



ENERGY EDUCATION TOOL KIT FINAL REPORT



The successful launch of the Energy Education Toolkit program in January 2021 led Inside Education to build another 100 toolkits to release to schools in the 2021/2022 school year - the program was called **The Energy Education Tool Kit 2.0**. In January 2022, **61 schools** from **26 communities** across Alberta received an Energy Education Tool Kit 2.0.

The Energy Education Tool Kit contains materials and activities for students to engage with and learn about energy in a interactive way. The tool kit was designed to meet a growing demand for support during the pandemic when outside guests were not allowed to visit schools. Schools applied to receive a kit along with a teacher professional development session to ensure a strong foundation of energy and workshop the kit contents.

This session and kit will serve me well with my gr 7 students. It's just what I needed to add life to my unit!

ELLEN POLETAGO
FORT McMURRAY CHRISTIAN SCHOOL



TOOL KITS

Each Energy Education Tool Kit included tools, models and gadgets to allow students to explore energy education in a hands-on way, as well as learning resources and activities to guide teachers and students through the various topics and activities. Each Tool Kit also included a Teacher's Guide that provided a general overview of the Tool Kit and its materials. Although the Energy Tool Kit idea was developed due to the COVID-19 situation, it has become clear through feedback and classroom impact testimonials that this type of learning resource is incredibly valuable at any time.



The Energy Tool Kit can be used on an ongoing basis for multiple classes within each school, which will extend its impact for years to come. To receive a kit, teachers submitted an application form that asked why they wanted the kit and how it would be used at their school. Many applications were received, indicating that this type of learning resource is in high demand. Applicants covering a variety of grade levels, subjects and geography were selected and 10 kits were reserved for distribution to Indigenous schools.

The Tool Kits were designed to lead teachers and students through eight key energy education topics:

- 1 | **Natural Resources for Energy**
- 2 | **Canada's Energy Landscape**
- 3 | **Electricity Generation**
- 4 | **Renewable & Alternative Energy**
- 5 | **Experience Fossil Fuels**
- 6 | **Energy Efficiency vs Conservation**
- 7 | **Energy Storage**
- 8 | **Stewardship**

The content and activities were developed for a grade 4-9 audience, with many opportunities for adaptation depending on each class's abilities, knowledge level, and set up.

The Energy Education Tool Kit content linked primarily to the Science and Social Studies curriculum, with extensions into Math, CTS, Outdoor Education, and more.

TEACHER PROFESSIONAL DEVELOPMENT PROGRAM

All teachers that received an Energy Education Tool Kit attended an online Professional Development session. Three sessions were held - Friday January 28th (Southern Alberta focus), Monday January 31st (Central Alberta focus), Wednesday February 2nd (Northern Alberta focus). The PD program gave teachers the opportunity to learn more about Alberta's energy landscape from industry experts, and learn about the tools and activities in their Energy Tool Kits from Inside Education staff.

THE EXPERTS FEATURED INCLUDED:

Trevor Lewington

(Southern Alberta Alternative Energy Partnership)

Chris Hopkinson (University of Lethbridge)

Tamara Gale & Lisa Pollio (PetroLMI)

Neil Ethier (Eavor Geothermal)

Candice Paton (Enhance Energy)

Blake Dewar (Ovintiv)

Joy Romero (Canadian Natural Resources Limited)

Honestly one of the best PDs I've been part of ever (17 years in Education). Thank you for all the work you placed into this.

ROB MELENCHUK
MONTFORT CENTRE (LETHBRIDGE)



The level of engagement was very high during the PD sessions. The teachers submitted endless questions about the energy topics that interested them most, including electric vehicles, geothermal energy, and school solar arrays. The experts did a fantastic job addressing the teachers' questions in a thorough and digestible way.

During the demonstrations, teachers followed along with their own kits, which made for a fast-paced, fun and interactive experience. Some of the activities demonstrated included building an electromagnet, connecting a multimeter to a hand generator, playing the Energy Moves board game, and measuring surface temperatures with an infrared thermometer. The teachers commented enthusiastically and continued to ask questions throughout the demonstrations, indicating a high level of engagement throughout the entire PD.

PD FEEDBACK

In order to evaluate the effectiveness of all Inside Education professional development programs, a survey is sent out after the program to gather teacher feedback, comments and program impacts. For the Energy Education Tool Kit PD Program, 23 post-program surveys were collected and the key findings and comments are summarized below.

Do you have any comments about your Energy Education Tool Kit PD experience?

"The PD was a wonderful experience because we got to talk to professionals, explore the energy tool kit and learn a lot of new and different things. We had the opportunity to branch out and learn about the opportunities we will have in the future as careers and new jobs. It was a way for us to connect with experts and learn from their experiences."

-Fahmo Rage & grade 9 students, Fort McMurray Islamic School (Fort McMurray)

"Thank you so much! Not only was this an enjoyable afternoon of professional learning but now i have all these amazing tools and ideas for sustainable centers! I also truly appreciate the effort to deliver these boxes."

-Katie Weyman, Substitute Teacher (Calgary Board of Education)

"Wonderful PD. Really engaging with all of the goodies in the bin as well as the guest speakers. I am very happy with this. "

-Elizabeth Alleyne, Highlands School (Edmonton)

How do you plan to use the Energy Education Tool Kit in your classroom?

"In my classroom, Fridays are dedicated to STEM challenges, learning about weird animals or science concepts and science in the news. I will add a station to my next 8 Fridays where students can explore and we can really dive deep into some conversation that carries on throughout the year. "

-Jillian Senek, Foothills Academy (Calgary)

"I am going to pass on this information to all the Grade 5 teachers so that they can use the tool kit during their Electricity unit. I will also use the resources for the environmental club."

-Amy Merritt, St. Kateri Catholic School (Fort McMurray)

PROGRAM REACH

61 schools from **26 communities** received an Energy Education Tool Kit, some of which had multiple teachers attend the PD Program.



OVER 3000 STUDENTS IMPACTED

**calculated based on teacher responses in post survey*



The following communities were represented:

- | | | |
|---------------|--------------|-----------------|
| Pincher Creek | Ponoka | Hinton |
| Lethbridge | Rimbey | Grande Prairie |
| Okotoks | Edmonton | Eggleham |
| Hanna | Legal | Valleyview |
| Calgary | Camrose | Fort McMurray |
| Morley | St. Albert | Fairview |
| Cochrane | Sunchild | Cold Lake |
| Airdrie | First Nation | Stony Plain |
| Red Deer | Whitecourt | Pilot Mound, MB |

IMPACTS

From this data, it was evident that the average level of knowledge of teachers in all topic areas was higher after the program than before the program. Teachers reported knowledge gained across all topics: Natural Resources utilized for Energy generation, Electricity Generation, Renewable & Alternative Energy, Fossil Fuels, Energy Efficiency & Conservation, Energy Stewardship, Careers related to natural resources and energy, and Energy and Climate.

Average participant confidence in teaching energy topics in the classroom increased **20%** following the program.

2.9/4 before the program to **3.6/4** after

Not at all confident



Very confident

Thank you so much for this toolkit and the opportunity to be involved in the PD. I cannot wait to do more with Inside Education!

JILLIAN SENEK
FOOTHILLS ACADEMY (CALGARY)



ENERGY EDUCATION TOOL KIT

FINAL REPORT

As part of the Energy Education Tool Kit program, all participating teachers attended a PD session that connected them with energy industry professionals and taught them how to use the Tool Kit items in their classroom. Then, students experienced hands-on learning through the multitude of items in the Tool Kit during a time when most enriched learning has moved online. Through reading the feedback received in the post-program survey, it is evident that these kinds of hands-on learning experiences are incredibly valuable to teachers and students alike. Inside Education remains committed to providing these experiences, even in a year when a global pandemic has thrown many obstacles toward us all.

The ultimate goal of the Energy Education Tool Kit Program was to advance energy education at 61 schools across Alberta. The kits were designed to be used by multiple classes at multiple grade levels for years to come. The 3,000+ students that are benefiting from the Energy Tool Kits in the 2021/2022 school year only represent the beginning of this program's impact. We expect the kits to be used over multiple years, impacting future students across Alberta. We are investigating, and will be connecting with our program partners to consider another Energy Tool Kit 'run', even as COVID-19 restrictions hopefully ease in the coming months.

We extend our sincere appreciation to all our program partners for their support of our rapid, detailed pivot away from our normal program delivery model, and of this extremely successful program.

THANK YOU TO OUR PARTNERS



Canadian Natural



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