**Emilie Grenier:** Good morning and good afternoon everyone, depending on where you are. We're very pleased to have you at another discovery session. My name is Emily. I'm the engagement manager at Efficiency Canada.

Efficiency Canada operates within Carleton University and we acknowledge that the location of our campus sits on the traditional unceded territories of the Algonquin Nation. In doing so, we acknowledge we have a responsibility to the Algonquin people and a responsibility to adhere to Algonquin cultural protocols.

So I am pleased to welcome our guest today. Jimmy Lu, supervisor at Independent Electricity System operator, more commonly known as I E S O, will provide an overview of energy efficiency in Ontario, the First Nations programs they offer, and how I E S O is working with community partners to effectively deliver energy savings to First Nations.

Thanks for attending this session, Jimmy and over to you.

**Jimmy Lu:** Thanks Emily, and thanks everyone for attending at whether this is your lunch hour or not. I appreciate the time in learning and discovering more about what ISO's doing particularly with our First Nations programs. So as Emily said I'm the supervisor of program technical services and we have cross-functional teams that deliver our SaveOn Energy program at the IESO. So I'm also the chair of our First Nations program team, which is why I'm delivering this presentation. Today I wanna talk to you about what IESO offers in terms of energy efficiency programs for First Nations communities. We will be sharing our experience in delivering these programs to this group.

And I think it's also useful for us, although we've been doing this for about, I think 10 years now, delivering energy efficiency programs to First Nations communities there's still a lot to learn. We are constantly learning and I, welcome everybody and encourage everybody to share your experiences in helping us anything that could help us better deliver energy efficiency to these communities.

So today I'm going to start big picture talk about energy Efficiency Ontario, and then we'll drill down to the specific programs and their details. One of the key components of delivering these programs effectively is using local connections and relationships in order to make sure that somebody's on the ground, being able to coordinate and communicate and liaise with the communities and the IESO and our delivery partners.

That's where I'll also focus some of our attention because those programs that are outside of SaveOn Energy really help us deliver these effectively to these communities. So let's start with energy efficiency in Ontario in general, and that kind of starts with what kind of role the ISO plays in our grid.

The ISO has many different roles from reliably operating the grid today in the, near and short term, but also planning for the future of Ontario's energy needs. We also coordinate and enable the market for efficient electricity. And of course in all this is included the province-wide energy efficiency programs that my group, my department runs.

We also highly value engaging to ensure that our decisions are well informed. We value innovation and as a grid operator, cybersecurity is top of mind for us. We're also the smart metering entity. So now that you know a little bit about what the IESO does, let's talk about energy efficiency in Ontario.

This is critical to ensuring that our long-term energy costs are low. Energy efficiency contributes directly to saving electricity in a cost-effective manner. There have been other reports out there that say that energy efficiency is one of the lowest cost ways to provide service electricity services at a lower cost.

And while we're planning for these long term needs for Ontario, Energy efficiency has had such a big impact that we in work together with the rest of our colleagues at the I S O to make sure that our impact is included in their future projections and plans. So far since 2011, our province-wide programs have saved over 16 terawatt hours.

Now, I think the statistics is a little bit old, so we've continued to save beyond that. And that's enough electricity to power A city the size of Ottawa for more than two years, just to give a sense of scale there. So we're saving a lot of electricity and we're trying to integrate this into our long-term planning to minimize the total cost of our grid.

In our most recent framework, the 21 to 24 framework we focus on cost effectively meeting Ontario's electricity system needs. There's a strong focus here on reducing peak demand, as some of the forecasts have pointed to, a need for additional resources to meet peak demand in the near future.

And in this electricity and energy efficiency framework are really focused on that as well as addressing re regional and local electricity needs as cost effectively as possible. Under this framework, we have a budget of just over 1 billion. Significant investment that we're hoping to target up to 725 megawatts of demand savings and almost four terawatt hours of electricity savings.

We deliver this under our Save on Energy brand to a variety of sectors, whether there be commercial, institutional, industrial first Nations communities, and low income residential. Outside of SaveOn Energy, the IESO supports several of our indigenous energy support programs such as the Community Energy Champion and the education and capacity building programs.

So I'll speak more about the Community Energy Champion program and how that really helps us deliver on energy efficiency.

So now that we have an overview of ISO's role, energy efficiency in Ontario and how that's benefited the province and our ability to deliver a reliable and cost effective grid. Now I want us talk about the specific programs we have available for First Nation communities. We have three programs currently available. One is called the First Nations Community Building Retrofit Program. These are targeted towards on reserve, band owned buildings that are commercial or institutional in nature. Then we have the Remote First Nations Energy Efficiency program. This was based off a pilot project, a pilot program that is focused on residential buildings primarily. And something that we offer to on and off reserve first Nations communities and low income sector in general, is the energy affordability program. And I'll speak more about each of these programs to provide the details.

And these programs as a whole, were designed to make it easier for First Nations communities to participate and benefit from our energy efficiency programs. And while these are targeted towards them, anybody can participate in any of our other SaveOn Energy province-wide programs that are focused on businesses like our Energy performance program or our small business program, or our retrofit program, which is very popular. Those are open to everybody province-wide as long as you meet the eligibility criteria, and I can speak more about those programs if there's interests later on in the presentation or in the q and a section.

So our energy affordability program, this is a program to help residents manage their electricity costs and increase their home comfort. There's lots of eligibility criteria, which I will get into but the program allows basically two streams. One is to allow an energy assessor to come into your home and identify energy saving opportunities, or you could qualify for a stream where we provide you with an energy saving kit.

So here are the two streams. If you qualify for the comprehensive support, an energy efficiency expert will come into your home, identify opportunities, provide the upgrades, and potentially also replace appliances at no cost to the participant. This might also include installation and weatherization measures if you heat your home with electricity.

The other stream is the energy saving kit. So if you qualify for this, you get a big box full of energy saving equipment that most people can just install by themselves in their home. For example l e d light bulb or clothes line for drying your clothes or a faucet aerator to reduce that en energy use.

Here are the income eligibility thresholds for both streams on the left based on your income. But also if you qualify for any of the programs on the right you are also eligible to participate in the Energy Affordability Program. So on the bottom you'll see that on Reserve First Nation community members are able to be eligible.

So there's two ways to apply. You could go and saveonenergy.ca/eap, energy affordability program, or you could call this phone number to start the process and somebody will be in touch to verify your eligibility. This program specifically has program materials in several different language which is for First Nations, I think it's in Cree, Ojibwe, and Oji-Cree. So that helps also improve the accessibility of this program to First Nations communities.

Next up I'll talk about our remote First Nations energy efficiency program. This was based off of a pilot that was successful in four different communities, and now we're expanding it to 12 additional communities in the northwest corner of Ontario, and these communities are either currently connected, soon to be connected, or expected to be connected to the Watay transmission line, generally speaking. So it's those communities in the Red Circle includes both pilot and currently eligible communities. Here's a list of the four that were in the pilot, and then the six that we engaged in 2022, and then the seven that we plan to engage in 2023.

So this program has several benefits for the community. Every home is eligible to participate in the remote energy efficiency program, remote first nations energy efficiency program. And we're targeting energy reduction, cost reduction, improving sustainability, as well as improving home comfort and building some education around energy efficiency.

Homes can receive a basic energy audit and or a weatherization audit, and we can help them install energy efficiency products and weatherization products. Businesses can also participate and receive a basic energy audit, and they can also have a few specific energy efficiency products installed, usually lighting, lighting controls, or a smart thermostat I believe. But the more details are available on our website for the specific measures available.

And this program really demonstrates what IESO has learned over time. Working with our vendors Eco fitt, we are really focused on ensuring that there's a local benefit beyond just the energy efficiency and that benefits the communities, but it also helps us deliver these programs more effectively.

There's local employment opportunities for a community coordinator who liases between the band office residents and the I S O or our delivery partner. And then there's local skilled staff to install insulation or do some of the other measure installations. And it also builds capacity because our delivery vendors help train these local staff to learn how to install insulation, learn how to air seal, and understand that a lot of these community members use wood burning systems and that affects the type of measures were allowed to install and how we should install them and what would be effective in those communities. So we built this off the pilot and we've had a lot of lessons learned, and we are implementing that to make sure that this program is effective.

The other type of program we offer to First Nations communities is the First Nations community building retrofit program. Overall, this program allows over up to a hundred thousand dollars in funding for projects to improve the energy efficiency and up to four band owned commercial buildings. There's two ways people can participate. You can have this direct install track, so we have a list of measures that we know will save energy and are quick for our program delivery agents to put into the band owned buildings. Or you can have a custom install track where the community might have a more specific energy efficiency project in mind that don't fit the prescribed lists, and they're able to contract with third party engineers or contractors or energy auditors to target different band own buildings facilities for energy efficiency.

Some buildings include arenas, street lighting, which is more a facility, and then wastewater treatment, but also open to exploring other facilities that each specific community might have in there. So this one isn't restricted to just the remote First Nations connected to the Watay transmission line. All grid connected First Nations communities are eligible. They have to be upgrades to band owned, commercial institutional buildings, and a band council resolution is required. Once the application's approved, then there's a bit of benchmarking and data collection analysis that we conduct before identifying, the measures being implemented. So far, nine communities have signed up to participate. Our delivery vendors, summer Hill, have been doing a great job getting the word out about this program and getting interested communities to come on board. Our program website is if you go to SaveOn Energy and look under the First Nations programs you can find. There's more information about this as well. Or you could email info@fnretrofitprogram.ca or call this phone number for people who are interested in participating.

So those are the three energy efficiency programs that are currently eligible to First Nations communities and individuals across Ontario. But like I said earlier, Part of the effectiveness of being able to deliver these programs is these other programs that IESO runs and they range from community Champions, who's a local resource that I will talk to further, education capacity building, which is self-explanatory with the rest of the names.

The Indigenous Community Energy Plan and the Indigenous Energy projects. Those are all just the suite of the indigenous support programs we provide at the I S O. But I specifically want to focus on this Community Energy Champions program. So this program provides funding up to 180 k per community to hire somebody dedicated to energy in their community.

And this person helps plan or implement and evaluate energy efficiency opportunities for the community to take on including these other Save on Energy program. And when we have somebody, like a local resource there that can help us liaise with the chief and the council to get approval or to show them what's available for our new programs, then it really helps make that a smooth process for them to participate.

And for IESO or our delivery partners, Ecofitt and Summer Hill to get in there and get these energy efficiency measures on board in these communities.

Here you can see the list of Community Energy Champion participants. There are so many, and it's so great that they're in many First Nations able to bring energy opportunities to these first nations and energy efficiency from, my group standpoint. And I would say, I couldn't imagine what it'd be like to develop or implement these energy efficiency programs without their support.

They're not just there for energy efficiency, but sometimes we need to reach out and contact First Nations communities and discuss research projects or other kind of insights to help us improve these programs that we deliver. And they're a really helpful resource for that as well.

So today I've gone over what energy efficiency is like in Ontario, the various offerings we provide ISO's role, and then over the three different first Nations programs that are available to those communities. And I am, like I said at the beginning, very interested in learning what other people's experiences have been in delivering energy efficiency or other energy projects to First Nations communities so that we can continue to learn. But I'm also happy to answer questions about our programs either First Nations or the broader SaveOn Energy programs we have available.

**Emilie Grenier:** Thank you, Jimmy. That was great. So I've got two questions for you, Jimmy, at this point.

First up, does IESO consider the embodied carbon in energy efficiency products? So the bill savings are also G H G savings. Foam releases more carbon in its manufacturing than its saves, for instance.

**Jimmy Lu:** I actually believe that's not the case currently. We do calculate greenhouse gas savings from our energy programs using our own internal analysis of the grids greenhouse gas intensity but currently not the embodied carbon in delivering those energy. There are still like GHG savings. But yes, we're not currently calculating those like scope three emissions, basically.

**Emilie Grenier:** Thank you. A question from Colleen, is your funding for the First Nations champion a one-time grant of 180,000, or do you have an agreement with the community on how long the champion will be employed?

**Jimmy Lu:** Yeah, this is a bit outside of my wheelhouse, but I do believe it's a multi-year agreement and every year the community or the champion gets a certain amount. And then also a certain amount, I believe, for like training and transportation or capacity building basically for that champion to learn about energy and energy efficiency.

So it's not, to my knowledge, a one-time thing. But there more, there's more details on the ISO's website for sure.

**Emilie Grenier:** Okay, great. Jesse says that it looks like a great suite of programs. Are there gaps in the programming that you've identified? What would you add, if you could, what are some key challenges that you have with the existing programs?

**Jimmy Lu:** So part of our programs is to constantly evaluate them. Every year, all of our programs when there's enough participation, go through a third party evaluation, and they help us identify the different gaps and offerings as well as our Delivery partners. They're speaking to residents, speaking to communities who tell them various different things about, what would be better to do.

So we are constantly looking at these things and constantly improving. I think some of the things that come to mind are challenges around offering maybe deeper retrofits and energy efficiency. There's a lot of challenges in getting materials up there and also making sure that our retrofits work for the local circumstances.

So there's a lot of challenges to figure that out. And also I think one great opportunity is to try to partner with other programs that focus on First Nations communities. That's something we are constantly trying to do different. Another challenge there is like different people have different mandates.

We're trying to save energy, that's our organization's mandate, and we have to connect with other partners to make sure that everybody's objectives are being met.

**Emilie Grenier:** Great. I have a question from Karen Abra Abraham Direct install programs in First Nation communities in Canada historically have had very poor results. Cost effectiveness and the ability to actually reduce energy bills due to poor housing conditions and limited scope of programs that can address broader issues in homes.

How does this program differ? Are there specific innovations that address the housing crisis with respect to mold and moisture, ventilation, accessibility, health and safety, plumbing issues, et cetera?

**Jimmy Lu:** Yeah, so it's a great question That's basically pointing to the challenge that I was trying to allude to, but is putting it into words now.

It's yeah challenging to figure out these, how to coordinate with other agencies so that we have enough funding to do a deeper retrofit where these housing conditions are dramatically improved. I think that's one of the key challenges where if there's some sort of issue with specific structures, it's not useful for us to put in insulation or a different kind of ventilation when that wouldn't suit the homeowner or, we don't have enough capital or funding to do that.

And so we're really trying to think about other organizations where we can partner, how we can leverage all of our funding to then implement this one holistic retrofit to these homes. Another challenge there is like timing. Different agencies are delivering these programs at different rates with different windows, and sometimes those don't overlap that well.

So lots of things for us to figure out. For sure.

**Emilie Grenier:** Understandable. A question from Christina. Are there minimum energy reduction requirements for the retrofit programs? Are these considered deep energy retrofits?

**Jimmy Lu:** I don't think. So if this is specifically the First Nations community building retrofit program, they can participate and get the direct install stream.

That stream of programming I think doesn't have a minimum energy reduction requirement because we know that the materials, those products produce a reliable level of energy savings. If it's the community install track, then I'm not sure, that might have a requirement and our delivery vendors will probably be able to work with the local community and the facility to identify where the savings need to be or how we can enhance those savings.

I don't think these are considered deep energy retrofits, although I think that term might be a little there might be some gray area of that using that term. In our industry. I'm not sure if our community building retrofit program delivery vendors are on this call or not. But if they do have more specific answers, they might be able to chime in.

**Emilie Grenier:** That's great. Thank you. You might have answered this, but there's another question that addresses the same type of question. Do those performance objectives differ when working in partnership with indigenous communities? Do you have anything to add there?

**Jimmy Lu:** They don't have to pass cost effectiveness tests. There was a decision to make sure that we don't have to pass the tests, but that we do have to deliver the programs cost effectively as possible.

**Emilie Grenier:** Okay. Kate is asking, are passive heating or cooling designs considered in energy retrofits has IESO considered retrofitting to a passive host standard?

**Jimmy Lu:** Yeah. Like I mentioned in the previous points, there's some challenges getting deeper retrofits to be the standard that we apply for or the goal that we can aim for because of the different challenges that our programs face. That would be great to have really deep energy efficiency retrofits being done in First Nation communities. And I think that could be a goal that we look forward to in trying to ach achieve with our programs eventually. But right now we're doing the current, learning and we are developing what works based on what we've learned and understood and can deliver currently.

**Emilie Grenier:** Kirk is asking what options are available for SmartGrid net zero retrofits or training for First Nations on or off reserve for residential part nine or commercial part three buildings specifically?

**Jimmy Lu:** I actually think some of the other support programs, the indigenous support programs that I mentioned that are not delivered under energy efficiency do target other strategies like Smart Grid or renewable technologies being implemented in indigenous communities, or those are eligible to be considered under those programs. So that's an option. And the training is also a part of that.

I think especially, part of these programs, like the Remote First Nations program is to build local capacity in these communities with people who know how to install insulation, who know how to do air ceiling. So that is a critical part in helping us to effectively deliver these programs to these communities.

**Emilie Grenier:** That's great. We've run through all nine questions already. Folks, if you have any additional questions we can give it perhaps a few minutes, unless Jimmy you have anything you'd like to add or any questions for the group.

**Jimmy Lu:** Oh yeah I'd be glad to speak with you on how you do this, how you do it cost effectively at scale. Those all sound like great things that if we can learn from and we can start doing here in Ontario we can look forward to try to improve our programs to reach that level for sure.

**Emilie Grenier:** Great. So I guess we'll close it up here and give people back about 10 minutes of their day. Thank you again Jimmy for joining us today and for the great conversation. Great questions from the audience. So this session was recorded and will be posted on our website and on our YouTube channel by midweek next week. And you can find all these sessions and our previous discovery sessions under the events tab on our website.

In the meantime, Stay connected by joining us on our Discovery Hub or joining our mailing list on our website. Thank you all for joining us today. Have a great Friday. Have a great weekend. Thank you again, Jimmy. Thanks

**Jimmy Lu:** everyone. Bye-Bye.