



APRIL 2022

CARBON EMISSIONS REPORT

CTIA EXCLUSIVE PILOT

PRESENTED TO

Oratex Inc.

PRESENTED BY

GLOBAL INNOVATIVE TECH
& W2R SOLUTIONS

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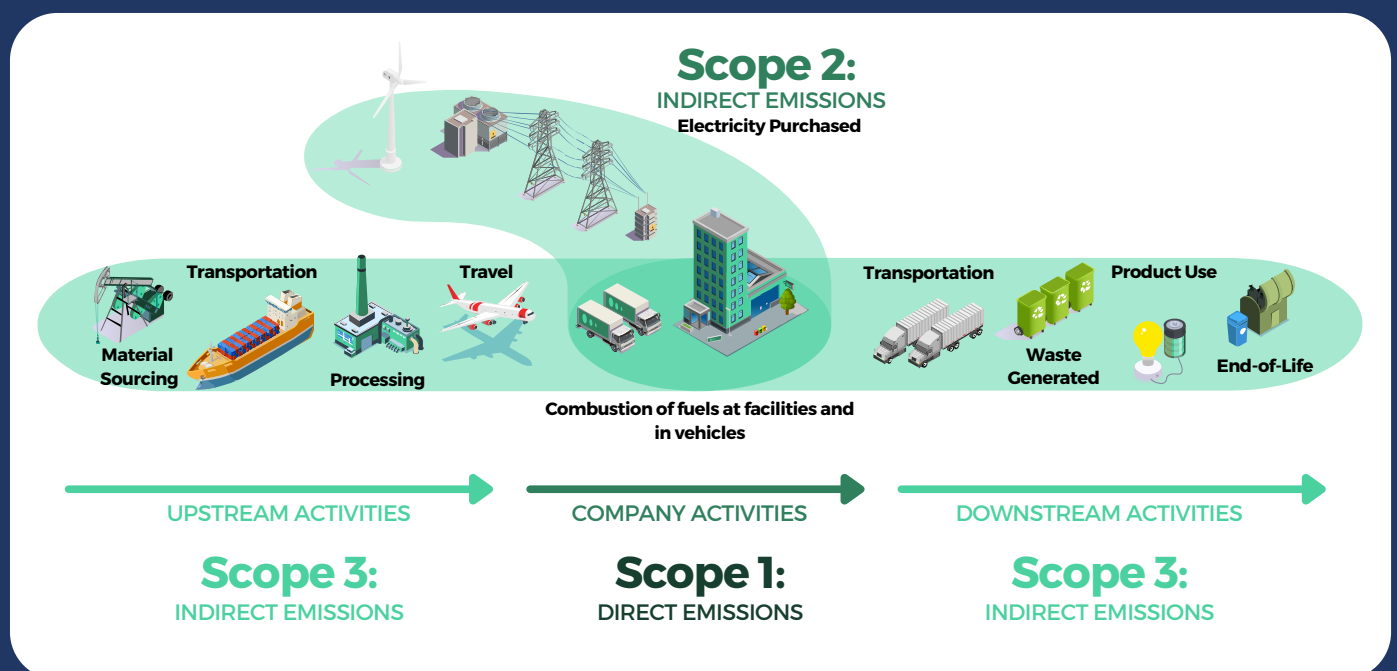
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INTRODUCTION

Oratex Inc. is a participant in the carbon footprint pilot project a member of Canadian Textile Industry Association (CTIA). This pilot project is a collaboration effort with Global Innovative Tech. and W2R Solutions. The purpose of this project is to quantify the operational greenhouse gas (GHG) emissions of each pilot participant. This quantification informs reduction opportunities and is part of CTIA's Environment and Sustainable Development Committee strategy.

SCOPE OF WORK

In order to quantify the GHG emissions of Oratex Inc., a carbon accounting approach was implemented. Carbon accounting considers three scopes of emissions, numbered 1 to 3. Scopes 1 and 2 are considered in this report. Scope 1 relates to the direct emissions from stationary combustion (ex. natural gas usage) and mobile combustion (vehicles). Scope 2 refers to the indirect emissions from electricity purchase. Scope 3 relates to all the indirect emissions from Oratex's value chain and was outside the scope of this report.



METHODOLOGY

The methodology used for this analysis is based on the international standard established by the Greenhouse Gas Protocol Initiative (GHG Protocol) known as the Corporate Accounting and Reporting Standard. This is the standard used by companies and organizations to measure and manage their GHG emissions and become more efficient, resilient, and prosperous. It has been established in a joint initiative with World Resources Institute and the World Business Council for Sustainable Development.

BACKGROUND

- Name of the reporting entity: Oratex Inc.
- Description of the reporting entity: Clothes and fabric manufacturer
- Reporting period: January 1, 2021 to December 31, 2021

Scope of physical boundary

- 9900 Boul Ray Lawson, Anjou, QC H1J 1L8
- 800 Rue Melchers, Berthierville, QC J0K 1A0

Scope of operational boundary

- Scope 1 direct GHG emissions from natural gas combustion on site for heating and production supplied by Hudson Energy.
- Scope 2 indirect GHG emissions from electricity purchased.

Carbon Dioxide Equivalent (CO₂e) Defined:

Carbon dioxide emissions are used as the benchmark for global warming potential. Other greenhouse gas emissions are in turn converted, based on their global warming potential, into a carbon dioxide equivalent, or **CO₂e**.

ENERGY CARBON FOOTPRINT OVERVIEW

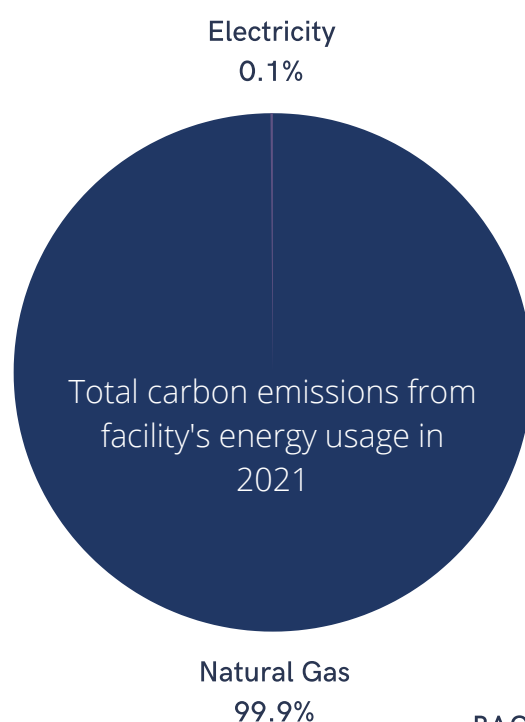
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TONNES OF CO₂E

Breakdown of Energy Emission in 2021

Scope	Grid Region	Energy Source	Amount of energy	Units (GJ,kWh)	CO ₂ e (tonnes)
Scope 1	Quebec	Natural Gas	40,647.54	GJ	2046
Scope 2	Quebec	Purchased Electricity	2,421,420	kWh	3

99.9% of Oratex's locations carbon emissions come from use of natural gas.



REGIONAL OBSERVATIONS

Understanding Grid System and Competitive Outlook

99% QUEBEC'S ELECTRICITY
IS OVER 99% CLEAN.

Quebec's electricity grid is a global leader for renewable generation.



3X ELECTRICITY IS ROUGHLY
3.5X MORE EXPENSIVE THAN
GAS IN QUEBEC

Currently, electricity is approximately 3.5x more expensive to use in Quebec than Natural Gas. Although this is changing with Climate related policies and geo political events adding pressure on gas prices.

Oratex's total energy usage is comprised of:
82% Natural Gas & 18% Electricity
(11,291MWh vs 2,421MWh)

GLOBAL COMPARISON

Oratex Canada 2021 vs Global Competitors

To demonstrate the environmental superiority of Quebec's electric grid, Oratex's usage was compared to other textile hotspots in the world.

<u>City/Region</u>	<u>Province</u>	<u>Country</u>	<u>t CO2e</u>	<u>Variance</u>
Anjou/Berth.	Quebec	Canada	2,049	-
Guangzhou	Guangzhou	China	9,577	467%
Bhilwara	Bhilwara	India	11,261	550%
Saxony	Saxony	Germany	6,312	308%

*Based on 13,712 MWh annual energy consumption baseline

**Assuming Global Competitor Electricity Grid



“A global leader in renewable energy, Hydro-Québec supplies 8 million Quebecers with power that is more than 99% clean. And our energy stands out from the competition.”

- Hydro Quebec”

<https://www.hydroquebec.com/clean-energy/#:~:text=A%20global%20leader%20in%20renewable,stands%20out%20from%20the%20competition.>

EFFICIENCY

OBSERVATION & RECOMMENDATIONS



1. Commission Formal Energy Audit:

- Detailed study, involving metering and engineering to best understand systems and processes. Output includes a list of projects, expected ROI's and a clear path forward.

2. Energy Systems inspection:

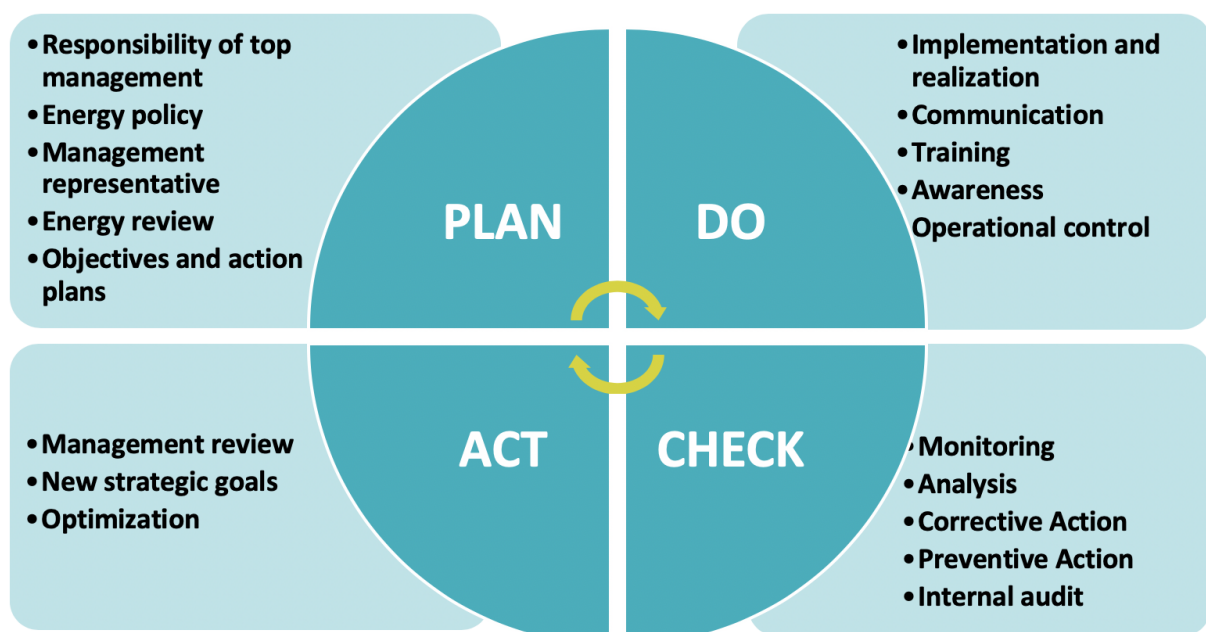
- Inspection of systems and walk through to identify common energy improvement projects. Finding often include opportunities in Lighting, Building Controls, HVAC, Variable Frequency Motor Drives and compressed air systems optimization.

3. Implement of Energy Monitoring System:

- Real time metering enablement and monitoring process for energy reduction, proactive maintenance and capacity planning.

4. Conduct Water Consumption Study and/or improve visibility

The vast majority of facilities have opportunities to significantly decrease energy consumption by improving processes, systems and upgrading equipment. More information is required for a better assessment.



Four Phases based on ISO 50001

<https://neep.org/blog/state-strategic-energy-management-northeast>

ENERGY FUNDING



EcoPerformance Program (QC)

- ÉcoPerformance aims to reduce greenhouse gas emissions and the energy consumption of businesses by financing projects or measures related to energy consumption and production, as well as process improvement.
- ÉcoPerformance is offered to companies, institutions and municipalities that consume fossil fuels or that use processes that generate fugitive GHG emissions. It is aimed at both small and large energy consumers.

Analysis Funding:

Category	Calculation of assistance / Eligible expenses	Maximum per site - Small and medium consumers	Maximum per site - Large consumers
Analysis project	50%	\$25,000	\$50,000
More complex technical analysis	75%	\$100,000	\$300,000 ⁽¹⁾

Energy Management Funding:

Category	Calculation of aid / Eligible expenses (%)	Maximum (\$)
Hiring an energy manager	75%	\$10,000
Training on energy management and the ISO 50001 standard ⁽¹⁾	75%	\$50,000
Support and consulting services from external specialists for the implementation of the system, audits by third parties and certification by an accredited certification body	75%	\$100,000
Acquisition of measuring equipment, probes and programming	75%	\$150,000

Mechanical System Refurbishment

Category	Assistance Calculation - Eligible Expenses	Maximum in \$
Investigation Transfer Continuous monitoring	75%	\$100,000 per site

ENERGY FUNDING



EcoPerformance Program (QC) - Continued

Standard Layout:

- Up to \$5,000,000 - \$10,000,000

Participant Category - Heavy Consumer	Minimum PRI (years)	PRI max (years)
Large industrial consumer	1 year	15 years old
large commercial consumer	3 years	20 years
Large institutional consumer	5 years	20 years
Small and medium industrial consumer	2 years	20 years

Participant category	% of eligible expenses	min PRI	\$/t Co _{2nd}
Large industrial consumer	75%	1 year	\$50/60/t ⁽²⁾
large commercial consumer	75%	3 years	\$60/t
Large institutional consumer	75%	5 years	\$60/t
Small and medium industrial consumer	75%	2 years	\$125/t
Small and medium commercial consumer	75%	3 years	\$125/t
Small and medium institutional consumer ⁽¹⁾	75%	5 years	\$125/t
Process Fugitive Emission Reduction Project	75%		\$25/t

Converting from Oil or Propane Heating to Renewables:

- Up to 75% of total costs

15% ENERGY REDUCTION OUTCOME

The efficiency recommendations can translate to the following financial and environmental savings.

Current Energy Costs

<u>Reduction Analysis</u>	<u>Volume (MWh)</u>	<u>t CO2e</u>	<u>\$ / MWh</u>	<u>Current Cost</u>
Natural Gas	11291	2046	\$ 27.65	\$ 312,202
Electricity	2421	3	\$ 98.16	\$ 237,694

15% Energy Consumption Reduction

<u>Commodity</u>	<u>Volume</u>	<u>t CO2e</u>	<u>Annual Savings</u>
Natural Gas	1694	307	\$ 46,830
Electricity	363	0	\$ 35,654

Reduction Summary Sample

307 tCO2 for Energy
\$ 82,484 Annual Savings

----->

EPA Equivalents

----->

Similar to taking 24 Gasoline Power cars off the road for 1 year...

----->

A living wage for a Full Time employee, or re-investment into sustainability...



COMMODITY

OBSERVATION & RECOMMENDATIONS



Electricity & Natural Gas Agreements:

- Current supply is provided by Hudson Energy until February 2023
- Recommendation to consider long term fixed pricing for Natural Gas

Demand Response

- HydroQuebec's new Demand Response Program allows users that can reduce power during Winter Peak Events to earn a credit on their bill.
- The response period is Between December 1 - March 31 the following year, inclusive.
- This option is risk-free, because your bill can only get smaller.

Effective interruptible power	Credit on your bill
14 kW	None
15 kW	\$1,000.35
25 kW	\$1,667.25
100 kW	\$6,669.00
250 kW	\$16,410.87
500 kW	\$31,800.87
1,000 kW	\$60,523.74
1,500 kW	\$87,194.61
2,000 kW	\$111,813.48

¹- <https://www.hydroquebec.com/business/customer-space/rates/demand-response-option.html>

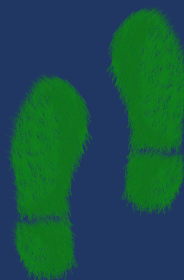
THANK YOU!

We thank the participants of the CTIA Carbon Footprint Pilot project for their diligence in helping gather information to help quantify the energy Carbon Footprint for your business. We hope that through this report that you will gain a deeper understanding of your CO2 emissions attributed to energy sources which will encourage advancement in your Sustainability Journey.

We are looking forward to supporting your energy and sustainability advancements!

"To avert the worst impacts of climate change, the Government of Canada is committed to achieving net-zero emissions by 2050".

*



Disclaimer:

Current publications for emission factors have been used for this report. It's important to note that these factors are updated regularly and subject to change by independent bodies.

Energy savings using the recommended actions are to serve as ideas to consider for further evaluation, thus we do not guaranteed any financial savings in this report. Recommendations should be verified by solution providers.

The scope and limitations of this report should be considered diligently if and when public statements are made concerning the Carbon Footprint of facilities included. Global Innovative Tech and W2R Solutions shall not be held liable for any misuse of the information contained herein.

Energy usage and cost figures have been compiled from the information provided and although it is reliable, it should not be deemed as absolutely accurate. Especially in cases where data provided was limited, pre-input or incomplete.

Regardless of report confidentiality, neither Global Innovative Tech nor W2R Solutions accept responsibility of whatsoever nature to any third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk. Interpretations, analyses, or statements of any kind made by a third party and based on this report are beyond the responsibility of parties mentioned.

QUESTIONS? CONTACT US.

*"We do not inherit the earth from our
ancestors, we borrow it from our children."*

Native American Proverb

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APPENDIX

EMISSION FACTORS

Table A13-6 **Electricity Generation and GHG Emission Details for Quebec**

	1990	2000	2005	2013	2014	2015	2016	2017	2018	2019 ^a
Greenhouse Gas Emissions^b										
	kt CO ₂ equivalent									
Combustion	1 490	567	616	367	245	205	233	239	242	232
Coal	–	–	–	–	–	–	–	–	–	–
Natural Gas	114	194	269	144	13	0	1.0	1.0	2.0	1.0
Other Fuels ^c	1 380	373	347	223	231	205	232	238	241	231
Other Emissions^d	–	2.5	4.6	–	–	–	–	–	–	–
Overall Total^{e, f, g}	1 490	569	621	367	245	205	233	239	242	232
Electricity Generation^{h, i}										
	GWh									
Combustion^j	1 980	1 150	1 390	1 140	1 010	960	1 290	1 310	1 340	1 230
Coal	–	–	–	–	–	–	–	–	–	–
Natural Gas	–	191	212	14	14	0	0	0	0	0
Other Fuels	1 980	961	1 170	1 130	1 000	960	1 290	1 310	1 340	1 230
Nuclear	4 070	4 890	4 480	0	0	0	0	0	0	0
Hydro	112 000	153 000	155 000	182 000	177 000	175 000	177 000	182 000	180 000	180 000
Other Renewables^k	–	173	416	1 030	1 010	6 420	9 420	9 530	10 200	10 700
Other Generation^{l, m}	–	–	–	–	–	–	–	–	–	–
Overall Totalⁿ	118 000	160 000	161 000	184 000	179 000	182 000	188 000	193 000	191 000	191 000
Greenhouse Gas Intensityⁿ										
	Generation Intensity (g GHG / kWh electricity generated)									
CO ₂ intensity (g CO ₂ / kWh)	13	3.5	3.7	2.0	1.4	1.1	1.2	1.2	1.3	1.2
CH ₄ intensity (g CH ₄ / kWh)	0.0004	0.0005	0.001	0.0002	0	0	0	0	0	0.0002
N ₂ O intensity (g N ₂ O / kWh)	0.0003	0.0002	0.0004	0	0	0	0	0	0	0.0001
Generation Intensity (g CO₂ eq / kWh)^r	13	3.6	3.9	2.0	1.4	1.1	1.2	1.2	1.3	1.2
	Losses									
Unallocated Energy (GWh) ^{o, p}	7 300	13 000	9 100	12 000	13 000	2 600	9 000	12 000	9 000	2 000
SF ₆ Emissions (kt CO ₂ eq) ^q	37	36	30	67	17	74	81	22	58	58
	Consumption Intensity (g GHG / kWh electricity consumed)									
Consumption Intensity (g CO₂ eq / kWh)^r	14	4.1	4.3	2.5	1.6	1.6	1.8	1.4	1.6	1.5

Notes:

Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.

- a. Preliminary data.
- b. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
- c. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
- d. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
- e. GHG emissions from the flooding of land for hydro dams are not included.
- f. Totals may not add up to overall total due to rounding.
- g. CO₂ from carbon capture and storage has been removed from the total
- h. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2019).
- i. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
- j. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
- k. Other Renewables – includes electricity generation by wind, tidal and solar.
- l. NAICS category 221119, Other Electric Power Generation.
- m. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
- n. Intensity values have been rounded so as to present the estimated level of accuracy.
- o. Adapted from StatCan Data Table 25-10-0021-001 (2005–2019) or Cat. No. 57-202-XIB (1990–2004).
- p. Includes transmission line losses, metering differences and other losses.
- q. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
- r. Consumption intensity values are impacted by unallocated energy and SF₆ transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations