L'énergie de l'avenir | Fuel 4 the Future

FINAL REPORT

2023 - 2024

PRODUCED BY
ATLANTICA CENTRE FOR ENERGY
MAY 2024

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EMPOWERING ATLANTIC CANADA'S CLEAN FUELS WORKFORCE

Proponent: Atlantica Centre for Energy

The mission of the Centre is to *Proactively engage with industry, government and the public to foster sustainable growth related to energy opportunities in Atlantic Canada.*

The Centre commits to its mission by **facilitating dialogue** through actively participating in conferences and events; publishing papers and commentaries; and coordinating events and discussions. By increasing **energy literacy** through providing access to accurate and reliable information on important current energy topics. And by **fostering partnerships** through connecting stakeholders and providing networking opportunities with our broad reach in Atlantic Canada across all sectors related to energy.

Project Description

The 'Clean Fuels Awareness Project' was an opportunity to target the lack of awareness the next generation of the workforce has about the opportunities, benefits, and considerations related to adopting clean fuels in Atlantic Canada. Through collaboration with post-secondary institutions, industry partners, and First Nations, the future workforce will be innovatively exposed to career pathways within the clean fuels value chain.

Atlantica Centre for Energy views this project, which targets the future workforce, as incremental next steps to its energy literacy efforts.

PARTNERS AND COLLABORATORS

Contributing Partners

- Natural Resources Canada (NRCan)
- Council of Atlantic Premiers – Atlantic Workforce Partnership
- Saint John LNG (Repsol S.A.)
- Emera New Brunswick
- Liberty
- University of New Brunswick

Collaborators

- Industry: ARC Clean Energy Canada, Marine Renewables Canada, NB Power, Wind Energy Institute of Canada (WEICan), Eastward Energy, ABO Wind, Irving Oil Ltd., Port of Halifax, Net Zero Atlantic, econext, NAYGN NB, Port of Belledune
- Post-Secondary Institutions: New Brunswick Community College, Collège Communautaire du Nouveau-Brunswick, New Brunswick Indigenous Career College, Nova Scotia Community College, Unama'ki College, College of the North Atlantic, Holland College, University of New Brunswick, University of Prince Edward Island, Dalhousie University, Memorial University of Newfoundland, Cape Breton University
- Indigenous Consulting: Indigenous Treaty Partners, North Shore Mi'kmaq Tribal Council
- Creative Consulting: ICS Creative Agency

WHAT IS THE PROBLEM WE WANT TO SOLVE?

1. ‘Clean fuels’ is a broad and unclear term.

2. Companies who will be drivers of adopting clean fuels are not necessarily associated with the sector.

3. Companies driving the adoption of clean fuels are growing and finding it difficult to hire younger workers.

4. The future workforce is unaware of job opportunities related to clean fuels in Atlantic Canada.

“I was surprised to learn that there is an actual push for bringing in cleaner fuels, seems like more of just talk sometimes.”

- Power Engineering Student, NBCC Saint John

“L’énergie propre est essentielle pour notre avenir et qu’il faut s’en soucier dès maintenant.”

- CNC Machinist Student, CCNB Bathurst

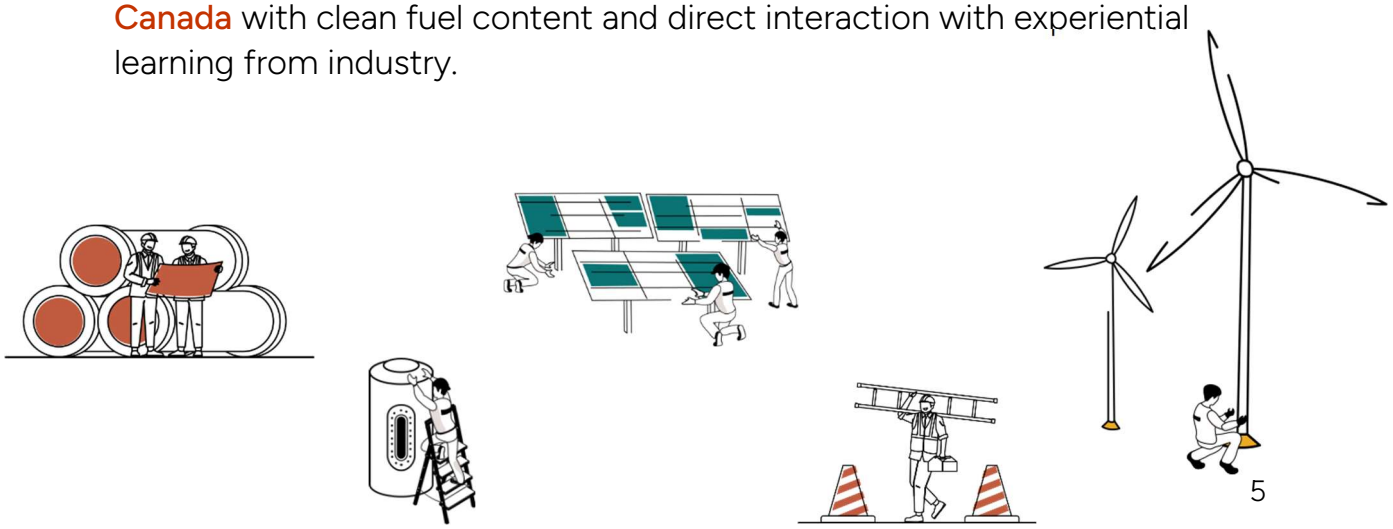
Fuel 4 the Future | L'énergie de l'avenir

Empowering Atlantic Canada's Clean Fuel Workforce

- The Fuel 4 the Future (F4F) team collaborated with post-secondary institutions, industry partners, First Nations communities, and students.
- The team sought to expose the future workforce to career pathways within the clean fuels value chain.
- Project tactics included:
    - the creation of an interactive learning website (fuel4future.ca),
    - in-person and in-class activities and presentations,
    - virtual events,
    - awareness surveys,
    - job fairs, and more.

Objectives

- Execute at least **two** clean fuel related events in each of the Atlantic provinces by **March 2024**.
- Expose approximately **20% of Atlantic Canadian post-secondary students in STEM programs (5100 students)** to the opportunities, benefits, and considerations related to adopting clean fuels in Atlantic Canada by the end of March 2024.
- **Enhance** post-secondary curriculum at **six to eight institutions in Atlantic Canada** with clean fuel content and direct interaction with experiential learning from industry.

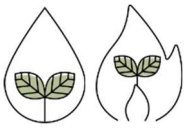


KEY PERFORMANCE INDICATORS

To measure the success of the project, the following KPIs were identified:

Student, faculty, and industry engagement: number of new materials developed, website content analytics (visits, clicks, etc.).

Engage users through surveys.
Target: 1000 user surveys completed.



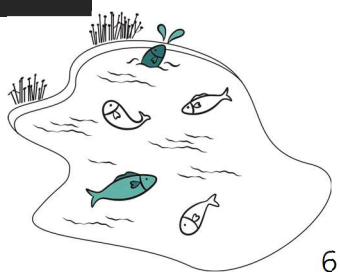
Host six to eight in-person events and six virtual events for students, educators, and industry.

Number of accessed/downloads of teaching and learning resources from website.
Target: 50 downloads.

Engage with Indigenous partners throughout the duration of the project.
Target: two groups engaged.

Number of Clean Fuels Pathways game participants.
Target: 500 users.

Total participation tracked a minimum of 5100 students participating in various aspects of Fuel 4 the Future project.



BRAND DEVELOPMENT

The Fuel 4 the Future team worked with ICS Creative Agency to develop the name, branding and website for the project.

Name & Logo

L'énergie de l'avenir Fuel 4 the Future

The name *Fuel 4 the Future* represents how post-secondary students and Indigenous youth are the *fuel* of the future workforce for the energy sector in Atlantic Canada. The number *4* represents the four Atlantic provinces, the four seasons, and for directions.

The logo features an arrowhead shape that represents spearheading future efforts, pointing north to guide our way.

- **Red** = a sacred colour for Indigenous peoples
- **Yellow** = the sun, which is a significant cultural symbol for Mi'kmaki people.
- **Blue** and **green** = where the water meets the land in Atlantic Canada.

BRAND DEVELOPMENT

Characters

- ICS Creative Agency developed three characters for the project. These characters—Riya, Lucas, and Kristy—act as the narrators for the interactive learning tool called the Clean Fuels Learning Pathways.
- These characters are around the same age as the project's target audience (post-secondary students). The characters are either just beginning their schooling or entering the clean fuels workforce. The F4F team wanted to reflect the audience in the narrators so they could see themselves in this sector.
- On the recommendation of the project's Indigenous consultants, the *Kristy* character is Indigenous. The double curve motif on her dress and her long black hair, which is depicted in a braid throughout the pathway, were suggested to give her an Indigenized look. Initially, the character was supposed to work in a landfill but to ensure cultural sensitivity, it was changed to a dairy farm.

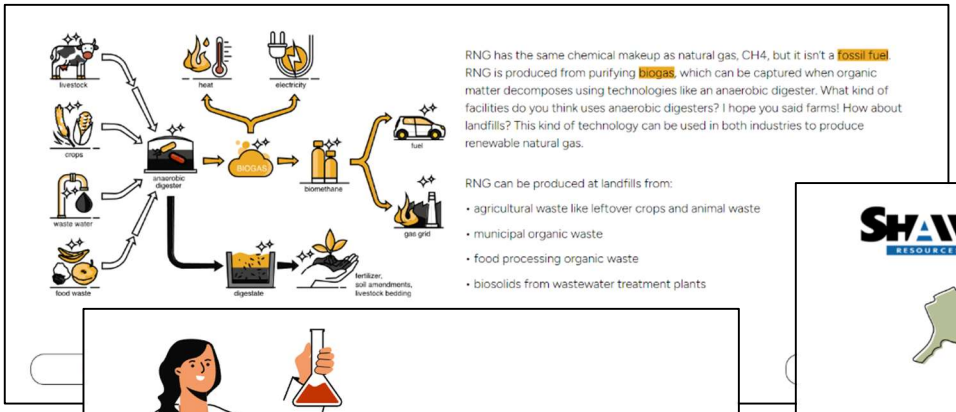
CLEAN FUELS LEARNING PATHWAYS

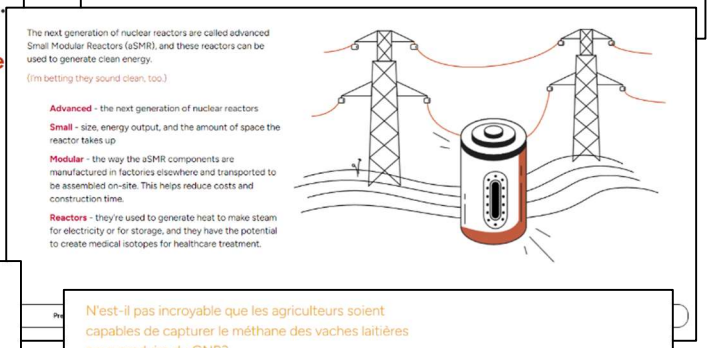
The Clean Fuels Learning Pathways were developed to teach post-secondary students and Indigenous youth the basics about the clean fuels industry in Atlantic Canada. Students can learn the basics about renewable natural gas, biofuels and clean hydrogen, how they're made, and which companies are producing them in Atlantic Canada.

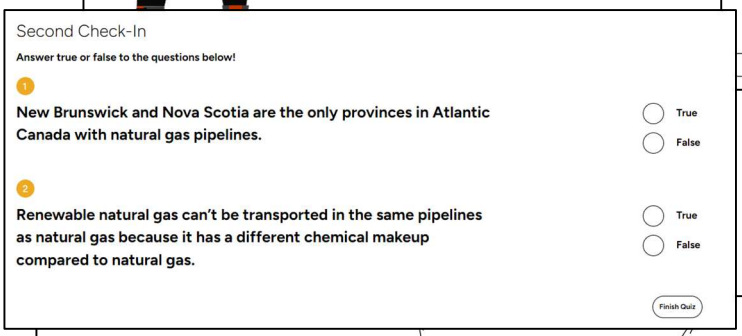
The learning pathways are interactive, featuring quizzes, videos and animations. Each pathway takes approximately 15 minutes to complete, and student's knowledge is tested throughout.

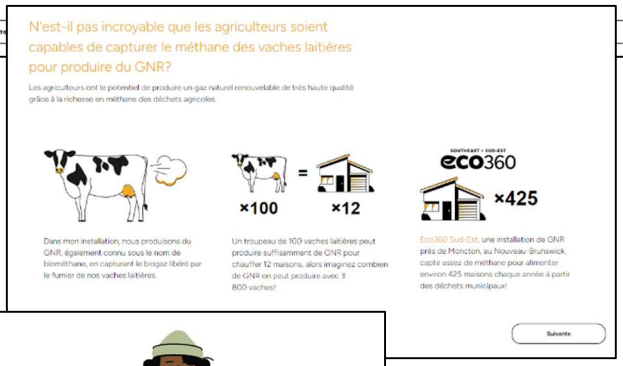
All three learning pathways are available in English and French at fuel4future.ca/learn.

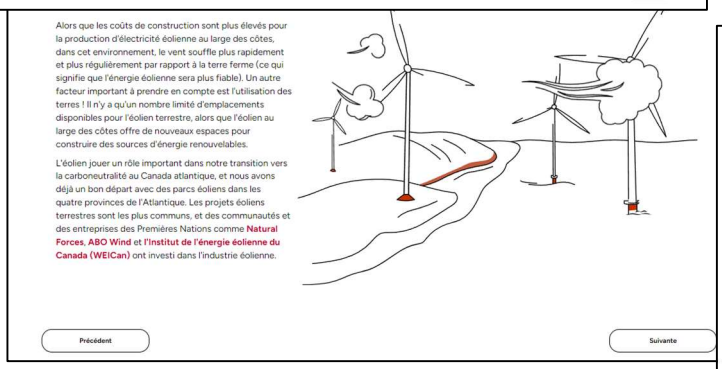
Clean Fuel Learning Pathway Snapshots

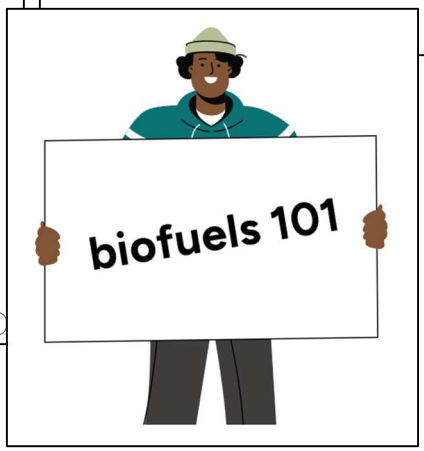




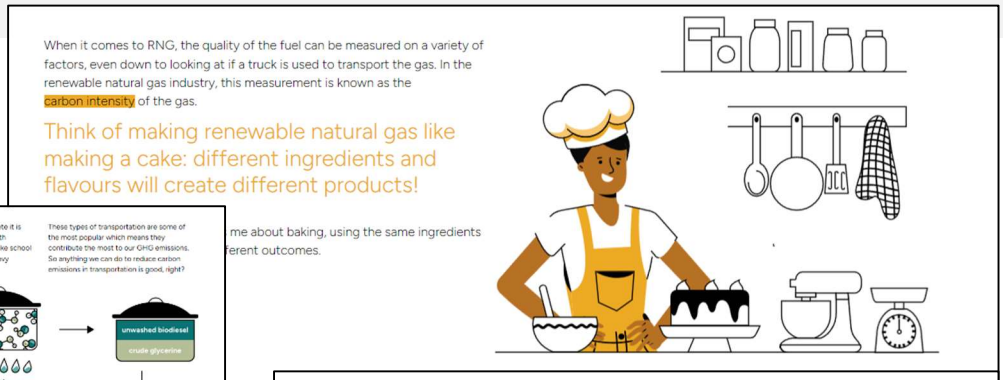


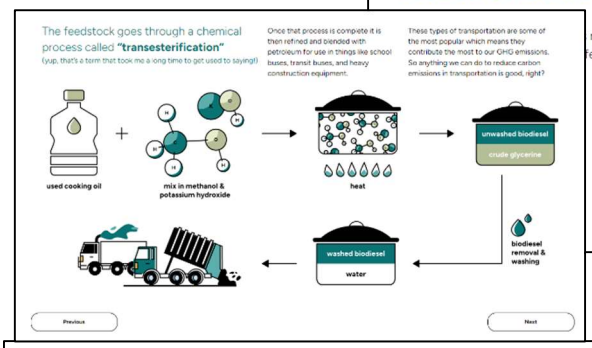


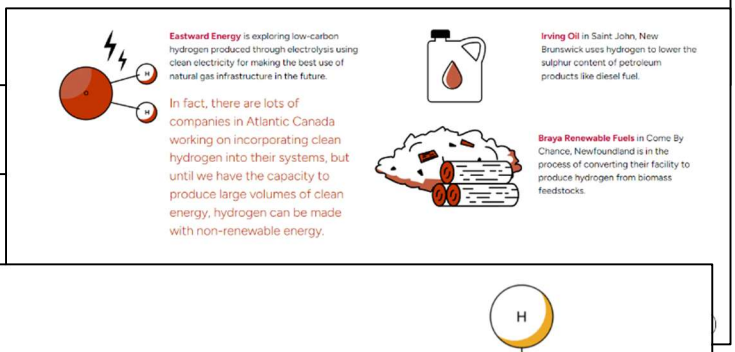


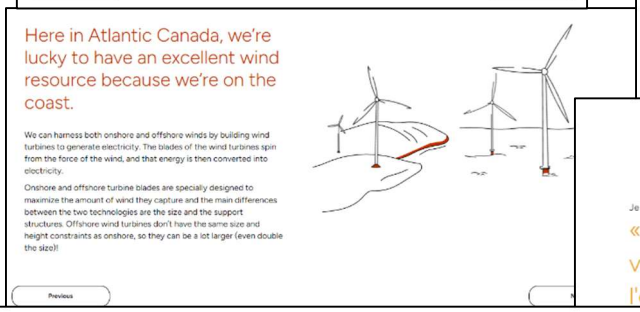


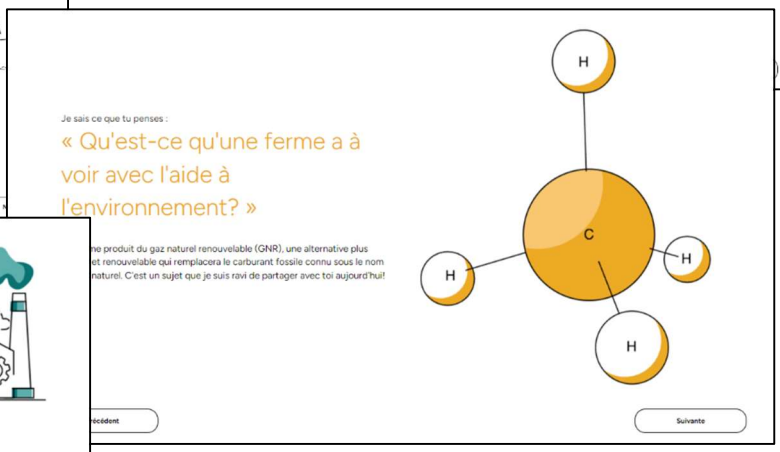
Clean Fuel Learning Pathway Snapshots

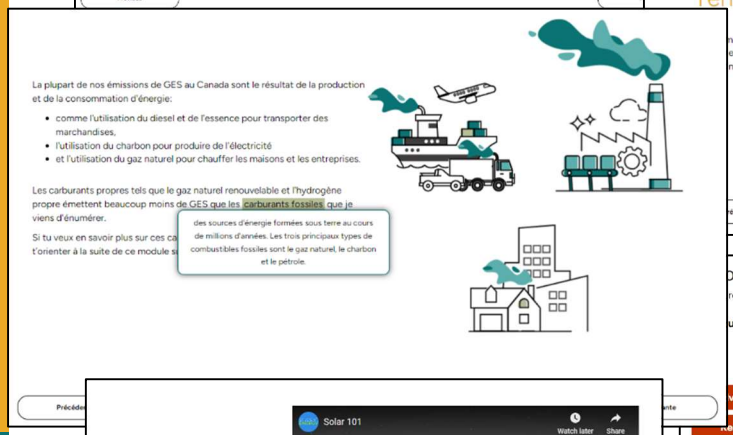


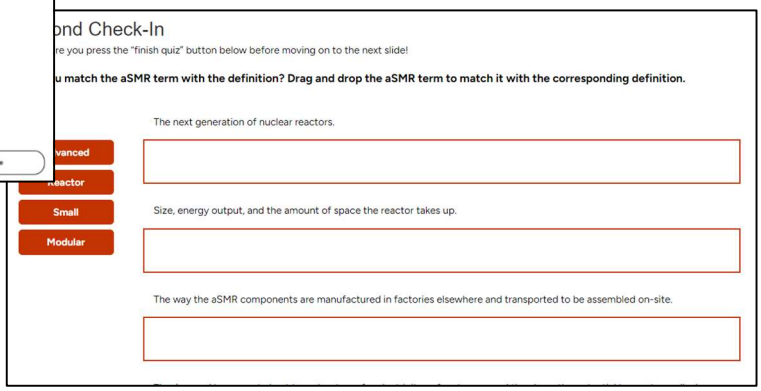












LEARNING PATHWAY RESULTS

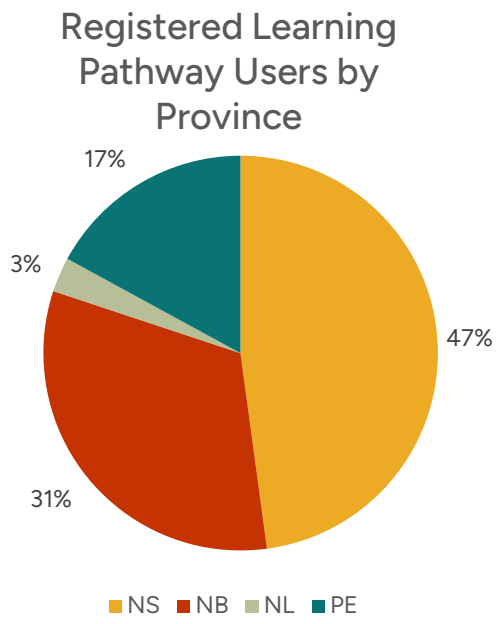
Registered Users Target: 100

Achieved: 360

Completed Learning Pathways Target: 500

Achieved: 877

Pathway	Completions
Riya's RNG Pathway	451
Lucas' Biofuels Pathway	228
Kristy's Clean Hydrogen Pathway	198
Total	**877**



Riya's Renewable Natural Gas learning pathway had the most interest, followed by Lucas' Biofuels pathway and Kristy's Clean Hydrogen pathway.

At the end of each pathway, students could reflect on what they learned. Here are some of the things students had to say:

"There are so many different types of clean energy. I had no idea that our province was involved and developing and using all of these methods."

"The coolest thing I learned is that renewable fuel sources are going to become available for the aviation industry!"

"I didn't realize the pros of ethanol I just thought it was a dangerous chemical!"

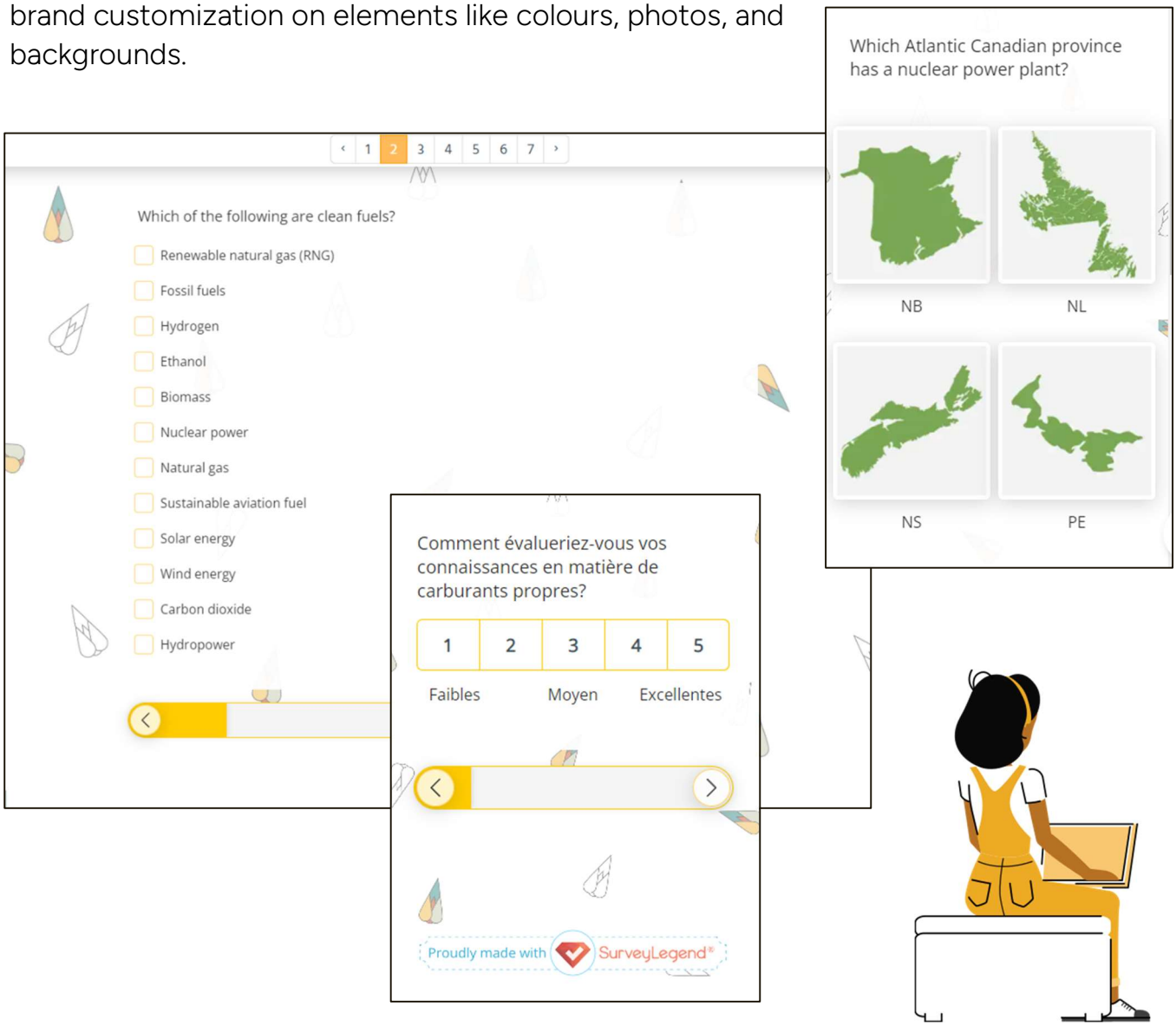
"I learned that a lot of companies in Atlantic Canada are trying to work with clean hydrogen."

"The most interesting thing I learned was that renewable natural gas has the same composition as non-renewable gas after purification, so it gives me hope to see positive and optimistic changes being made for the fuel sector as I build toward my own future."

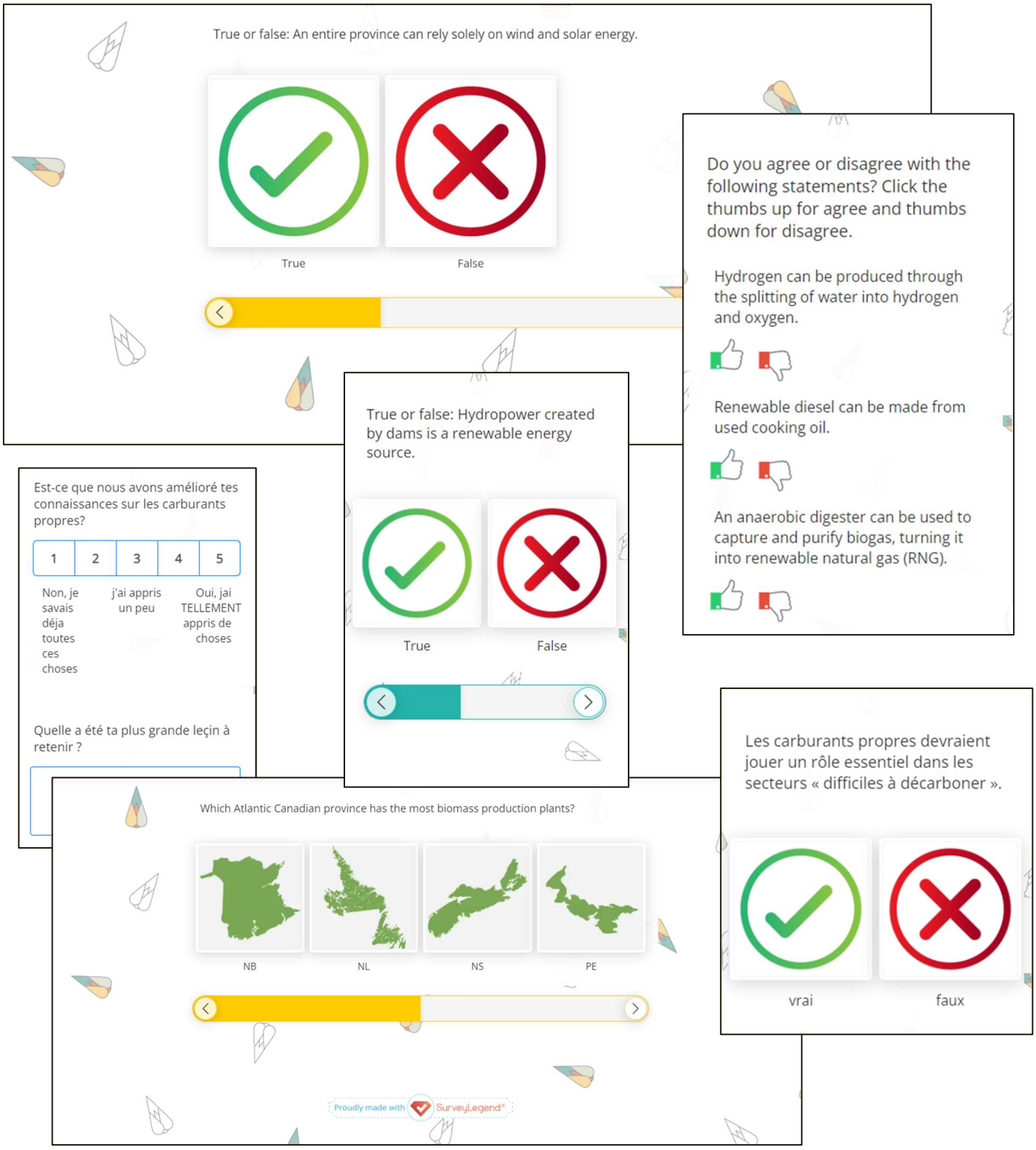
CLEAN FUELS AWARENESS SURVEY

The Clean Fuels Awareness Survey was available on fuel4future.ca/survey from September 2023 to March 2024. Post-secondary students, Indigenous youth, and the general public were encouraged to fill out the 20-question survey in order to learn what people know about clean fuels. The survey was available in English and French, and mini versions of the survey were administered at events.

SurveyLegend was selected as the survey software used for the Clean Fuels Awareness Survey. The software was affordable, easy to use, and allowed for brand customization on elements like colours, photos, and backgrounds.



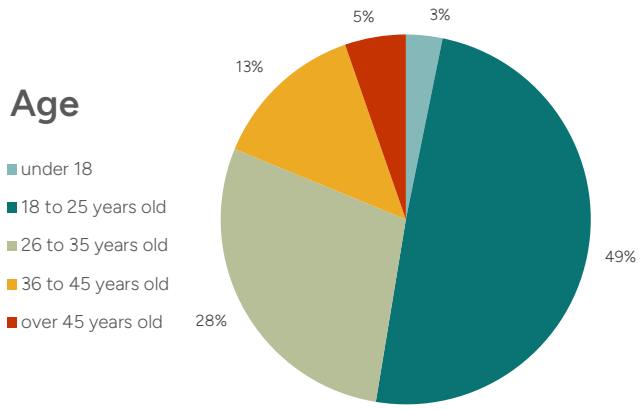
SURVEY SNAPSHOTS

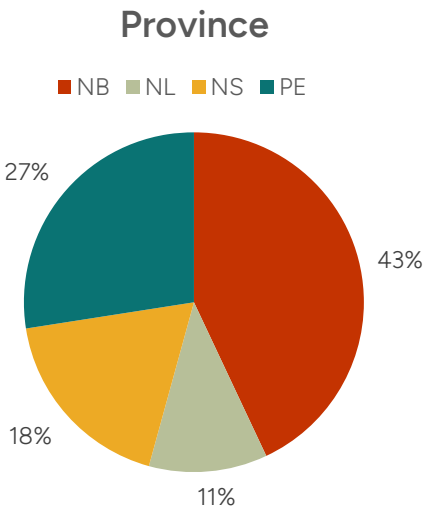


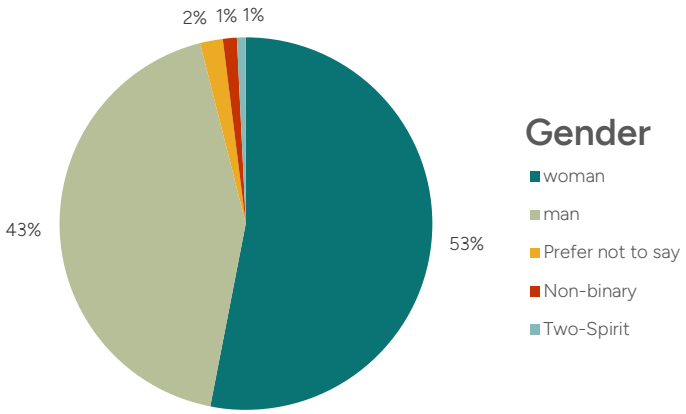
SURVEY FINDINGS

- **1015/1000 survey responses collected** that gathered information on current knowledge of clean fuels and knowledge following in-class presentations.
- The survey included questions related to general energy literacy and more specific topics related to the energy sector here in Atlantic Canada.
- While hosting and participating in events, the F4F team administered mini surveys consisting of 4 clean fuels-related questions, and in return for completing the survey, students were given Fuel 4 the Future swag. Post-secondary students and Indigenous youth who completed the surveys were entered in the draw for $500 bursaries.

Who completed the survey?



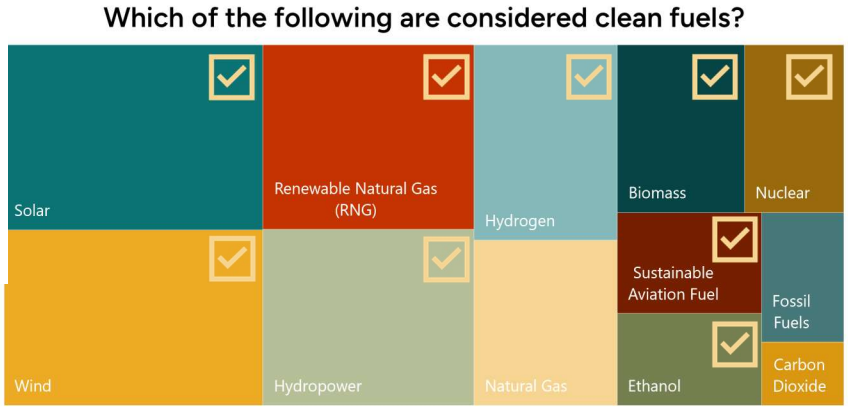


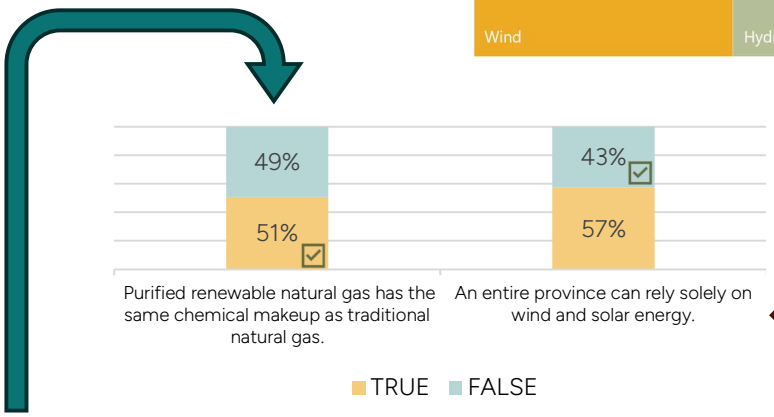


SURVEY FINDINGS

What are people missing?

Overall, respondents have little knowledge of biofuels. When asked to identify clean fuel sources, people picked natural gas over biofuels like biomass, ethanol, renewable diesel, and sustainable aviation fuel.



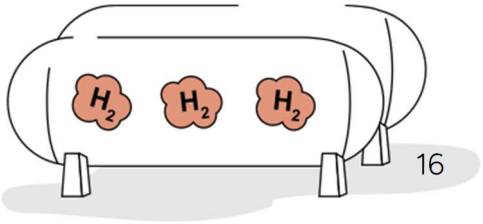


57% of respondents believe that wind and solar can power an entire province, which could speak to a misunderstanding or unawareness for baseload vs. intermittent energy sources.

Respondents have a general knowledge about the basics of clean fuels like what they are, but they don't know the details of how clean fuels work. For example: renewable natural gas and natural gas both have the same chemical makeup (CH_4), but respondents were split 51% to 49% about whether they thought this fact was true.

Surprising results

- Student respondents lack knowledge about energy sources in Atlantic Canada outside of their own province. When doing the mini surveys with students many of them said they didn't know the answers and asked their friends. There was no "unsure" option because the F4F team wanted the students to really think about it, and while a lot of respondents did get the questions correct, there's no way to know if it was a very good guess or not.
- Many respondents recognized Irving Oil as a player in the clean fuels industry. Other popular options were companies with "energy" in the title or other variations of clean terms like solar, renewable, natural, etc. Options that were less chosen were Emera Inc., Liberty, Kinectrics, and the Port of Belledune.



FUEL 4 THE FUTURE BURSARIES

Post-secondary students and Indigenous youth who completed the Clean Fuels Awareness Survey and/or the Clean Fuels Learning Pathways were entered in the draw for Fuel 4 the Future bursaries.

Fuel 4 the Future offered post-secondary students and Indigenous youth who completed at least one learning pathway the chance to win a $1000 bursary. They also had the opportunity to win two $500 bursaries for completing the Clean Fuels Awareness Survey. One $500 bursary was open exclusively to Indigenous youth and the other was open to all post-secondary students and Indigenous youth.

$1000 Clean Fuels Learning Pathways Bursary

Target Entries: 100

Achieved: 387

Winner:
Oluwakemi Elegbede, NBCC

$500 Clean Fuels Awareness Survey Bursary for Indigenous Youth

Target Entries: 50

Achieved: 100

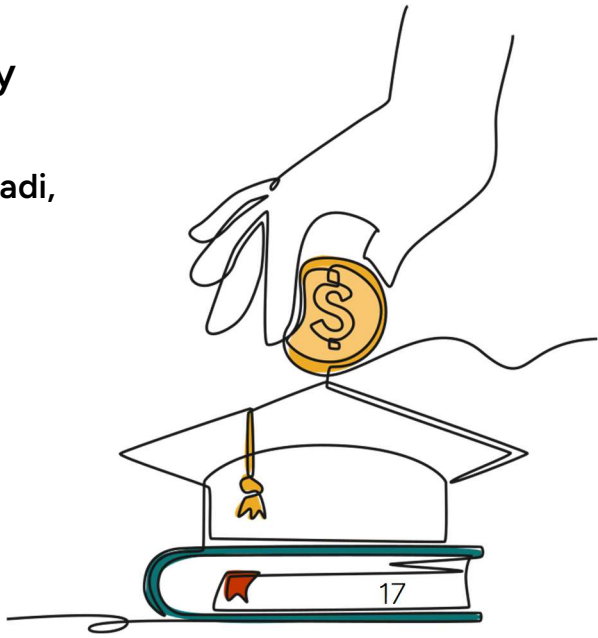
Winner:
Jacob Delaney, Holland College

$500 Clean Fuels Awareness Survey Bursary

Target Entries: 150

Achieved: 803

Winner:
Michel Ndjoo Tengadi, CCNB



POST-SECONDARY ENGAGEMENT

From September 2023 to March 2024 the F4F team engaged with 2500+ students in-person.

During the course of the project, the goal was to host six to eight events throughout Atlantic Canada. Fuel 4 the Future supported one event, participated in 11 events, and hosted 12 events across Atlantic Canada, for a total of **23** in-person events and **1** virtual (see page 19 for complete list).

12 NB **5 PE**
4 NS **2 NL**

→ 2570 student interactions

Highlights

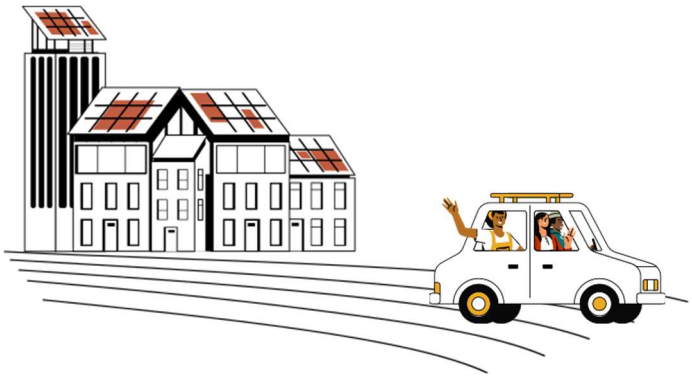
1 live webinar hosted with Net Zero Atlantic, available in perpetuity.

- Industry partner participation: Port of Halifax, Dalhousie University, and ABO Wind
- 160 virtual participants

1 live in-class event was hosted in a hybrid format available to all 5 New Brunswick Community College campuses.

- Industry partner participation: Irving Oil, Liberty, and ABO Wind
- 35 participants

2 Indigenous engagement events (see page 20) + Indigenous-Led Energy Symposium.

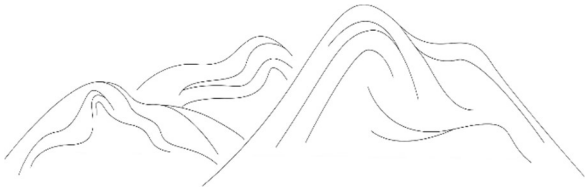


1 event hosted in-person at Collège Communautaire du Nouveau-Brunswick in French.

- Industry partner participation: Port of Belledune, Atlantica Centre for Energy
- 130 participants

POST-SECONDARY ENGAGEMENT

Institution	Province	Event	Date	Type	Number of Students	Role
UNBSJ	NB	Sustainability Networking Fair	11-Oct-23	In-Person	20	Participant
NB Indigenous Career College	NB	NB Indigenous Career College	17-Oct-23	In-person	24	Host
North Shore Micmac Tribal Council	NB	Indigenous-Led Energy Symposium	22 to 24-Oct-23	In-person	150	Participant
NBCC	NB	NB Power Presentation	09-Nov-23	In-person	20	Host
NBCC	NB	Saint John Career Fair	26-Jan-24	In-person	195	Participant
NBCC	NB	Moncton Career Fair	01-Feb-24	In-person	183	Participant
UNB	NB	Fredericton Career Fair	13-Feb-24	In-person	104	Participant
NBCC	NB	Woodstock Career Fair	14-Feb-24	In-person	70	Participant
UNB	NB	Saint John Career Fair	20-Feb-24	In-person	110	Participant
NBCC	NB	Webinar with Irving Oil Ltd., ABO Wind, Liberty	05-Mar-24	In-person and Virtual	35	Host
UNB	NB	Class Presentation with Liberty	20-Mar-24	In-person	25	Host
CCNB	NB	Class Presentation with Port of Belledune	26-Mar-24	In-Person	130	Host
MUN and CNA	NL	Career & Graduate School Fair	27-Sep-23	In-person	300	Participant
econext	NL	Ideathon Support	1 to 3-Mar-24	In-person	36	Support
NSCC	NS	Ivany Campus Visit	06-Feb-24	In-person	52	Host
Dalhousie University	NS	Career Fair	07-Feb-24	In-person	236	Participant
CBU	NS	Career Fair	07-Mar-24	In-person	325	Participant
CBU Unama'ki College	NS	Campus event	08-Mar-24	In-person	10	Host
Holland College	PE	Summerside Campus event	20-Nov-23	In-person	54	Host
Holland College	PE	Charlottetown Campus event	21-Nov-23	In-person	110	Host
Holland College	PE	Georgetown campus event	22-Nov-23	In-person	17	Host
Holland College	PE	Charlottetown Campus event	12-Mar-24	In-person	67	Host
UPEI	PE	Career Fair	13-Mar-24	In-person	210	Participant
Net Zero Atlantic	NB, NL, NS, PE	Webinar with Port of Halifax, ABO Wind, Clean Technologies Research Institute at Dalhousie University	08-Feb-24	Virtual	87	Host
Total					**2570**	



INDIGENOUS ENGAGEMENT

Two consulting groups were called upon throughout the course of the project to make recommendations on all materials and branding from an Indigenous perspective.

NORTH SHORE Micmac District Council

INDIGENOUS TREATY PARTNERS

The F4F team hosted **two** on-campus events for Indigenous college and university students:

NBICC New Brunswick Indigenous Career College

CBU Unama'ki College

The team spoke with **40 students** in-person about clean fuel topics at the New Brunswick Indigenous Career College and Unama'ki College at Cape Breton University.

Fuel 4 the Future participated in the 2023 Atlantic Indigenous-Led Energy Symposium in Moncton, NB, and engaged with approximately **150 industry experts and stakeholders** in the energy sector.

100 self-identified Indigenous youth completed the Clean Fuels Awareness Survey, and **38** Indigenous youth completed at least one learning pathway.

"The most exciting thing I learned is how great our Atlantic provinces come together to innovate ways to generate energy and create a sense of healing in our surroundings and homes. I am very proud to live my whole life here and to see our people come together and develop projects that benefit everyone. I believe it's a great initiative to improve our ways of creating renewable energy that helps fight against the climate crisis and protect our mother earth."

"RNG as a source of sustainable power was rather intriguing. As an aspiring electrical engineer, the prospect of carbon-neutral energy production without creating new distribution infrastructure is something I was not aware was possible."

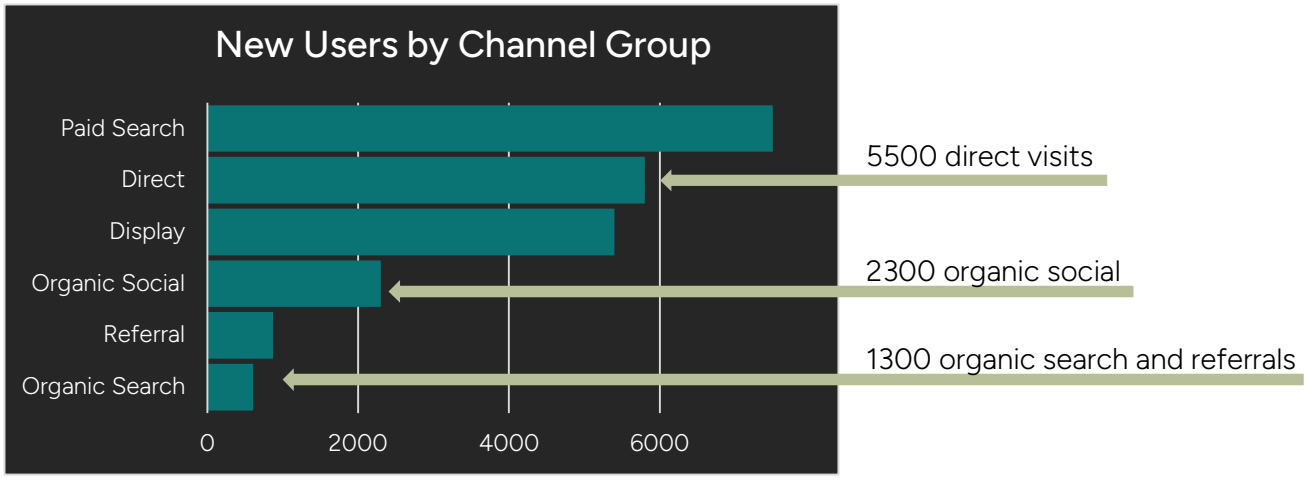
"Renewable energy really can work, and I learned there's more than one type of reactor for nuclear power."

"The coolest thing I learned was that wood pellets and sawdust can be used to heat your home."

WEBSITE & SOCIAL MEDIA ENGAGEMENT

Website

Fuel4future.ca garnered more than **18,000** unique users from September 2023 to March 2024. The project launch announcement in the Atlantica Centre for Energy newsletter generated **3500** visits to the website. The Resource page had more than **2000** tracked interactions over the course of the project.



Social Media

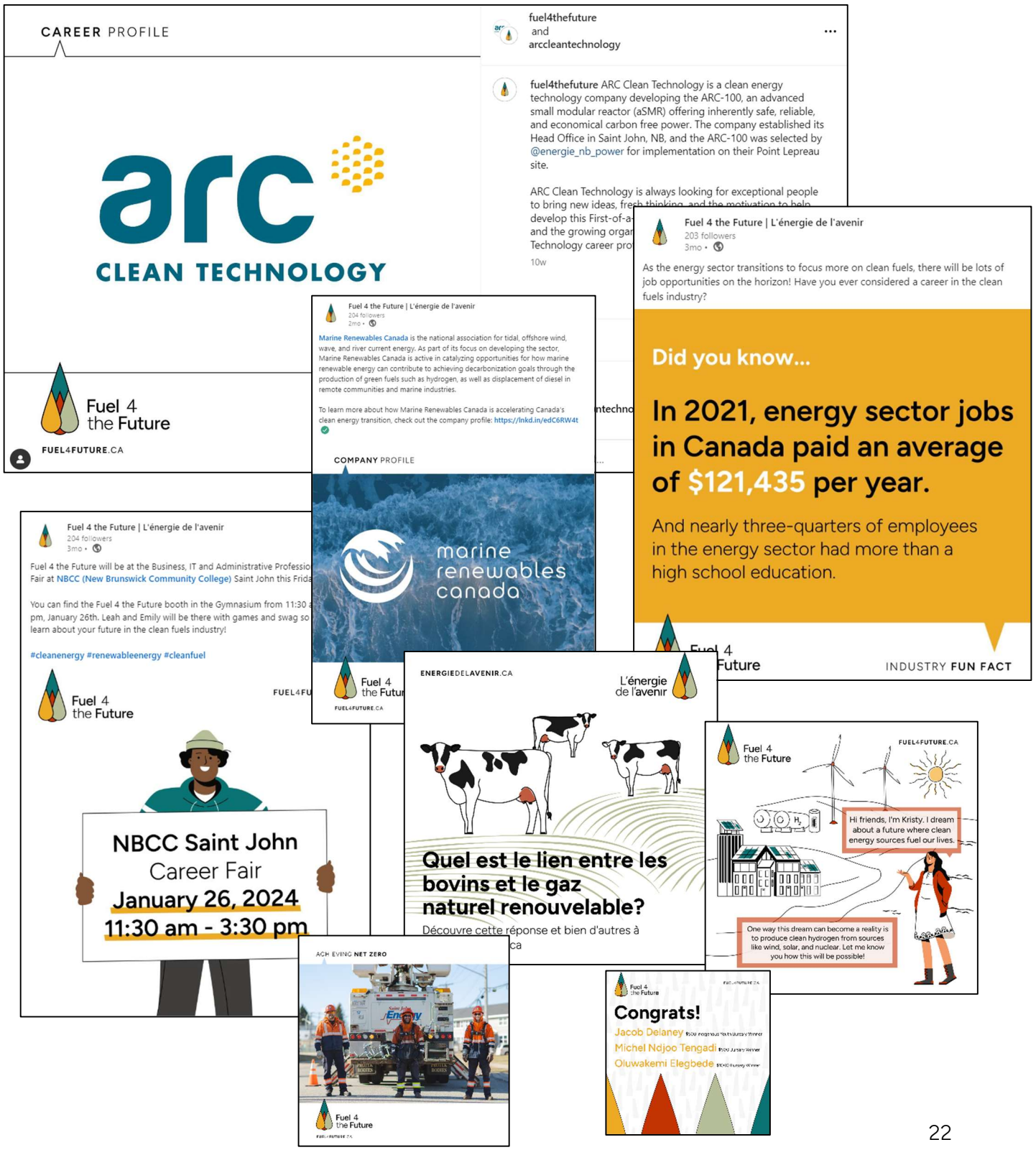
The F4F team utilized Facebook, Instagram, and LinkedIn to connect with students and industry members and to promote the project. The organic social media strategy focused on posting basic information about clean fuels, sharing fun facts about the clean fuels sector, and highlighted companies and organizations in the industry in Atlantic Canada.

LinkedIn
Profile views = 666
Impressions = 11.7K

Instagram
Profile visits = 256
Total reach = 595

Facebook
Profile visits = 1K
Total reach = 79.3K
Organic reach = 912
Paid reach (ads) = 78.6K

SOCIAL MEDIA SNAPSHOTS



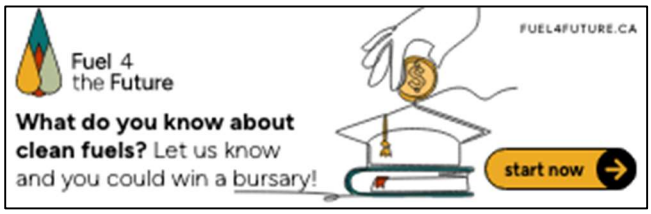
AD CAMPAIGN

Fuel 4 the Future ran an ad campaign from December 13, 2023, to January 31, 2024, on Google and Meta (Facebook and Instagram). ICS Creative Agency developed the campaign with the goal of raising awareness for the project and generating submissions for the Clean Fuels Awareness Survey.

Budget: $5,000

Budget Spent: $4,231.55

Meta		Google	
60% of focus		40% of focus	
Impressions	Clicks	Impressions	Clicks
749,669	6,351	3,442,353	13,062



FINANCIALS

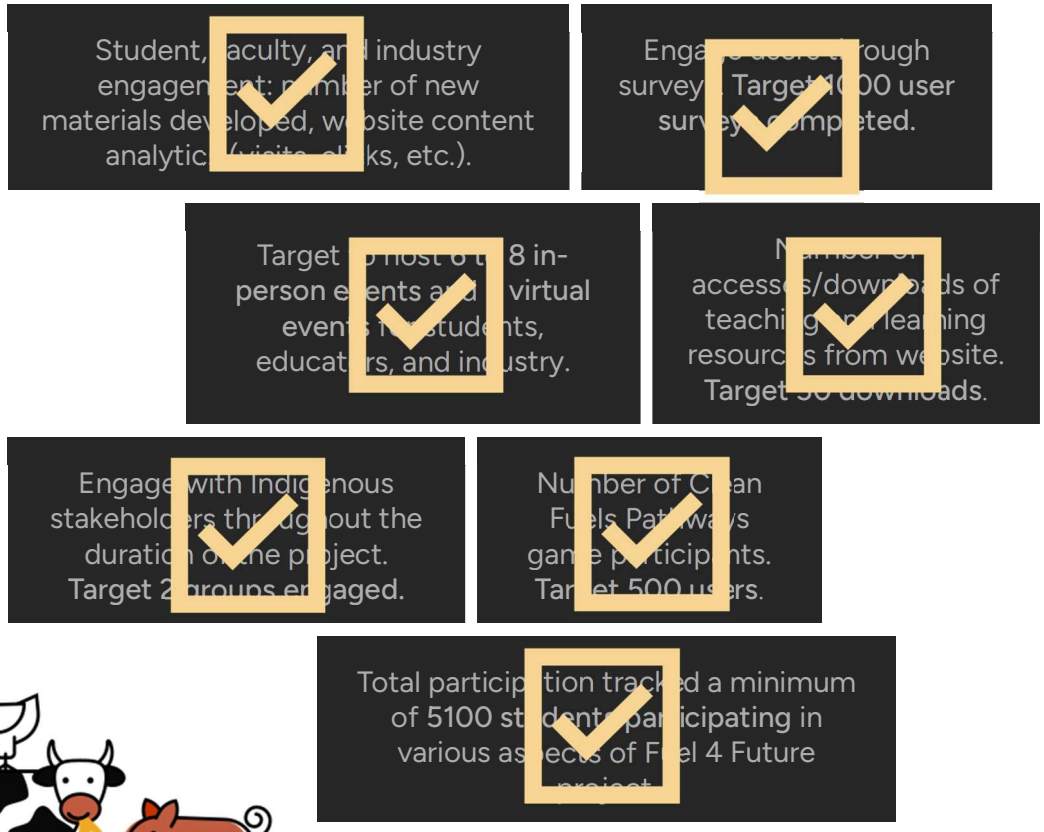
The overall approved budget for the project was $313,875. Due to changes in staffing and delay in finalizing online resources, the project came in well under budget.

Expenses		
Overhead	$	28,847.57
Capital Expenses	$	3,236.15
Professional Services	$	75,450.88
Travel	$	18,386.41
Staff	$	124,977.45
Bursaries	$	2,000.00
	$	**252,898.46**

Revenue		
NRCan*	$	177,773.45
Atlantic Workforce Partnership	$	57,125.00
Atlantica Centre for Energy	$	3,000.00
Emera Brunswick Pipeline	$	5,000.00
Liberty	$	5,000.00
Saint John LNG	$	5,000.00
	$	**252,898.45**
* Natural Resources Canada Clean Fuels Awareness Program		

PROJECT ACHIEVEMENTS

- First Nations consultants were engaged in all development stages and provided valuable cultural insights.
- Successful ad campaign resulted in more than 19,000 clicks and 4.1 million impressions for $5000 investment.
- Eight industry partners participated in the in-class presentations and webinar events. The F4F team tried to involve industry in career fair booths but partner companies were not properly equipped to do so.
- Creative and content was well received by students. The illustrations were eye-catching, and the brand aesthetic spoke to the target audience.
- The Fuel 4 the Future project finished under budget and exceeded all project KPIs.



LEARNINGS

- Interactive and engaging websites with custom features take more time to build than even the experts expected.
- There needs to be a champion in post-secondary institutions to engage more in classrooms.
- Career fairs are an excellent tool for visibility and student engagement.
- Through engaging with industry, the F4F team found that employers are looking for opportunities to engage with students beyond career fairs. Industry is most interested in classroom engagement.
- Bursaries and swag are a great incentive for action, but each school is different. Some students are mindful of their consumption habits while others take all the swag they can get.
- Building momentum takes time! A lot of students' first reactions at career fairs were things like "I've never heard of Fuel 4 the Future, is it new?" and "Why haven't I heard of this program before?"

Where do we go from here?

- Legacy website content will remain online at fuel4future.ca as an educational resource provided by the Atlantica Centre for Energy.
- Relationships have been built with post-secondary institutions and industry members throughout Atlantic Canada. How do we continue to foster these relationships so they can thrive?
- Students are enthusiastic about learning more about clean fuels and opportunities to stay and work in Atlantic Canada. The project has informed the Atlantica Centre for Energy's energy literacy mandate.