

## **ICE Fund Performance Report**

### **For programs and initiatives approved under Budget 2015**

Please refer to the following program areas below for project status updates on programs and initiatives supported by the ICE Fund:

**Communities and Transportation** - Please refer to Tab 1


**Energy Efficiency and Conservation** - Please refer to Tab 2


**Miscellaneous** - Contributions from the ICE Fund - Please refer to Tab 3


# ALTERNATIVE ENERGY BRANCH


## COMMUNITIES & TRANSPORTATION


### Clean Energy Vehicle - Phase 2

 CEV Point-of-Sale Purchase Incentives - page 2


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## CLEAN ENERGY VEHICLE (CEV) - PHASE 2

The original CEV Program, funded with \$14.3 million, ended March 31, 2014. Building on the success of this program, the CEV Program was reintroduced on April 1, 2015 and received \$10.5 million **over three years** from the Innovative Clean Energy (ICE) Fund. The CEV Phase 2 consists of the following components:

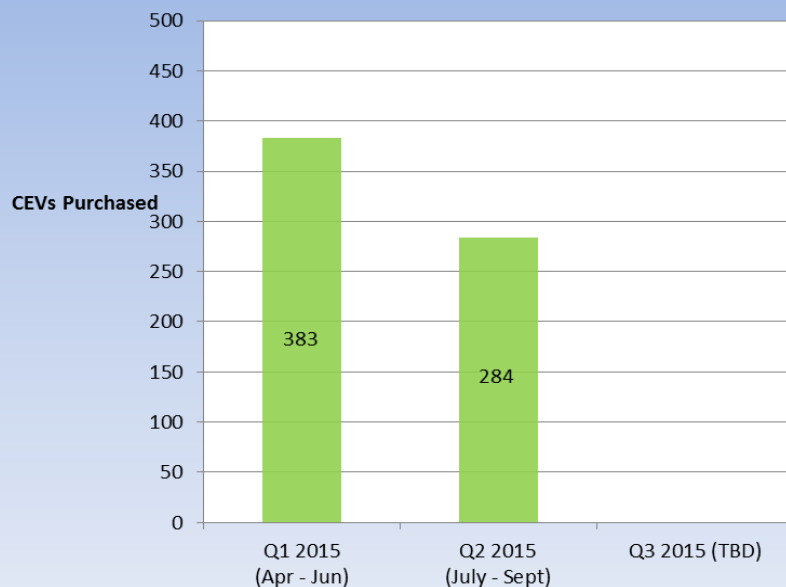
- \$7.5 million for the vehicle point-of-sale incentives
- \$1.29 million for charging infrastructure incentives / investments (Level 2 and DC Fast Charging)
- \$0.3 million for hydrogen fuelling station investment (1 new public fuelling station)
- \$0.95 million for investment bonuses for CEV fleet program
- \$0.5 million for research, training, and public outreach



The CEV Program has been proposed for consideration in the draft Climate Leadership Plan. However, the current CEV Vehicle Incentive budget is expected to be expended prior to when decisions on the CLP will be made.

### CEV Phase 2 - Point of Sale Purchase Incentives

#### Point-of-Sale Purchase Incentives



**ICE Fund Contribution:** \$7,500,000 (over 3 years)

**Recipient:** B.C. New Car Dealers Association (NDCA)

**Program Launch:** April 1, 2015

**Program Target by March 31, 2018:** 1,400 vehicles

**Leverage/Impact:** \$50M in vehicle sales

**Est. Vehicles as of Nov 23, 2015:** 1,010 vehicles

#### Program Update (Q1 & Q2)

- \* By the end of the second quarter (Sept 30, 2015), accrued incentives for CEVs, including paid and reserved applications, total \$3,830,835 for 810 vehicles.
- \* The top four selling models to date are Tesla Model S (254 units), Nissan Leaf (176 units), BMW i3 (88 units), and Kia Soul EV (69 units)
- \* Uptake in this quarter of Phase 2 continues to be very strong. More than half of the program funding has been paid or reserved in the past six months.

#### Program Highlights

- \* The CEV Vehicle Incentive Program has been highly successful, exceeding targets with over 73% of the original 3-year \$7.5M budget already expended or reserved to meet existing vehicle
- \* At the current rate of uptake, funding is projected to be expended by end of January 2016.

## CEV Phase 2 - Charging Station Infrastructure Incentives / Investments



**ICE Fund Contribution:** \$1.29 million

**Recipient:** Fraser Basin Council

**Program Launch:** Planning April 1, 2015; Public Offering April 1, 2016

**Leverage/Impact:** \$1.17M

### Program Update

- \* Completed: DCFC Gap Analysis workshop, modelling tool, EV owner survey and final report, recommending routes and locations for DCFCs.
- \* Completed: Level 2 gap analysis, recommending program focus on charging at multi-unit residential buildings, followed by workplaces.
- \* Draft MOU with BMW for up to 10 DCFC retrofits (exceeds target of 6), covering 50% of the cost.

### Program Highlights

- \* 200 Level 2 charging Stations in Stratas and Multi Use Residential Buildings is planned for B.C. with existing funding.
- \* 50 DC Fast Charging stations planned for B.C. with existing funding.
- \* Modelling indicates that in order to meet demand in B.C., the DC fast charging network needs to grow to 80 – 120 DCFCs throughout the province.
- \* British Columbia has the largest public charging network in Canada with 703 public charging stations, including 11 DC Fast Charging Stations. At least 19 more DC Fast Charging Stations will be installed by March 31, 2016
- \* In October 2013, the Province signed a Pacific Coast Action Plan on Climate and Energy that includes actions to expand the use of zero emission vehicles, aiming for 10 per cent of new vehicle purchases by 2016, and support emerging markets and innovation for alternative fuels in commercial transportation.



## CEV PHASE 2 - Hydrogen Fueling Infrastructure



**ICE Fund Contribution:** \$270,000

**Recipient:** Canadian Hydrogen and Fuel Cell Association (CHFCA)

**Program Launch:** September 11, 2015

**Leverage/Impact:** \$2 million

The purpose of the CEV Hydrogen Fuelling Program is to continue to encourage clean energy vehicle deployment and technology innovation in the province, by:

- \* Supporting as many as possible additional hydrogen fuelling station locations;
- \* Supporting increased awareness and understanding of hydrogen vehicles and fuelling infrastructure;
- \* Leveraging industry, including automaker, investment in fuelling infrastructure in the lower mainland.

### Program Update

- \* Three applications were received in response to the CHRCA's Request for Proposal seeking the installation of 1 hydrogen fuelling station.
- \* The RFP closed on November 13, 2015 and the award is expected to be issued on December 15, 2015.
- \* It is expected that the Program will be able to leverage industry dollars to maximize the number of fueling stations installed in the lower mainland.

## CEV PHASE 2 - Investment Bonuses for CEV Fleet Program



**ICE Fund Contribution:** \$1,000,000

**Recipient:** tbd

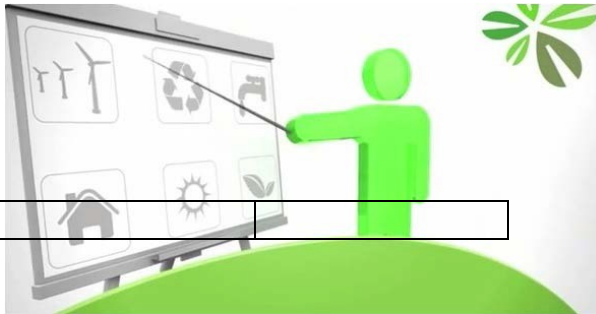
**Program Launch:** April 1, 2016

**Leverage/Impact:** \$1 million

### Program Update

- \* Of the \$1M allocated for this program, \$600K is earmarked for investment bonus for fleet and \$400K is earmarked for Special Use Vehicle Program.
- \* An RFP will be issued in November 2015 for funding recipient to administer the Investment Bonus for Fleet Program.

## Research, Training, PEO



**ICE Fund Contribution:** \$500,000 over 3 years

**Recipient:** \$25,000 awarded to British Columbia Institute of Technology in 2015/16

**Leverage/Impact:** \$1.5 million

The Research, Training and Public Education & Outreach funding is designed to support three yet program areas: the Emotive outreach campaign, the Advanced Research and Commercialization Program, and

### Program Update

\* A Contribution Agreement for \$25,000 with BCIT will be executed by the end of November 2015 for the Consumer Charging Behaviour Research Project that will research behaviour regarding matching plugin electric vehicle charging to the availability of renewable electricity. Delivered by BCIT and UBC. Project leverages federal funding. Delivers modeling to inform utility and government policy and programs. Delivers made-in-BC software for managing charging.

\* A Contribution Agreement for \$50,000 with the Electrical Joint Training Committee will be executed by the end of November 2015 for the training of electricians and electrician trainers in B.C. on electric vehicle

## PUBLIC SECTOR ENERGY PARTNERSHIPS

### Community Energy Leadership Program



**ICE Fund Contribution:** \$1,290,000 over 3 years

**Recipient:** Various local government & First Nations. Program administered by MEM.

**Program Launch:** April 13, 2015

**Leverage/Impact:** \$2.7 million

The Community Energy Leadership Program (CELP) was established in 2015 to support local government and First Nations investments in energy efficiency and clean energy projects. The main goals of the program are: to reduce greenhouse gas emissions, increase energy efficiency, stimulate economic activity in the clean energy sector, and support vibrant and resilient communities. Although the Ministry of Energy and Mines manages the program, the program is designed and applications are evaluated in collaboration with the Ministries of Environment, Community, Sport and Cultural Development, and Aboriginal Relations and Reconciliation.

#### Program Update

##### CELP Round 1

to the program covering a wide range of energy efficiency and clean energy projects across the province.

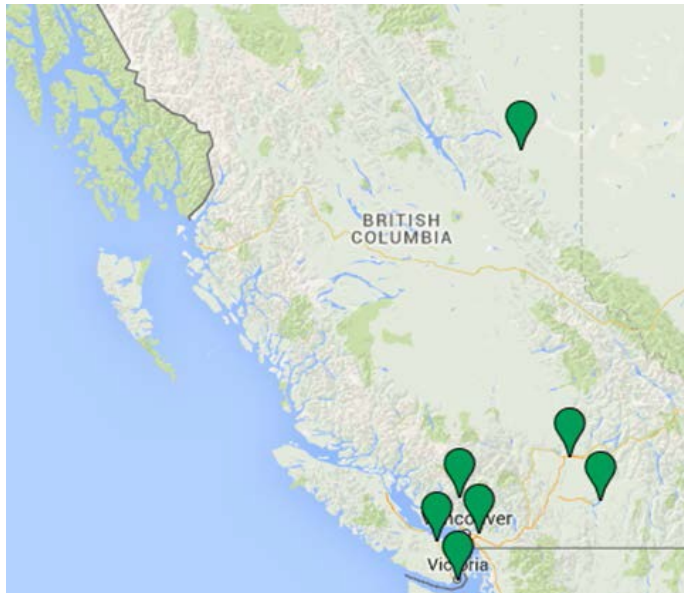
\* The top thirty-three projects in the 1st round represented a total value of \$10.1 M and requested \$1.7 M in CELP funding. (6:1 leveraged funding exceeding program targets of 3:1) CELP funding of \$242,387, leveraging \$1.3M in investment (6:1 leverage). News release October 30, 2015. Projects funded include energy efficiency, bioenergy and solar.

##### CELP Round 2

\* CELP is currently seeking applications for the 2nd Round (2015/16) funding of \$500,000.

Applications are due December 15, 2015 for funding in F2016/17. Early communications with communities indicate that the demand for CELP funding will continue to increase.

\* The CELP program is proposed as the community infrastructure investment initiative under the Climate Leadership Plan to help reduce emissions in the built environment.



Location of CELP Funded Projects



## Post-Secondary Clean Energy Partnerships Program



**ICE Fund Contribution:** \$1.25 million over 3 years (\$500K allocated for 2015/16)

**Recipient:** B.C. Post-Secondary Institutions

**Program Launch:** September 14, 2015

**Leverage/Impact:** 3:1

The Post-Secondary Clean Energy Partnerships (PSCEP) Program was launched on September 14, 2015 to fund research in clean energy science and technology projects undertaken by post-secondary institutions in B.C. Technological advancements as a result of research may lead to the emergence of more start-up companies and the retention of high quality intellectual capital within British Columbia. The ICE Fund, in partnership with the Natural Science and Engineering Research Council (NSERC) of Canada will co-fund two NSERC grant programs. In 2014, this federal research funding agency disbursed over \$1 billion in R&D funding nationally, with \$160 million awarded in B.C.

### Program Update








- The Ministry issued a call for Letter of Intent (LOI) request for clean energy research proposals from post-secondary institutions from September 14 to October 14, 2015.
- Program uptake for the 2015 intake was greater than anticipated with 23 LOIs received for total research project costs of \$5.7 million.
- Six projects were 'pre-approved' for Ministry funding and were invited to proceed with an NSERC application.
- Four B.C. Post-Secondary Institutions were approved for joint funding from the 2015 intake. The funding is distributed to research teams at the University of British Columbia, Simon Fraser University and the University of Victoria for projects dedicated to coastal wave energy, high-performance batteries and battery chargers, and building insulation. To learn more please visit: <https://news.gov.bc.ca/releases/2016MEM0027-002704>



# ALTERNATIVE ENERGY BRANCH

## Energy Efficiency and Conservation

### Energy Efficiency and Conservation

-  Electronic Data Exchange for Portfolio Manager
-  Home Energy Performance Training & Accreditation
-  Electric Heat Pump Water Heater Testing
-  Windows Market Study
-  Oil-to-Heat Pump Incentive Program
-  Passive House Training Incentive
-  BC – Natural Resources Canada ISO 50001 Standard Incentive

## Electronic Data Exchange for Portfolio Manager



**ICE Fund Contribution:** \$100,000

**Recipient:** FortisBC Gas

**Leverage/Impact:** \$200,000 from FortisBC Gas

This ICE Fund grant to FortisBC Gas will offset the costs and accelerate the development of Electronic Data Exchange (EDX) for ENERGY STAR Portfolio Manager in order to advance the adoption of building energy benchmarking practices in B.C. Portfolio Manager is an industry-leading software application that allows users to track and assess energy performance across an entire portfolio of buildings in a secure online environment. EDX will allow for the automatic transfer of FortisBC's customer's monthly billing data to Portfolio Manager, overcoming a major barrier to the use of the software.

### Program Update

FortisBC is currently implementing EDX and is on track to make it available to customers by July 31<sup>st</sup>, 2017.

## Home Energy Performance Training & Accreditation



**ICE Fund Contribution:** \$200,000

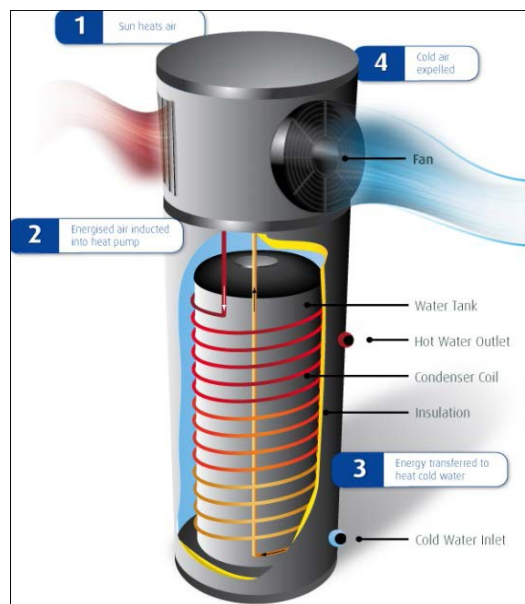
**Recipient:** FortisBC

The ICE Funds provided to this project will help to co-fund the development and implementation of a Home Energy Performance (HEP) accreditation and training regime in B.C. over the course of five years. The long term objective is to develop an industry of trained and accredited HEP contractors in B.C. who are certified to perform whole home energy retrofits and able to assist homeowners in maximizing energy saving measures.

### Program Update

FortisBC, BC Hydro and MEM staff are consulting with educational institutions in B.C. on development and delivery of a Certificate (one-year) program for HEP specialists. A call for proposals is expected to be issued by FortisBC in the last quarter of fiscal 2016.

## Electric Heat Pump Water Heater Testing



**ICE Fund Contribution:** \$30,000

**Recipient:** FortisBC

**Leverage/Impact:** \$207,800 (contribution for testing by FortisBC, BC Hydro and NRCan)

This project will test the performance of cold climate heat pump water heaters (HPWHs) and quantify the value of their widespread adoption in B.C. However, much of the technology on the market has been designed for warmer climates and for use within the heated envelope of the home. This project will install heat pumps in a small number of BC homes using technologies and installation techniques that are appropriate for BC's climate—including integrated heat pumps in a dual-ducted configuration, and split system CO2 heat pumps designed for cold climates. The year-long field test will monitor performance and quantify the actual energy savings from these units. This information will be used to identify potential market barriers to widespread adoption of heat pump water heaters in BC.

### Program Update

FortisBC has hired a field test contractor and expects to have all of the water heaters and monitoring equipment installed before the end of December 2016.

## Windows Market Study



**ICE Fund Contribution:** \$25,000

**Recipient:** FortisBC

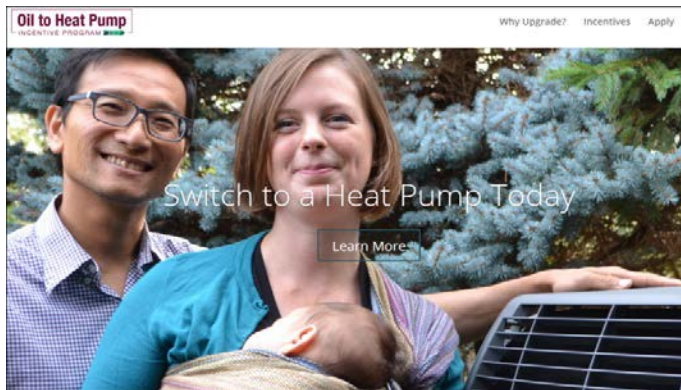
**Leverage/Impact:** \$20,000 (\$10K each from BC Hydro and FortisBC)

This study will assess annual window sales through 2025 by window type, efficiency value, region and application in new construction or renovation. A comprehensive assessment of the window's market will aid the development of effective market transformation initiatives aimed at increasing the availability and affordability of energy efficient windows (i.e. prospective codes and standards, the ICE Fund High Performance Window R&D Incentive, and the design of utility demand-side management programs).

### Program Update

Scope of work and deliverables were finalized by funding partners. An RFP was issued by FortisBC to a prequalified list of consultants on October 27th and closed November 25th. Selection of a consultant will occur in December 2015. The study will be completed by the first quarter of fiscal 2017.

## Oil-to-Heat Pump Incentive Program



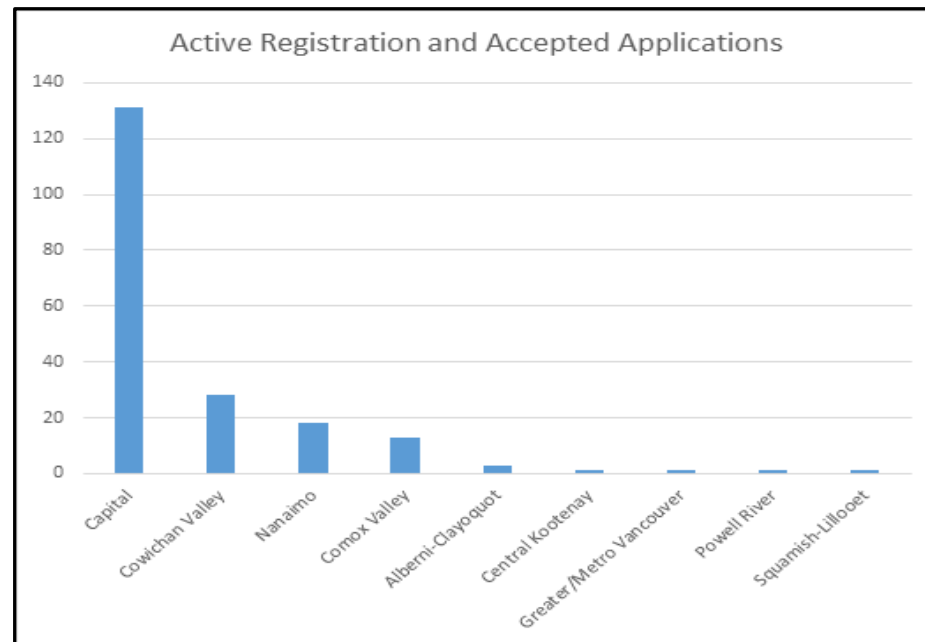
**ICE Fund Contribution:** \$600,000 in 2015/16 and \$600,000 in 2016/17 **Recipient:** City Green Solutions Society **Program Launch:** September 2, 2015

**Leverage/Impact:** \$80,000 in top up incentives from B.C. local government; in-kind promotional support from 9 local governments

The Oil-to-Heat Pump Program provides a rebate of up to \$1700 for homeowners who convert from oil heating to an all-electric air source heat pump. Oil to heat pump conversion provides on average the highest greenhouse gas emission reduction of any single upgrade for single family residential homes. The program currently has funding for up to 600 homes.

### Program Update

The program was launched September 2, 2015. As of October 2016, City Green has approved 224 registrants, which puts the program on-track to achieve its target of 600 participants by March 2018. Local governments are providing substantial top-up incentives, marketing and in-kind support. In September 2016, Campbell River added a \$1000 top-up for program participants. See figure below for registration by region.





## Passive House Training Incentive



**ICE Fund Contribution:** \$100,000

**Recipient:** Canadian Passive House Institute West

**Program Launch:** March 5, 2015

Funding from the Province's ICE Fund will sponsor and subsidize introductory or certification courses in Passive House design principles offered by CanPHI West. New buildings can be designed to consume 80-90% less energy than conventional construction, affordably, using Passive House design principles. This system of construction requires specialized training and experience. Having more building professional with Passive House (or equivalent high performance building) training will help to build industry capacity for future building code energy provisions that are expected to trend towards net zero energy requirements over the next 10 to 15 years. The cost of Passive House training is currently a barrier to many building sector participants.

### Program Update

These funds will have subsidized the training of over 300 professionals by March 31, 2017 including builders, architects, engineers and planners. Passive House training courses subsidized by the ICE Fund have been offered in Kelowna, Prince George, the Lower Mainland and Southern Vancouver Island. More details available here: <http://passivehousecanada.silkstart.com/events>

## BC – Natural Resources Canada ISO 50001 Standard Incentive



**ICE Fund Contribution:** \$200,000

**Recipient:** NRCan

**Program Launch:** May 2015

**Leverage/Impact:** 1:1 (\$200K from NRCan)

ISO 50001 Energy Management Systems Standard is a voluntary standard that helps organizations to take a systematic, continual improvement approach to energy management. Industries that have adopted the standard have reported annual energy savings between 10 and 20 percent within the first five years. To accelerate uptake of the standard, the Province is working together with NRCan to offer up to \$80,000 of cost-shared assistance to B.C. industrial companies to implement projects that help achieve ISO 50001. This includes development of an energy baseline, energy use assessment, energy performance monitoring and reporting, and purchase of instrumentation, software and metering equipment.


### Program Update


Ten proposals have been received through December 2016 from a range of industrial companies in the cement, forest, mining and agricultural sectors. Five projects have been selected to move forward by NRCan and MEM staff to date. Two projects have been completed, with the remaining three projects expected to be completed by March 2017.



# ALTERNATIVE ENERGY BRANCH

## Miscellaneous

 Regulatory Compliance and Enforcement (RLCFRR) - page 2

 Geoscience BC Contribution - page 3

## Regulatory Compliance and Enforcement (RLCFRR Compliance Inspection/Audit Program)



**ICE Fund Contribution:** \$300,000 (over three years - 2015/16 to 2017/18)

**Recipient:** Ministry of Finance - Consumer Taxation Audit Branch

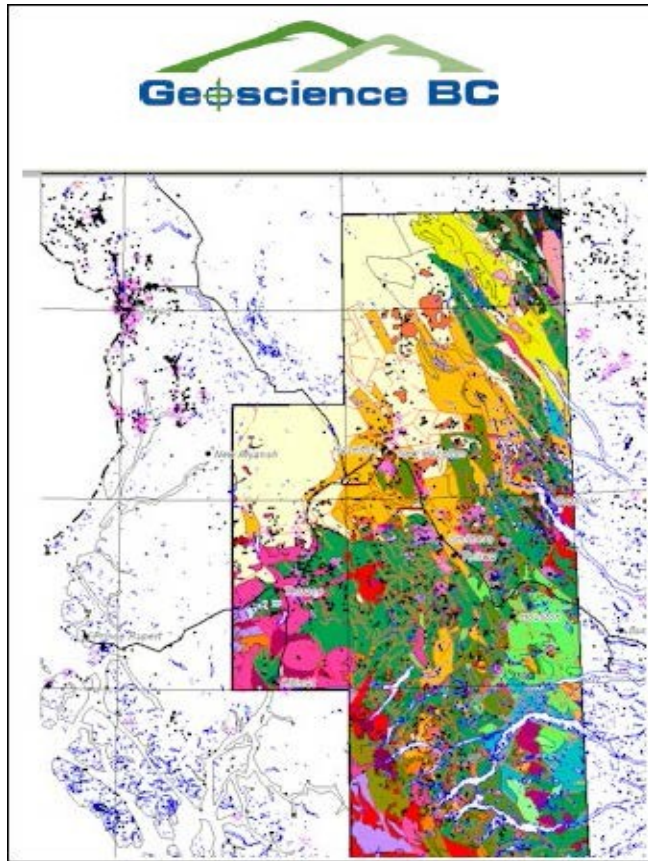
**Leverage/Impact:** Avoiding duplication is estimated to provide cost savings that include three to five audit staff, plus administrative support and an associated operational budget for conducting ongoing field audits ( i.e., >\$0.5 M per year).

The Regulatory Compliance and Enforcement Program for the Renewable and Low Carbon Fuel Requirements Regulation (RLCFRR) is a result of a joint evaluation conducted between the Ministry of Energy and Mines and the Ministry of Finance back in early 2014. By supplementing the staff at the Consumer Taxation Audit Branch with one additional FTE for a Senior Auditor at a cost of \$100,000 per year (on a three year cycle), the CTAB offers services to implement a complete inspection program comparable to the audit program for enforcement of the Motor Fuel Tax and Carbon Tax. This approach comes in at a much lower cost when compared to hiring and training specialized audit staff at the Ministry of Energy and Mines, or contracting out the

### Program Update

- \* Ministry of Energy and Mines and Ministry of Finance are finalizing a formal MOU to finalize the arrangement.
- \* Three audits of fuel suppliers are currently underway.
- \* One test audit was successfully completed in 2014.

## Geoscience BC Contribution (Geothermal Potential/Dataset)



**ICE Fund Contribution:** \$100,000

**Recipient:** Geoscience BC Society

**Leverage/Impact:** \$60,000 from Geoscience BC

Awarded \$100,000 in 2015/16, the purpose of this project is for Geoscience BC to identify, and evaluate direct-use geothermal energy for communities. Geothermal energy is a renewable thermal energy source contained within the crust of the Earth. Previous studies of geothermal energy in British Columbia have focused on mapping and evaluating resources for electricity generation. Direct-use geothermal projects can utilize lower temperature resources, but the thermal energy, unlike electricity, cannot be transmitted over large distances.

Communities and local governments lack the expert knowledge required to oversee geothermal exploration programs and the cost of exploration is a major barrier to wider adoption of direct-use geothermal energy. This project aims to lower exploration risk and costs through compilation and analysis of existing geoscience data specifically for direct-use geothermal energy that can provide economic development opportunities. As such, the main beneficiaries of this project are communities, geothermal developers, and entrepreneurs that could harness the thermal energy for agriculture, industrial or commercial purposes.

### Program Update

- \* The Direct Use Geothermal Resource project was awarded to Tuya Terra Geo Corp, a Vancouver based consulting firm, working in collaboration with Geothermal Management Company Inc.

- \*The purpose of this project is to identify and evaluate direct-use geothermal energy opportunities for BC communities that have the potential to reduce green-house gas emissions and be economic development drivers.

- \* A final project report will be completed by March 2016.

- \* Monthly meetings with Geoscience BC and the Tuya Terra Geo Corp have begun in October 2015.