INTREN, Inc.

2016 GHG Emissions Report

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Table of Contents

Abstract 3

Program Overview & GHG Emissions Results 4

Fuel Use – Scope 1 Emission 5

Purchased Electricity – Scope 2 Emission 5

Employee Commuting – Scope 3 Emission 6

Purchased Natural Gas – Scope 1 Emission 6

Business Travel – Scope 3 Emission 7

Water Consumption 8

Waste Generation 8

GHG Emission Results Summary 9

ADDENDUM 10

Data Collection Analysis 10

Fuel Use 10

Purchased Electricity 10

Employee Commuting 10

Purchased Natural Gas 10

Business Travel 10

Water Consumption 11

Waste Generation 11

Future Suggested Initiatives 11

Fuel Usage 11

Purchased Electricity 12

Employee Commute 12

Natural Gas 12

Water Consumption 12

Waste Generation 12

Appendix A – GHG Emissions Charts 13

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 2016, INTREN created an environmental & program administrator position within the company in order to strategically manage environmental sustainability in conjunction with its growth. That same year, the company saw employee count increase by 19% from the previous year while hours worked increased 16%. The groundwork placed to develop, communicate, and implement a more mature plan for the future will change as INTREN continues to grow.

The following list the five goals for 2016:

1. Reduce total GHG emission annually by 10% thru 2020
2. Purchase 10% renewable energy for all office locations
3. Reduce water consumption by 5%
4. Reduce waste generated by 5%

Two of the four goals were met in 2016. The remainder of this report will provide an overview of the program, along with detailed information on GHG emission results for measured emitters, a synopsis of the data collection process, and suggested initiatives for the future.

Keywords: GHG emissions, fuel usage, purchased electricity, employee commuting, natural gas, business travel, water consumption, waste generation, added measurements, SGEC calculation tool, data collection analysis, EUISSCA, environmental, economical, social sustainability, carbon footprint, $MTCO_2e$.

Program Overview & GHG Emissions Results

INTREN is committed to environmental, economical, and social sustainability throughout its organization. Since 2011 INTREN has participated in the Electric Utility Industry Sustainable Supply Chain Alliance's (EUISSCA) program for carbon footprint reduction and in the fall of 2015 Loretta Rosenmayer, now Chairwoman of the Board participated in the White House roundtable summit on climate change with former President Obama and 5 other companies. At that meeting Mrs. Rosenmayer pledged to continue INTREN's efforts to reduce their carbon footprint.

The information provided in the following report will outline a summary of INTREN's measured and trended GHG emissions over six years and an individual data collection analysis for:

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

GHG Emissions [$MTCO_2e$]									
Reporting Year	Fuel Use	Purchased Electricity	Employee Commuting	Business Travel	Natural Gas	Total GHG Emissions	Man hours	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	0.0088	-13%
2013	10,916	1,042	679	78	172	12,887	1,753,086	0.0074	-17%
2014	13,900	1,331	779	48	210	16,268	1,998,087	0.0081	11%
2015	14,061	1,106	715	27	241	16,149	2,359,476	0.0068	-16%
2016	17,747	943	856	91	371	20,007	2,729,977	0.0073	7%

* NOTE: The following data was either collected or estimated for the GHG 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 2016 was fuel use, the same as 2011 through 2015. INTREN uses gasoline, diesel, and ethanol fuel for company-owned on-road vehicles and off-road equipment. Fuel use for company owned vehicles and equipment is categorized as a Scope 1 emission. Fuel usage increased by approximately 9% from 2015 to 2016. The fuel usage increase is due to a 16% increase of hours worked combined with a 21% increase of vehicles and equipment (103 heavy duty trucks, 67 light duty trucks, and 90 pieces of construction equipment). Below is a breakdown of the past six 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					
Reporting Year	**Gallons**	**GHG Emissions [$MTCO_2e$]**	**% -/+ previous yr. comparison**	**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%	0.0070	12%
2015	1,484,158	14,061	1%	0.0060	-14%
2016	1,871,743	17,747	26%	0.0065	9%

Purchased Electricity – Scope 2 Emission

The second largest contributor of GHG emissions at INTREN in 2016 was purchased electricity, the same as 2011 through 2015. Emissions from purchased electricity decreased from 2015 to 2016 by 26%. The decrease is due to the renewable energy purchased by INTREN. In July of 2016, INTREN began purchasing 50% renewable energy for all office locations that received electricity bills. Approximately 19% of the total kWhs of electricity used was offset by renewable energy which has a zero emission factor. Purchased electricity is categorized as a Scope 2 emission. Below is a breakdown of the past six years of electricity use and associated GHG emissions.

Purchased Electricity					
Reporting Year	kWH	GHG Emissions [$MTCO_2e$]	% -/+ previous yr. comparison	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	-24%
2013	1,573,453	1,042	-7%	0.0006	-23%
2014	1,981,087	1,331	28%	0.0007	12%
2015	1,699,188	1,106	-17%	0.0005	-30%
2016	1,920,931	943	-15%	0.0003	-26%

Employee Commuting – Scope 3 Emission

The third largest contributor of GHG emissions at INTREN in 2016 was employees' commute to and from work, the same as in 2011 through 2015. The GHG emissions as a result of employee commuting increased 3% in 2016 from 2015. This increase is like due to the 25% increase in full time office personnel which increased employee commute by 448,216 miles in 2016. Employee commuting is categorized as a Scope 3 emission. Below is a breakdown of GHG emissions for the past six year's resulting from employee commuting.

Employee Commuting				
Reporting Year	GHG Emissions [$MTCO_2e$]	% -/+ previous yr. comparison	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%

Purchased Natural Gas – Scope 1 Emission

The fourth largest contributor of GHG emissions at INTREN in 2016 was natural gas, the same as in 2011 through 2015. Natural gas is used to heat the company's buildings. From 2015 to 2016 GHG emissions from natural gas usage increased by approximately 33%. The increase is likely due to the increase of 7 additional office locations resulting in a total of 30,874 therms used.

Natural gas emissions are categorized as Scope 1 emissions. The breakdown of natural gas usage over the past six years and associated GHG emissions are below.

Purchased Natural Gas					
	Therms	GHG Emissions [$MTCO_2e$]	% -/+ previous yr. comparison	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	22%	0.00011	7%
2015	45,768	241	15%	0.00010	-3%
2016	70,423	371	54%	0.00014	33%

Business Travel – Scope 3 Emission

The fifth largest contributor of GHG emissions at INTREN in 2016 was employee business travel, the same as in 2011 through 2015. 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 an increase in GHG emissions by approximately 200%. This increase is most likely due to an increase in INTREN's customer base. Additional travel to ensure INTREN's continued growth contributed to the increase in business travel GHG emissions. Business Travel emissions are categorized as a Scope 3 emission. The breakdown of total air miles and the associated GHG emissions is below.

Business Travel					
	Miles	GHG Emissions [$MTCO_2e$]	% -/+ previous yr. comparison	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%
2014	286,662	48	-38%	0.000024	-45%
2015	160,370	27	-44%	0.000011	-54%
2016	608,658	91	241%	0.000033	200%

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 2016. The total estimated water usage for 2016 was 3,313,050 gallons. INTREN used approximately 35% less water than in 2015. This reduction is likely due to more accurate data obtained as well as a reduction in directional drilling operations.

Water Consumption			
	Potable Gallons	Recycled or Reused Gallons	% -/+ previous yr. comparison
2015	5,132,540	500	
2016	3,313,050	31,000	-35%

Waste Generation

Waste generation is the weight or volume of materials and products that enter the waste stream before recycling, composting, landfilling, or combustion takes place. This category includes waste generated from INTREN in 2016. From 2015-2016 the total amount of waste generated by INTREN increased by 35% with the total amount of waste recycled increasing by 599%. The increase of waste generated is likely due to the increase in INTREN locations and their growth.

Waste Generation					
Date	Waste Tonnage	Recycled Tonnage	Percentage Recycled	% -/+ previous yr. comparison (Waste)	% -/+ previous yr. comparison (Recycled)
2015	2,540	27	1.08%		
2016	3,420	191	6%	35%	599%

GHG Emission Results Summary

The following summary will list the largest contributor of GHG emissions at INTREN to the smallest contributor. Four of the five categories measured seen an increase. With the number of work hours increasing from 2015 to 2016 by 16%, INTREN was able to see a minimal increase in total GHG emissions during that time frame of approximately 7% from 2015 to 2016.

- **Fuel use 9% increase from 2015-2016.** This increase is due to a 16% increase of hours worked and a 21% increase in vehicles & equipment.
- **Purchased electricity 26% decrease from 2015-2016.** The decrease is due to the 50 % renewable energy purchased by INTREN beginning in July and August of 2016.
- **Employee commuting 3% increase from 2015-2016.** This increase is like due to the 25% increase in full time office personnel which increased employee commute by 448,216 miles in 2016.
- **Purchased Natural gas 33% increase from 2015-2016.** The increase is likely due to the increase of 7 additional office locations resulting in a total of 30,874 therms used.
- **Business travel 200% increase from 2015-2016.** This increase is most likely due to an increase in INTREN's customer base. Additional travel to ensure INTREN's continued growth contributed to the increase in business travel GHG emissions.

GHG Emissions [$MTCO_2e$]									
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ADDENDUM

Data Collection Analysis

For calendar year 2016, below is an analysis of each GHG category 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 2015, which includes a monthly summary by fuel type, and was suitable for this exercise.

Purchased Electricity

The data collection for purchased electricity for 2016 was completed in the same manner as 2015. Electric bills were obtained to calculate total kWhs used for each INTREN location. All locations that don't receive bills were estimated using similar locations that received bills as a reference to how much electricity was used.

Employee Commuting

INTREN reported 2016 employee commuting data in the same manner as 2015. A report was run to obtain all employees working during 2016 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 2016.

Purchased Natural Gas

Similar to maintaining the data collection improvements made with electricity, the 2016 GHG emission calculations for natural gas were completed utilizing actual bills received from natural gas providers. All locations that don't receive bills were estimated using similar locations that received bills as a reference to how much natural gas was used.

Business Travel

The data collected for 2016 business travel was not done in the same manner as 2015. In 2015 air mileage was calculated using the average miles traveled in 2014 multiplied by the total

flights taken in 2015. This method was utilized after Intren changed credit card vendors. The recommended improvements for data collection for business travel in 2015 was to convince the new credit card vendor of the importance of implementing destination and departure information within their reports and fortunately, in 2016, departure and destination data became available from the new credit card vendor and more accurate data was supplied.

Water Consumption

In 2015 an estimate of water use was completed by taking the total number of bore rigs, their tank size, and estimated fill-ups per week. The data for 2016 was done in a similar manner for 20 bore trucks. The remaining 39 bore trucks utilized were multiplied by the total amount of water used during a 9-week pilot program and then multiplied by total number of work weeks within a year. Both estimates were then added together to provide the total estimated gallons of water usage in 2016. The recommendation made last year to better document water set up was put in place for 2017. The second recommendation to utilize INTREN owned water meters to determine the amount of water entering bore rigs during weekly water fill-ups should still be considered. A combination of both would provide an accurate account of total water usage as well as cost to the company.

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.

Fuel Usage

INTREN used 1,051,742 gallons of diesel fuel in 2016 for multiple light and heavy duty vehicles as well as construction equipment. Diesel fuel accounts for approximately 56% of the total amount of fuel used in 2016. 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.

Purchased Electricity

In 2017, INTREN successfully installed LED lighting at their main headquarters which will reduce their energy usage by approximately 200,000 kWh annually. Although purchased electricity was the only GHG emitter that seen a reduction in 2016, it is important efforts are continued within this category. 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 2018.

Employee Commute

INTREN employee commute emissions increased 3% in 2016 which is mainly due to the 8% increase in office personnel. 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 2016. This assessment will help determine where and if energy is being wasted and offer projects that can help the issue.

Water Consumption

In 2017, INTREN began using non-potable water for directional drilling operations in the state of Illinois. It is recommended the organization proceeds 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 increased by 35% in 2016. It is suggested INTREN ramp up its Recycle & Waste Minimization program and work with their supply chain to determine how supplies are delivered. Increasing recycle options in areas that are not currently setup is also an option to consider.

Appendix A – GHG Emissions Charts