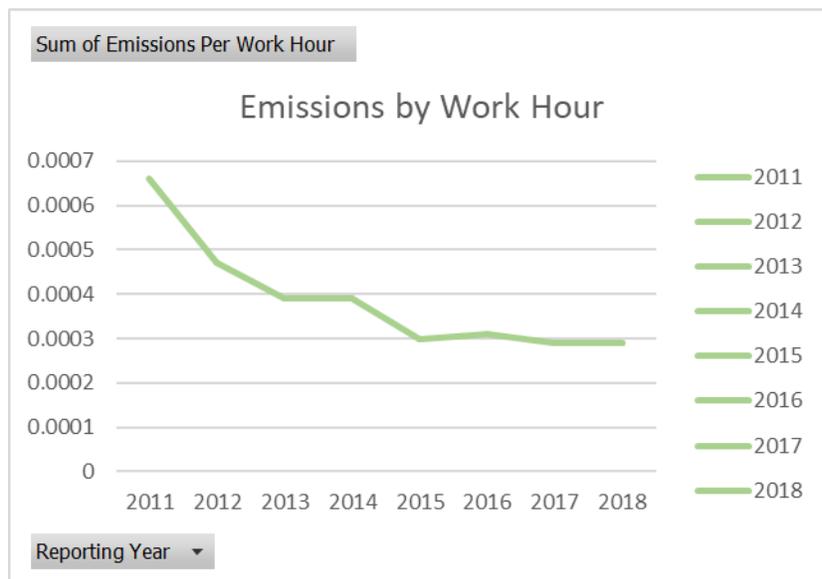
Fuel Use(Scope 1)					
Reporting Year	Gallons	GHG Emissions [MTCO2e]	% +/- GHG From Prior Year	Emissions Per Work Hour	% +/- previous yr. Comparison Emission/Work Hour
2011	912,103	8,684	-	0.0083	-
2012	1,141,277	10,945	26%	0.0075	-10%
2013	1,136,190	10,916	0%	0.0062	-17%
2014	1,447,568	13,900	27%	0.007	12%
2015	1,484,158	14,061	1%	0.0060	-14%
2016	1,871,743	17,747	26%	0.0065	9%
2017	2,337,724	22,002	24%	0.0072	12%
2018	2,749,799	26,864	22%	0.0073	1%



Employee Commuting – Scope 3 Emission

The second largest contributor of GHG emissions at INTREN in 2018 was our employees’ commute to and from work. This was the same as in 2017, after previously was the third largest emitter from 2011 through 2016. The GHG emissions from employee commuting increased 24% overall in 2018, but our emissions per man hour stayed the same. This increase is like due to workforce growth that had longer commutes, especially on the east coast and the reorganization of some offices that increased commuting as well. Employee commuting is categorized as a Scope 3 emission. Below is a breakdown of GHG emissions for the past eight years resulting from employee commuting.

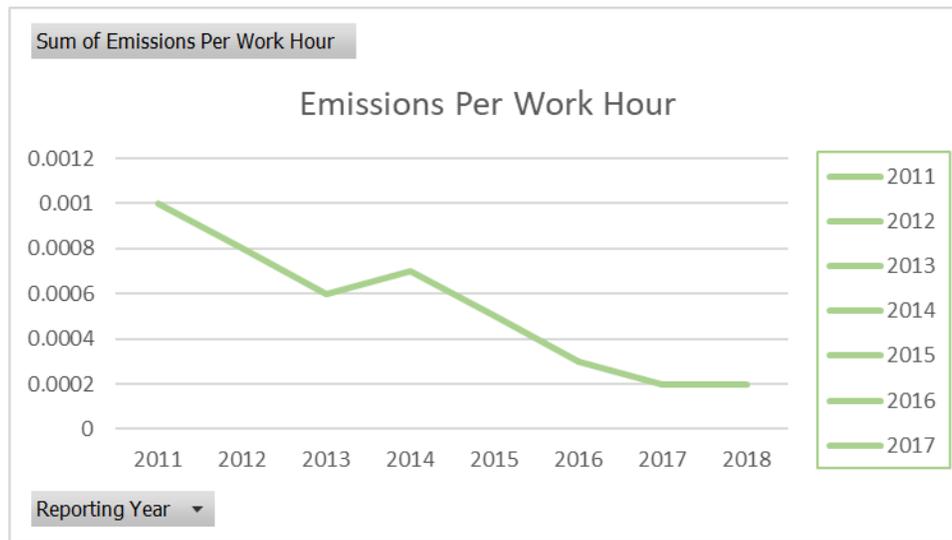
Employee Commuting (Scope 3)				
Reporting Year	GHG Emissions [MTCO2e]	% +/- From Prior Year	Emissions Per Work Hour	% +/- previous yr. Comparison Emission/Work Hour
2011	690	-	0.00066	-
2012	684	-1%	0.00047	-29%
2013	679	-1%	0.00039	-17%
2014	779	15%	0.00039	1%
2015	715	-8%	0.00030	-22%
2016	856	20%	0.00031	3%
2017	871	2%	0.00029	-8%
2018	1,079	24%	0.00029	0%



Purchased Electricity – Scope 2 Emission

The third largest contributor of GHG emissions at INTREN in 2018 was purchased electricity, which previously was the second largest emitter from 2011 through 2017. Emissions from purchased electricity increased from 2017 to 2018 by 18%. The increase is due to the opening of several new offices and acquisition of a company in 2018 for INTREN. In addition, INTREN offset 900,992 kWhs by purchasing renewable energy certs which have a zero-emission factor. Purchased electricity is categorized as a Scope 2 emission. Below is a breakdown of the past eight years of electricity use and associated GHG emissions. INTREN can continue to have success through LED bulbs in our hub offices across the country.

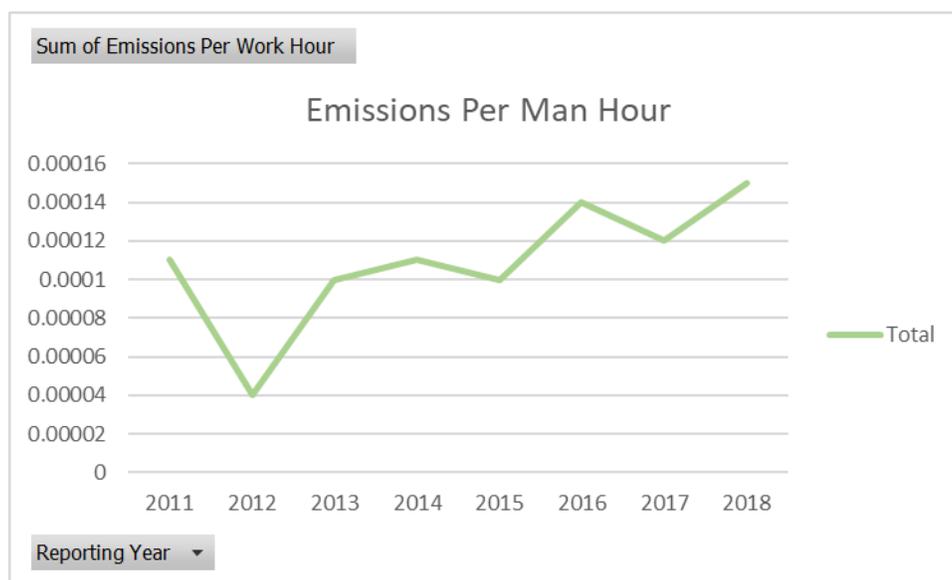
Purchased Electricity (Scope 2)					
Reporting Year	kWH	GHG Emissions [MTCO2e]	% +/- From Prior Year	Emissions Per Work Hour	% +/- previous yr. Comparison Emission/Work Hour
2011	1,523,858	1,060	-	0.0010	-
2012	1,565,811	1,122	6%	0.0008	-20%
2013	1,573,811	1,042	-7%	0.0006	-25%
2014	1,981,087	1,331	28%	0.0007	17%
2015	1,699,188	1,106	-17%	0.0005	-28%
2016	1,920,931	943	-15%	0.0003	-40%
2017	1,900,792	625	-34%	0.0002	-33%
2018	2,227,582	736	18%	0.0002	0%



Purchased Natural Gas – Scope 1 Emission

The fourth largest contributor of GHG emissions at INTREN in 2018 was natural gas, the same as in 2011 through 2017. Natural gas is used to heat the company’s buildings. From 2017 to 2018 GHG emissions from natural gas usage increased by approximately 56%. This increase is due to the increase in total offices INREN was operating that accommodated our growth in new markets, that had large warehouse house spaces that required heating, specifically on the east coast, and the harsh winter. INTREN was able to obtain actual bills for leased locations where therm usage was estimated for previous years. Natural gas emissions are categorized as a Scope 1 emission. The breakdown of natural gas usage over the past seven years and associated GHG emissions are below.

Purchased Natural Gas (Scope 2)					
Reporting Year	Therms	GHG Emissions [MTCO ₂ e]	% +/- GHG From Prior Year	Emissions Per Work Hour	% +/- previous yr. Comparison Emission/Work Hour
2011	44,524	117	-	0.00011	-
2012	11,537	60	-49%	0.00004	-63%
2013	33,417	172	187%	0.00010	139%
2014	37,681	210	11%	0.00011	7%
2015	45,768	241	15%	0.00010	-3%
2016	70,423	371	54%	0.00014	33%
2017	70,326	374	1%	0.00012	-9%
2018	110,273	585	56%	0.00015	25%

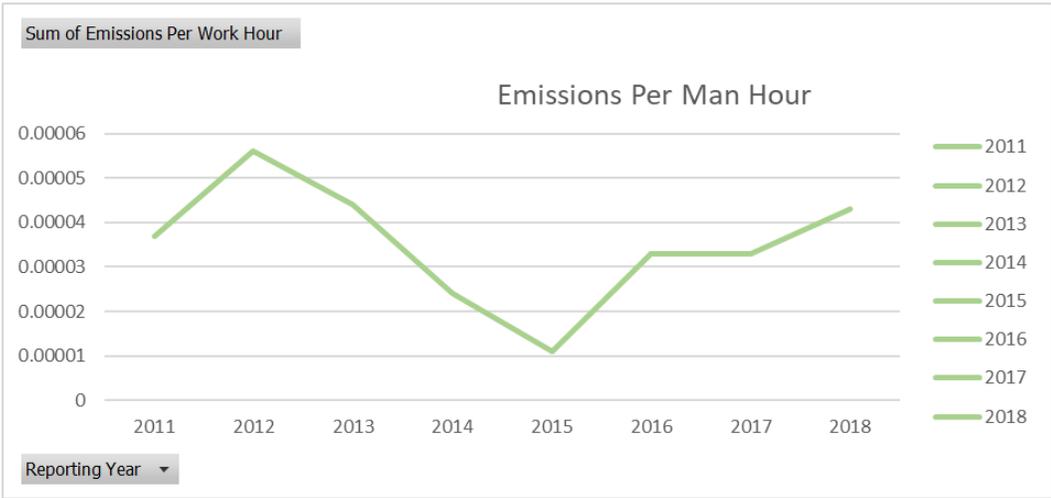


Business Travel – Scope 3 Emission

The fifth largest contributor of GHG emissions at INTREN in 2018 was employee business travel, the same as in 2011 through 2017. This category includes travel for employees outside of their normal commute to and from their regular reporting location, which was captured in the Employee Commuting category. This category primarily captures air travel to INTREN’s various locations across the country. This category saw a large increase in GHG emissions by approximately 57%. This increase is due greater reliance on air travel by our management staff as the company has become more nationally focused and building local work forces in these new areas. The total distance traveled by air increased by 390,560 miles.

Additional travel to ensure INTREN’s continued growth contributed to the increase in business travel GHG emissions. INTREN needs to utilize smart technology for meetings to limit as much face to face time as possible and leverage our strong local leadership to improve this number moving forward.

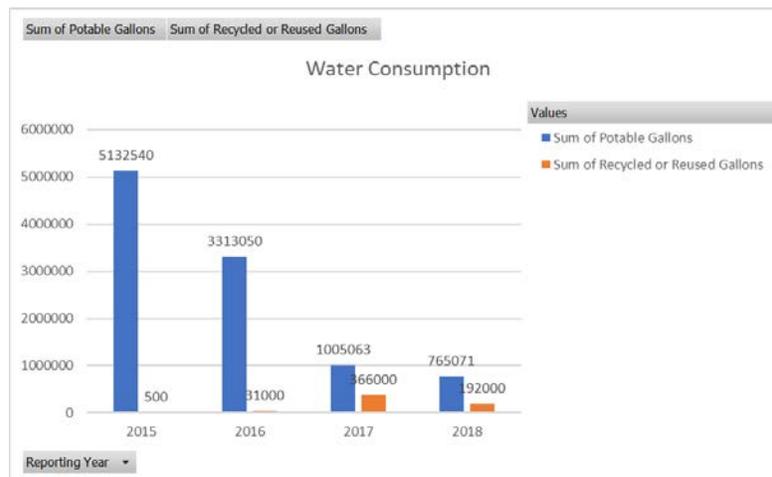
Business Travel (Scope 3)					
Reporting Year	Miles	GHG Emissions [MTCO2e]	% +/- From Prior Year	Emissions Per Work Hour	% +/- previous yr. Comparison Emission/Work Hour
2011	227,335	39	-	0.000037	-
2012	482,994	82	110%	0.000056	51%
2013	473,506	78	-5%	0.000044	-21.00%
2014	286,662	48	-38%	0.000024	-45%
2015	160,370	27	-44%	0.000011	-54%
2016	608,370	91	241%	0.000033	200%
2017	697,867	101	11%	0.000033	1%
2018	1,088,427	158	57%	0.000043	30%



Water Consumption

Water consumption is the portion of water use that is not returned to the original water source after being withdrawn and is no longer available for reuse. This category includes water used for directional drilling operations at INTREN in 2018. The total estimated water usage for 2018 was 765,071 gallons. INTREN used approximately 23% less water than in 2017. This reduction is likely due to more accurate data obtained and a reduction in our directional drilling based on customer demand. Non-potable water accounted for 192,000 gallons or 25% of water used, and had a 47% decrease in non-potable usage from the year prior.

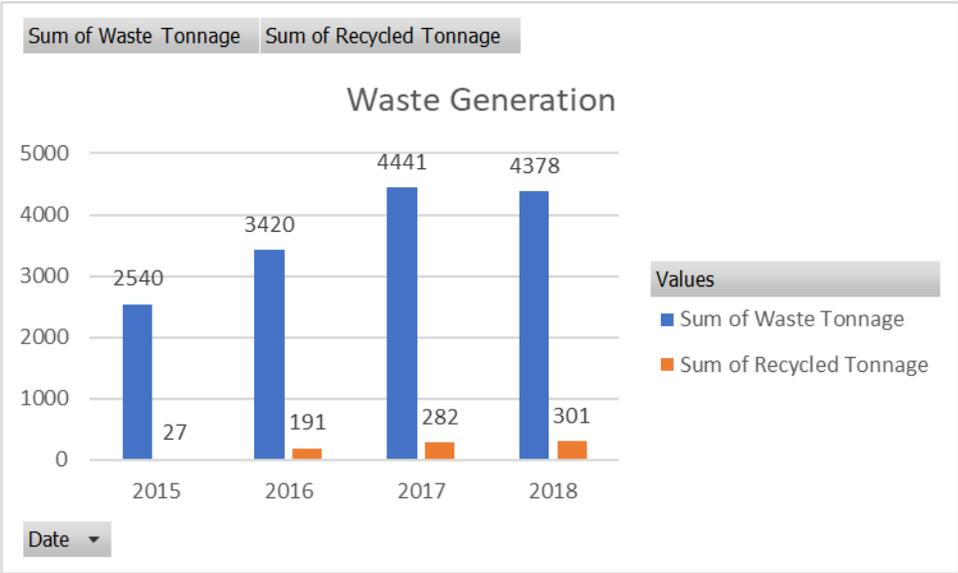
Water Consumption					
Reporting Year	Gallons	Recycled or Reused Gallons	% Recycled	% +/- Usage From Prior Year Potable	% +/- Usage Recycled From Prior Year
2015	5,132,540	500	0%	-	0%
2016	3,313,050	31,000	1%	-35%	6100%
2017	1,005,063	366,000	36%	-70%	1080%
2018	765,071	192,000	25%	-23%	-47%



Waste Generation – Scope 3 Emission

Waste generation is the weight or volume of materials and products that enter the waste stream before recycling, composting, landfilling, or combustion takes place. Waste generation is a scope 3 emission and includes waste generated from INTREN in 2018. From 2017 to 2018, the total amount of waste generated by INTREN decreased 1.42% with the total amount of waste recycled increasing by 6.73%. The decrease in waste generated is likely due to not having office renovations in outside areas and greater emphasis on recycling.

Waste Generation (Scope 3)					
Date	Waste Tonnage	Recycled Tonnage	Percent Recycled per Year	% +/- yr. comparison (Waste)	% +/- yr. comparison (Recycled)
2015	2540	27	1.08%	-	-
2016	3420	191	6.00%	35.00%	599.00%
2017	4441	282	6.00%	30.00%	48.00%
2018	4378	301	6.40%	-1.42%	6.73%



ADDENDUM

Data Collection Analysis

For calendar year 2018, below is an analysis of each GHG category in which data was collected. Future data collection points are suggested where needed within each individual category. To assist with estimating GHG emissions for the first five categories listed, the SGEC calculation tool, provided for free by the United States EPA was utilized.

Fuel Use

The fuel data was supplied by INTREN's Fleet Department and is retrieved from the company responsible for maintaining the fuel cards employees use to purchase fuel. The data was provided by INTREN in the same manner as 2017, which includes a monthly summary by fuel type, and was suitable for this exercise.

Purchased Electricity

The data collection for purchased electricity for 2018 was completed in the same manner as 2017. Electric bills were obtained to calculate total kWhs used for each INTREN location.

Employee Commuting

INTREN reported 2018 employee commuting data in the same manner as 2017. A report was run to obtain all employees working during 2018 which included their home address and reporting office. Google Maps was used to determine the travel distance for each office employee from their home to their reporting office. The actual work days for each employee were also calculated to assist with obtaining the total miles driven for each individual employee working at INTREN in 2018.

Purchased Natural Gas

Similar to maintaining the data collection improvements made with electricity, the 2018 GHG emission calculations for natural gas were completed utilizing actual bills received from natural gas providers.

Business Travel

The data collected for 2018 business travel was done in the same manner as 2017. INTREN's credit card vendor provided charges for air travel in a report that included destination and departure information which was then used with a flight and time calculator from Airplane Manager. This tool can be found online at <https://airplanemanager.com/FlightCalculator.aspx>.

Water Consumption

In 2018, INTREN utilized a job cost code to track all purchased water for directional drilling and generated a report showing total gallons used. INTREN also utilized a third-party vendor to deliver non-potable water in increments of 6,000 gallons per delivery which was also tracked via the job cost code in its accounting system.

Waste Generation

The method used to obtain data for this category is sufficient due to waste disposal vendors having the ability to record tonnage during pickups and provide reports detailing amounts of waste generation across INTREN's organization. The total tons of waste to landfills and recycled were obtained from the four waste disposal vendors associated with INTREN.

Future Suggested Initiatives

In order for INTREN meet the main goal of reducing overall GHG emissions by 10%, it is important to implement the following initiatives to each GHG emission category listed below. It is important that INTREN re-establish our baseline moving forward to accommodate all the growth in the last year.

Fuel Usage

INTREN used 1,144,411 gallons of diesel fuel in 2018 for multiple light and heavy-duty vehicles as well as construction equipment. Diesel fuel accounts for approximately 50% of the total amount of fuel used in 2018. With fuel usage being the highest GHG emitter for INTREN, considering the use of bio-diesel as an alternative would be a good option.

Biodiesel is a renewable, biodegradable fuel manufactured domestically from vegetable oils, animal fats, or recycled restaurant grease. It is a cleaner-burning replacement for petroleum diesel fuel. The most common bio-diesel concentrate is B20. B20 is a common biodiesel blend in the United States. B20 is popular because it represents a good balance of cost, emissions, cold-weather performance, materials compatibility, and ability to act as a solvent. Biodiesel use has continued to increase at INTREN, with 253,048 gallons used in 2018.

Purchased Electricity

INTREN continued utilizing LED lighting at their main headquarters in 2018 and had a renewable energy purchased for other INTREN locations, the company saw a total reduction of 900,992 kWhs that year.

It is important efforts are continued within this category as the organization increases office

locations. It is suggested to consider installing LED lighting at other INTREN-owned locations and increase renewable energy efforts at all office locations to 60% beginning in 2019.

Employee Commute

INTREN employee commute emissions increased 24% in 2018 which is mainly due to the 24% increase in office employee hires when compared to 2017. It is suggested INTREN continues to look for strategically located offices and possibly move current employees into locations that are closer to their home. The last suggestion would be to allow all or some office employees the ability to work from home at least 1 day a month. This gesture would reduce commute mileage by approximately 6% annually.

Natural Gas

Although there are no renewable natural gas options at this time, it would be beneficial for INTREN to have an energy assessment completed at the two locations that have the highest total therms used in 2018. This assessment will help determine where and if energy is being wasted and offer projects that can help the issue.

Water Consumption

In 2018, INTREN continued to use non-potable water for directional drilling operations in the state of Illinois. It is recommended the organization proceed within other states performing the same task. It would also be beneficial for INTREN to look into other operations within the organization where potable water can be substituted with non-potable water.

Waste Generation

Waste generated at INTREN decreased by 1.42% in 2018. It is suggested INTREN continue ramp up its Recycle & Waste Minimization program and work with supply chain to determine how supplies are delivered. Increasing recycle options in newer areas is an initiative that has to be focused on as well.

INTREN purchased Miller Construction, and Miller's waste hauler did not track the tonnage for the year. This sale went through in June of 2018. The tonnage was estimated based on the size of the dumpster. This was estimated at 125 tons of garbage for half the year.