



HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

45th PARLIAMENT, 1st SESSION

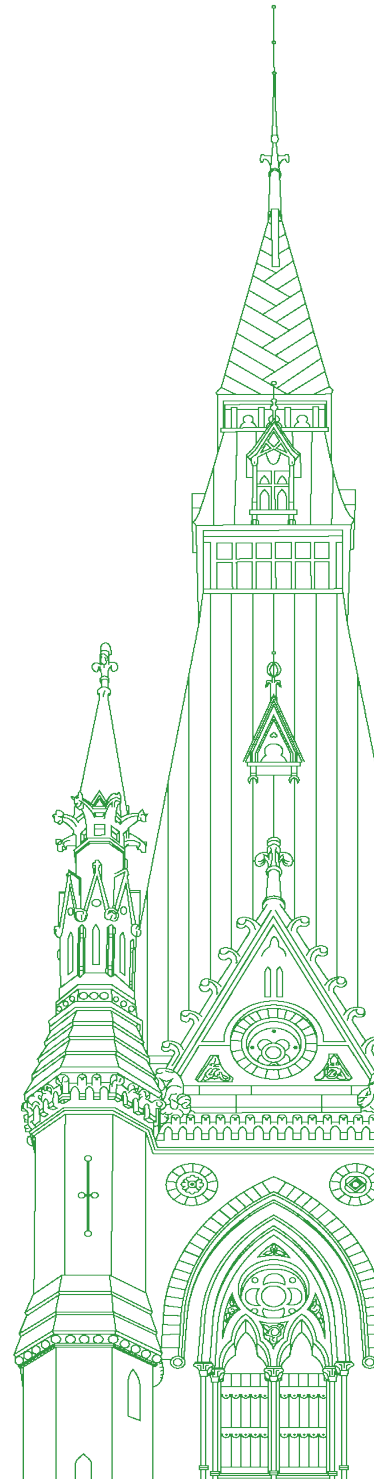
Standing Committee on Environment and Sustainable Development

EVIDENCE

NUMBER 047

Thursday, September 24, 2026

Chair: Shannon Miedema



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• (1530)

[English]

The Chair (Shannon Miedema (Halifax, Lib.)): We will begin.

Hello, everybody. This is meeting 47 of the Standing Committee on Environment and Sustainable Development.

I'd like to welcome our newest member to the committee: MP Jonathan Rowe.

Welcome. It's nice to have you here.

For those who are here in person, please remember to follow the health and safety guidelines, as per the cards on the table, to prevent audio or feedback incidents.

Today, we're going to be starting our study on retrofits for home energy efficiency, but before we get started, I want to cover the matter of the budget ask for attending COP31 as a committee.

The clerk has distributed a draft budget, with details, to apply to the Liaison Committee to obtain funds so we can participate in COP31 in Antalya, Turkey, in November. Are there any questions on the draft budget to put forward for proposal?

Monsieur Bonin.

[Translation]

Patrick Bonin (Repentigny, BQ): Thank you for this initiative, Madam Chair.

I did some quick calculations and found that the amount per member of Parliament is relatively high. Would it be possible to show us the forecasts that led to this figure? I think that we should clearly identify the figure as a maximum amount and that, ideally, we should try to lower costs. However, I haven't seen the forecasts.

[English]

The Chair: Monsieur Bonin, the clerk's office put this together. Because of the long flight, we chose the more comfortable flight option for members who would be travelling, but this would be the maximum amount. It was based on estimates of all the costs that would be part of the trip. This is the ask that we would have to put forward to the Liaison Committee to see if they are willing to entertain the proposal.

I need committee approval to even make the ask. Then there can be a negotiation of the budget. Should there be areas to save in, we would obviously look into those, but we want to make sure we're doing the proper ask.

Mr. St-Pierre.

[Translation]

Eric St-Pierre (Honoré-Mercier, Lib.): I would like to raise two points that echo the comments made by my colleague from the Bloc Québécois.

First, I would like to see a breakdown of the amounts. If we can minimize the costs to taxpayers, we should do so.

Second, sometimes during these trips, there are interpretation costs. So I would like to know whether these costs would be included. I think that the costs for interpretation from English to French would be quite significant. On our end, we think that this isn't essential.

In short, I tend to agree with my colleague that we should see about reducing expenses. Like a number of my colleagues here today, I've attended the COP before, albeit with a somewhat more limited budget. I'm quite open to the idea of setting a cap on this amount and lowering the costs, if possible, for Canadians.

• (1535)

The Chair: Thank you, Mr. St-Pierre.

The amount requested is for six people. We can look into this further. However, there must be a consensus to make the request.

Are there any other questions?

[English]

Is it the pleasure of the committee to adopt this budget proposal to make the ask of the Liaison Committee?

Some hon. members: Agreed.

The Chair: That's wonderful. Thank you. We will do that.

We will now turn to our study on retrofits for home energy efficiency.

We have witnesses in both hours. In person here today, we have Maya Papineau, associate professor of economics. Online, we have Charles De Land, vice-president, research, Canada West Foundation.

Each witness will have five minutes to provide opening remarks. I have a little reminder for when you're at one minute and for when you're out of time and should please wrap up, in case that's helpful.

We will begin with Madame Papineau.

Maya Papineau (Associate Professor of Economics, Carleton University, As an Individual): Thank you, Madam Chair.

Thank you to the members of the committee for the invitation to appear today. My name is Maya Papineau. I'm an associate professor of economics at Carleton University, where my research program focuses on environmental and energy economics.

Much of my research asks a simple question: How can Canada reduce greenhouse gas emissions while ensuring that the policies we adopt deliver tangible benefits to Canadian households? Motivated by my work, I would like to make three points about reducing emissions from Canada's buildings.

First, we need to both design and evaluate energy efficiency investment programs based on what they actually achieve for Canadian households rather than what simulation models predict they will achieve. In recently published research I co-authored, we examined Canada's ecoENERGY retrofit program using detailed household-level data. This was a predecessor to Canada's greener homes program. We found that participating households reduced natural gas consumption by 20% and that those savings persisted for at least a decade. Households undertaking comprehensive building envelope retrofits reduced consumption by about 35%.

Those are substantial savings, but we also found something that should be important for the design of future federal programs. The savings that households experienced were substantially smaller than the savings predicted for them before they undertook the retrofit. Across retrofits, realized energy savings were only about 60% of model predictions. For comprehensive envelope retrofits, realized savings were less than half of predictions. This matters, because households make investment decisions based partly on expected savings. If we overestimate those savings, we risk overstating both the private financial benefits of retrofits and their contribution to emissions reductions.

Prior research from the U.S. has found a similar performance gap. One study found that differences in contractor workmanship accounted for roughly 43% of the gap between projected versus realized energy savings. This points to an important lesson for Canada: We need evidence on which approaches to contractor training, certification and quality assurance contribute to improvements in energy performance. Otherwise, we risk spending more public and private money without achieving the expected energy savings or emissions reductions.

Second, affordability needs to be a central measure of whether building decarbonization is succeeding. As households electrify heating and transportation, electricity becomes the principal energy carrier for more essential energy services. This makes the distributional consequences of electricity prices increasingly important. Our research on the ecoENERGY program found significant variation in the benefits households attained. Some households spent significant amounts of their own money on retrofits that produced considerably smaller bill savings than predicted. At the same time,

retrofit rebates were distributed relatively evenly across the housing wealth distribution rather than being concentrated among households likely to face the greatest affordability constraints.

Research from several countries has found that higher household electricity costs have been associated with lower public support for ambitious clean energy policies, while other studies have found that the political costs of climate policy depend, importantly, on policy design and whether households are protected from regressive impacts. As decarbonization proceeds, we need to measure what happens to the total amount that households spend to heat their homes and obtain other energy services, as well as how these costs are distributed.

This brings me to my third point. We need much better real-world evidence as building decarbonization and electrification scale up. Engineering-economic models are indispensable for planning, don't get me wrong, but they rely on assumptions about technology performance, adoption and consumer behaviour. Large-scale retrofit programs should therefore also be treated as opportunities to gain insights. Governments and utilities should, with appropriate privacy protections, facilitate research using high-quality data on actual energy consumption, technology adoption, electricity system investments, tariffs and household expenditures. This would allow us to identify which combinations of retrofits, rate design, workforce development and targeted assistance deliver the greatest social benefits.

I will close with three principles for federal building policy. First, measure real-world outcomes. Evaluate programs using realized energy savings, emissions reductions and household financial benefits. Second, invest in people. Workforce training and quality assurance evaluations should be treated as part of climate policy. Third, make affordability a key part of measuring success. Track total household energy expenditures and their distribution, not electricity prices in isolation.

Canada can substantially reduce emissions from its buildings, but durable progress will depend on whether these investments perform in the real world and whether their benefits are experienced in people's homes and household budgets.

Thank you. I look forward to your questions.

• (1540)

The Chair: Thank you very much, Ms. Papineau.

We will turn now to Mr. De Land for five minutes.

Just as a reminder, please do not speak overly quickly for the interpreters.

Charles De Land (Vice-President, Research, Canada West Foundation): Okay. I'll try.

Thank you, Madam Chair.

Good afternoon. My name is Charles De Land. I am the vice-president of research at the Canada West Foundation. Thanks for the opportunity to appear today.

The Canada West Foundation is a non-partisan think tank focused on a stronger, more united and prosperous west and Canada. While I'm pleased to represent the foundation, the research informing my remarks was largely undertaken before I joined the organization.

My remarks draw on two pieces of research I co-authored: a 2022 study of the practical implications of replacing gas and oil heating in Canadian homes and a recent comparison of electricity prices across Canada. My main message is straightforward. Canada should pursue lower-energy home use, lower emissions and more resilient homes through cost-effective, performance-based policy. The objective should not be to prescribe one technology, ban one energy source or assume that additional subsidies are the answer in every case.

Space and water heating account for virtually all direct residential emissions. Measures such as air sealing, insulation and more efficient equipment can reduce the energy needed to keep a home safe and comfortable. They can also reduce the size and cost of any heating equipment a household chooses.

The scale and cost of fully electrifying residential space and water heating should be understood. Our 2022 scenario estimated that electrifying space and water heating in Canada's emitting homes by 2050 would require more than 400,000 retrofits annually. This is a scenario estimate, not a forecast or prescription. Its value is simply to illustrate the challenge, which is that a single technology approach would be costly, operationally demanding and unlikely to be the least-cost solution.

Fuel costs and reliability also matter. My recent electricity price analysis, which I co-authored, found substantial provincial differences in system costs, reflecting resource endowment differences, legacy infrastructure, market design, regulation and public policy. In 2023, for example, the latest year of our study, estimated normalized system costs ranged from approximately \$76 per megawatt hour in Quebec to \$225 in Alberta. That's since dropped quite a bit.

Heat pumps could be a good option in many homes, especially when paired with insulation and air sealing, but electricity is not equally affordable, reliable or available in every province, community or season. Policy should avoid fuel bans and should not require a single fuel choice. In some circumstances, high-efficiency gas equipment or hybrid systems combining a heat pump with a gas furnace may reduce emissions at lower upfront costs, preserve reliable heating during extreme cold and help manage winter electricity peaks.

Quality matters. The same retrofit measure can produce very different results depending on the building, the quality of its assessment and design, the installation, the commissioning and the contractor skill. Publicly supported programs should focus on verified results, not simply on the number of grants, assessments or installed devices.

New construction deserves attention as well. It's typically less costly to incorporate a high-performance building envelope, heating equipment and sufficient electrical capacity up front during design and construction than it is to retrofit them later. Better new homes can avoid future retrofit costs and better protect buyers from high energy bills.

I offer five principles for the consideration of this committee.

First, set performance outcomes for energy use, emissions, affordability, comfort, resilience and reliability rather than fuel-specific mandates.

Second, measure value for money. Assess costs per gigajoule saved and per tonne of emissions reduced alongside effects on energy bills, peak electricity demand, comfort and resilience. This assessment should also include the administrative and time burdens on governments and households in accessing these programs.

Third, prevent future retrofit costs through better new construction and transparent consumer information.

Fourth, preserve consumer choice among technologies and energy sources that meet transparent performance standards and suit household circumstances.

Fifth, use public support selectively where genuine barriers exist. These include, for example, low incomes, tenant-landlord split incentives, remote and northern conditions, and health and safety needs that ordinary market incentives don't capture. Broad subsidy programs should demonstrate public benefits and not merely shift costs from energy bills to taxpayers.

In short, Canada needs a practical, transparent and regionally flexible approach to home energy efficiency to help Canadians reduce energy use and emissions at the lowest reasonable cost, while maintaining reliability, affordability and choice.

Thank you. I look forward to your questions.

• (1545)

The Chair: Thank you, Mr. De Land.

We will now go to questions by members. We will start with Mr. Leslie for six minutes.

It's over to you.

Branden Leslie (Portage—Lisgar, CPC): Thank you, Madam Chair.

I'll start with you, Professor Papineau.

I understand that you did a paper recently called "Household benefits from energy efficiency retrofits", where you compared the savings that were predicted before the work was done with what people actually saved on their energy bill. One of the highlights I see here is that the actual natural gas savings were only about 60% of what was predicted. Is that correct?

Maya Papineau: That's right.

Branden Leslie: In terms of the deeper, whole energy envelope, the gap is even bigger. Is that correct?

Maya Papineau: For whole envelope retrofits, yes, it is.

Branden Leslie: What are some of the retrofits that you found were much less effective for the homeowner who's looking to make those investments?

Maya Papineau: The least effective retrofits were basement insulation and windows and doors in particular.

Branden Leslie: Windows and doors....

Maya Papineau: There are two types of basement insulation. There's basement header, and then there's the basement foundation insulation. Both of those were statistically zero, if I recall correctly, and windows and doors had statistically zero savings.

Branden Leslie: I appreciate that. I was a little surprised about the windows and doors—

Maya Papineau: Many people are.

Branden Leslie: —but I appreciate the work you've done on this.

The government is saying that its new retrofit program currently under way could save households between \$300 and \$1,700 a year. How should Canadians treat those proposed savings? Are they really just—based on the data that you've outlined here—estimates until we check the real-world bill afterward?

Maya Papineau: Currently, the model-based approach is still the most predominant way to offer information to Canadians about the savings from energy efficiency and other climate policy investments. Colleagues and I have approached many different government department staff to suggest a more effective way to design policies. That builds into what I mentioned in my opening remarks. As we're scaling up and as we're deploying energy efficiency programs and other energy programs, we should be building in an evaluation mechanism to get those numbers right and to deliver those benefits to Canadian households.

Branden Leslie: As far as you know right now—your study looked at 20,000 houses, it looks like—is any of that built in at all under the current program that's being delivered to the provinces, to deliver the actual program to contractors?

Maya Papineau: At present, no, there's not been any change. I will qualify that. We had 20,000 houses. These were all the single-family homes in a city in Alberta, in Medicine Hat. Just under 1,500, I believe, ended up retrofitting, so we had data on 1,500—everybody who participated in that program. There weren't 20,000 folks who retrofitted.

Branden Leslie: It's still a large sample, but you're saying that we should have a larger one because we have a real-life experiment going on.

Maya Papineau: We need more—exactly. In particular, for example, when it comes to those individual retrofits, if we want to identify the most effective retrofits.... We had difficulty in what we would term the "confidence interval". The smaller the sample you have, once you start breaking down the data of the individual retrofits, the more variation you'll have statistically, and it will be more difficult to say what is the most effective retrofit to recommend to a given household, given that there's so much household heterogeneity that the models, almost by definition, cannot capture. The benefit of getting large samples of data is they reflect the heterogeneity of Canadian households.

Branden Leslie: One of my fears when we have these big-number projects is that at the end of them, it's going to be, "We spent this many millions of dollars on something." What would you want to see before saying that a retrofit program delivered savings as promised? What is the simplest way to identify that?

I know, obviously, that your work is critical in this space. Is it a matter of, for those who do it, having energy bills submitted and then doing some sort of adjustment for colder and warmer climates? How do you think this functionally works?

• (1550)

Maya Papineau: The way to do this is to build in a randomized control trial before you even deploy the program. This is what we were pitching to Natural Resources Canada. It took us a couple of years, but we eventually overcame the reticence. At the moment there are some changeovers. As I understand it, the OEE might be shifting to Environment Canada.

Really, it was all about setting up a randomized control trial in which you're comparing the status quo methodology based on the HOT2000 model. The HOT2000 model is a very old model. It's over 30 years old. I work with engineers who have basically told me there are newer models available, so even that model itself....

You want to compare the status quo to an alternative in which you use large samples of anonymized utility customer data and develop algorithms based on past adoption characteristics and the characteristics of the households using property assessment data that are publicly available. Then you compare these two approaches—the updated algorithm to the status quo. That enables you to identify what the benefit is of shifting to that statistical approach.

One of the colleagues I've been working with, speaking to different folks in government, conducted, using U.S. data, a simulation study that was able to find that it went from I think a 56% realization rate to an 80% realization rate. Of course, we need to test that in the field and complete a randomized control trial. That would be the way to deploy a program and identify the best and most welfare-enhancing way for households to participate in meeting net zero and decarbonization.

Branden Leslie: That would help us down the road in figuring that out as we develop more programs.

Maya Papineau: Absolutely.

Branden Leslie: Ultimately—I hope you would agree—it would be of value to have the government release that data so we can see what was saved for the economy and for individual families who are embracing these programs, these new technologies and these retrofits, versus what was spent. Then we can identify whether this a good use of taxpayers' money and if it actually worked in the real world. Is that a fair assessment?

Maya Papineau: Absolutely. That's the scientific method, but it would also help us figure out how much we should be allocating to the residential building sector versus other sectors of the economy.

Branden Leslie: Thank you.

The Chair: Thank you very much, Mr. Leslie.

We'll now turn to Mr. Fanjoy for six minutes.

Bruce Fanjoy (Carleton, Lib.): Thank you, Madam Chair.

Thank you to our witnesses for joining us for this important study.

I brought forward this study on home energy retrofits because I've seen the difference that reducing demand in a home can have in electrifying all of the things that require energy. When I realized how powerful it was, I was disappointed that I could do only one house.

I'm looking forward to your testimony, Dr. Papineau, on how we recognize that each retrofit is different and that there can be variation in workmanship, which determines how effective a retrofit is. In virtually every case, I think we're talking about degrees of savings; we're not talking about failure.

Maya Papineau: It's not in every case, but yes, in many cases.

Bruce Fanjoy: We want to increase the success and do more. How can we scale up retrofits so that more Canadians can benefit from reduced energy costs and we can help address our emissions?

Maya Papineau: At the moment, I think there are some very clear beneficial technologies.

Heat pumps should be offered in a targeted manner, but in a very large-scale program. That's what I would recommend. Again, the evaluation is built in.

Air sealing, we found, was a very high-return set of investments. Households don't tend to save a lot, but it is a very high-return investment for households. Combining higher upfront-cost technologies with lower-cost retrofits that will immediately be seen by people in their homes would be beneficial.

I really think that to get to a point where we're confident that we can scale up and deliver reduced energy prices, or at least energy prices that are not increasing, we need to be basing our retrofit packages.... Maybe I'll give you a bit of background. In the current system, when someone completes an energy audit, they're shown their energy efficiency road map, and they're recommended a set of measures. Currently, these are the data that we use, and the way that these recommendations are presented to households is what led to the 60% realization rate. We want to get much higher than that.

To scale up, we need to identify a better road map. That will deliver benefits to households. Naturally, as long as our energy prices are not going up, if there are some rebates being offered to them, we could even set up a study where we're identifying the elasticity of another.... How much does another rebate dollar actually increase participation? You can build in, in a very well-designed study, *ex ante*, a mechanism to identify what is the best way to scale up. That's what I would recommend for the path forward.

• (1555)

Bruce Fanjoy: Thank you.

How do you see home energy retrofits fitting in with the government's electrification strategy and our goals to double the electrical grid in the next couple of decades?

Maya Papineau: I'm currently working on a project to identify the realized consumption of heat pumps in the city of Toronto. We have a collaboration with Toronto Hydro. I don't necessarily see, at the moment, any conflict between energy efficiency retrofits—the goal of Canada to continue to deploy these programs—and electrification.

In the last iteration of the greener homes program, you were not eligible to get a rebate for a gas furnace, and that's the right thing to do, I think. Promoting heat pumps over gas furnaces is correct. Once again, at scale, we want to be able to identify the correlation between the characteristics of any given home and their savings from heat pumps. That's a question we need, again, big data to answer so we can give a set of targeted retrofit recommendations to households that will deliver benefits to them.

Bruce Fanjoy: You mentioned the community of Medicine Hat and that there were a number of retrofits there. We often hear that heat pumps don't function as well in cold weather. I've had one for five winters now in Ottawa. It's pretty cold here in winter, and it has never failed me. The experience in Alberta with heat pumps—I'm talking about cold weather heat pumps—is proven now. Is that correct?

Maya Papineau: Yes, I would say so. I have some colleagues who have adopted heat pumps in Ottawa, and they don't have any backup systems.

If you let me, I'll mention a small anecdote that leads into contractor training.

My parents live in Vancouver, B.C., and their AC conked out last summer. They asked a contractor to come in and give them recommendations. Their furnace was a bit old as well. The contractor in Lower Mainland Vancouver told them they should get a heat pump. My father said, "We're going to get a heat pump." I said that was great. He said, "The contractor said I need a furnace backup. It will be free for me because they're going to give me \$5,000 for the furnace. It will be zero." I was shocked, because in Vancouver, that is completely not a rational decision. The name of this company was Pioneer gas. I don't know if they somehow...

Anyway, that's just an anecdote for you. My time is up.

The Chair: Thank you, Mr. Fanjoy.

[Translation]

Mr. Bonin, you have the floor for six minutes.

Patrick Bonin: Thank you for joining us, Ms. Papineau.

Can you provide a brief explanation on how green building renovations to reduce carbon emissions and improve energy efficiency can help lower the cost of living and boost affordability?

Maya Papineau: I'll respond in English, because I took all my economics courses in English.

Patrick Bonin: You speak French very well.

Maya Papineau: Thank you, but I'm not that skilled when it comes to using economics terminology.

• (1600)

[English]

It's a question of the upfront costs versus the bill savings. What you really want to ensure is that you're incentivizing folks to understand what the bill savings are over time, because people have a tendency to focus on the prices that are most salient to them. That salient cost, unfortunately, is the upfront cost of having to purchase a heat pump for several thousand dollars. Of course, that heat pump is very energy-efficient, and it might help you save significantly on your bills over time, but that message has not necessarily percolated to households in certain segments of the housing sector and to lower- and middle-class folks. For them, that's going to be a completely impossible investment without rebates, which is why I am in favour of continuing energy efficiency programs. The question is, to what extent can you make the case about affordability to those households to convince them to adopt them?

[Translation]

Patrick Bonin: Do the programs currently in place benefit homeowner households? Do they cover everyone, or are they aimed only at low-income individuals, with no real programs for the middle class?

Maya Papineau: The ecoENERGY program was open to everyone, but the homeowners had to make the investments.

[English]

In our study, we wanted to avoid the problem of landlord-tenant split incentives.

[Translation]

As a result, we excluded from our study apartments and multi-family residential buildings, such as townhouses. We really focused on the single-family housing sector. We found that middle-income households had the highest participation rate. However, this segment of the population's performance in terms of reducing energy consumption was nearly the lowest compared to other participants.

[English]

That implied to us that there was some combination of unobserved selection and of the characteristics of the energy performances of the houses that was leading the households that participated a lot to have lower savings. We concluded that because this was not a study in which we completed a randomized control trial, there was some unobserved selection. That's a typical problem you're going to end up with if you don't deploy a randomized control trial beforehand.

We can't test our hypothesis because this was *ex post* data, but it's likely that folks were planning a renovation anyway, like replacing a furnace or getting an energy-efficient AC, and thought they might as well get a rebate. That causes an issue for identifying which households should be adopting these investments and getting the rebates—and not because they would have done it anyway. We don't want to be identifying free riders. We also want to make sure that households that have the lowest incomes are getting targeted rebates.

[Translation]

Patrick Bonin: You were speaking in the past tense. However, the current program is limited to low-income individuals.

Would it be better if there were at least something for the middle class?

Maya Papineau: Absolutely. I think that the middle class should also receive rebates. However, our study showed that, while the middle-class households participated in the program in large numbers, they received almost the minimum amount of energy savings. It really depends on the individual case. That's why I suggest that we carry out studies to identify and recommend

[English]

a set of rebates that will lead to the most savings for households.

[Translation]

Patrick Bonin: When you talk about your study, are you referring to the 2024 research that focused on the benefits for households?

Maya Papineau: It was published in 2025.

Patrick Bonin: Could you send the results of this research to the committee in writing?

Maya Papineau: Absolutely.

Patrick Bonin: Thank you.

In your conclusion, for example, I think that you were referring to some regressive effects in certain areas.

Can you tell us about this?

Maya Papineau: Yes.

[English]

We identified that, technically, the maximum rebates available to a household under this program—the same as in the greener homes initiative and possibly the current program, although I'm not as familiar with it—is \$5,000. On average, we observed that people really underutilized the rebates relative to what they could get. They could get up to \$5,000 on average, and this didn't vary across the wealth distribution, which is the regressive aspect. On average, households across the wealth distribution got about \$1,100 in rebates. If you want to target lower-income households, you want to give higher rebates to lower-wealth and lower-income households.

• (1605)

[Translation]

The Chair: Thank you.

[English]

I will now turn to Mr. Ross for five minutes.

Ellis Ross (Skeena—Bulkley Valley, CPC): Thank you, Madam Chair.

Thank you, Ms. Papineau, for that discussion. That was actually pretty interesting.

I was a labourer in the construction industry long ago. My brother is a Red Seal carpenter, and I was his right-hand man, but I got lectured endlessly on doing a good job at insulating houses. I very rarely got a passing grade for the reasons you just mentioned—just for efficiency on keeping the home warm. It's quite surprising to hear that insulation has better value for the homeowner, as opposed to a retrofit, although not right across the board, of course.

In your study, did you cover any households on reserve for first nations?

Maya Papineau: We did not. We collaborated with the City of Medicine Hat, so everyone was within the city boundaries. We did not have access to data from any reserve, but we'd be happy to collaborate with reserves in the future. We are always looking for more partners.

I'm actually involved in a project in the Yukon. Yukon University is involved. There's a community called Old Crow in the Yukon that is having issues. They're electrifying, but they have now an issue with the load. The electrical load is so high that they can't meet the load because they've electrified to their maximum. They now have issues with not being able to get extra transmission investments to increase their electrical load.

Ellis Ross: Your study is interesting in terms of what the foundation is. It's basically trying to reduce emissions and address affordability, which is always the balance. In your study, did you have a cross-section of different types of houses in terms of their age, of when they were built?

Maya Papineau: Yes, we did. We knew the year of construction of all the homes from the assessed value. I don't have it in front of me, but I think the average house was built in 1980, so we had some older houses and some newer houses.

Ellis Ross: In Kitimat, an industrial town, some of those houses were built in the 1950s, so they're having the same issues you were just talking about.

Your study talked about the retrofit strategy that was put in place. It found that it reduced natural gas consumption in comprehensive envelope retrofits, but realized energy savings were only about 60% of the savings predicted beforehand. Did those savings correlate in any way to the emissions?

Maya Papineau: We did not have emissions data in our study. That's not to say that I don't recommend linking emissions data, but it's actually quite complex to get an emissions picture, in the sense that you have to then look at marginal emission factors and not just at averages to get an accurate measure of how much emissions actually fell. Almost mechanically, though, one thing I can say is that if you're saving less than predicted, then of course the emissions savings will be less than predicted.

Ellis Ross: I'm looking at the data here and looking at your comments, and it almost sounds like in a staged approach, especially in colder regions, it is better to have a really well-insulated home first before you think about energy retrofits, or is it kind of parallel?

Maya Papineau: I think that's a great question. It's an empirical question, and we'd have to conduct a study to determine that. At this point, we don't have enough data to say that for certain. Now, of course, there are model predictions, once again. There will be models that make assumptions about the air leakage of a home and the thermostat set point that people are using, but they're going to be assumptions that in many cases will not be true for most households.

My answer is kind of a non-answer at this point. We don't really yet know. I will say that given we found that several of the insulation retrofits did not deliver—so statistically zero, for example, for basement insulation—a lot of folks are given the advice that they should insulate their home and get a heat pump—

• (1610)

Ellis Ross: I have 30 seconds. Can I ask one question in relation to that? The insulation we used in our region was hard foam for the basement. Does it make a difference if you're using the kind of insulation that sticks to it, urethane?

Maya Papineau: We do not know what type of insulation was used. We know what our value was brought to, but we don't know the type.

Just to quickly finish, I would say that getting a heat pump at this point is clearly a good idea, rather than waiting on the evidence of whether or not you need to insulate before you get your heat pump.

The Chair: Thank you very much.

[Translation]

Mr. Watchorn, you have the floor for five minutes.

Tim Watchorn (Les Pays-d'en-Haut, Lib.): Thank you, Madam Chair.

Ms. Papineau, thank you for joining us. Your comments are quite helpful. I would like to explore this issue a bit further.

You said that replacing a house's doors and windows didn't achieve the desired results. People tend to think that a house's openings are the deciding factor.

How did you determine that this wasn't as effective as previously thought?

Maya Papineau: It was an econometric approach. Our data showed a regression. I don't have the data in front of me. However, it concerned about a hundred people who decided to replace their doors or windows or both.

Our study isn't the only one to show that the returns were lower than predicted. I can actually tell you about another study that we carried out. We reviewed 39 papers in the literature that also examined investments in new doors and windows. The result was the same in multiple cases. These investments didn't lead to any reduction in energy consumption.

As I said earlier in my response to Mr. Bonin, we didn't carry out any randomized controlled trials beforehand. So we couldn't really know whether receiving money to replace their doors or windows influenced people's decision to carry out these renovations. They might have carried out the renovations even if there hadn't been any air leakages. We can't determine this without having established an evaluation system beforehand or offered the investments to households at random.

Tim Watchorn: That's good to know.

I'll back up what you said. At home, we had only baseboard heaters. However, two years ago, I added a heat pump. Just by doing this, we reduced our electricity usage by 40%.

Before being elected to the federal government, I was a mayor. In my constituency, one mayor is quite proactive when it comes to renovations. He tried to get a bylaw passed to ban gas heating systems. His name is Paul Germain. He was determined that only heat pumps be installed in new houses. He ran into a roadblock in the form of Énergir, a gas company in Quebec. The company sued the City of Prévost to force it to change its bylaw, arguing that the measure was unfair. They ultimately reached an amicable agreement.

How can cities or provinces that want to take a proactive approach to energy efficiency work with the government to achieve the best results for Canadians?

Maya Papineau: Good question.

We need a market transformation policy. The federal government should implement a regulation similar to the one that this mayor tried to implement in his city. This would prevent people from buying furnaces and water heaters. However, I don't think that we're there yet. We're in Parliament. We must take voters into account. Ultimately, if we could show the benefits of energy efficiency and price stability, I think that it would be a good idea to implement a market transformation policy at some point.

Tim Watchorn: I also have the flaw of being an engineer. You said that you looked at some models that were more advanced than the ones originally used. What has changed in the models? What other criteria were incorporated into these models to make them more realistic?

Maya Papineau: The short answer is that I don't know. I have interdisciplinary projects and there are also engineers in the group. Personally, I'm not an expert on these models. With data, I work on regressions and statistical analyses. I also work on machine learning, artificial intelligence, and so on.

People are always saying that the model used is a bit outdated and that we should use a different one, for example. In my opinion, that won't solve the problem. Once again, it's an empirical question. Would a new model be useful or not?

• (1615)

Tim Watchorn: I would like to ask you one last quick question.

Have you assessed whether the energy performance of prefabricated homes differs from the energy performance of homes built directly on site?

Maya Papineau: We don't have that data.

Tim Watchorn: Okay.

Thank you.

The Chair: Thank you.

Mr. Bonin, you have the floor for two and a half minutes.

Patrick Bonin: Ms. Papineau, one of the things my colleague talked about was the Prévost regulations. The Communauté métropolitaine de Montréal has taken action in this regard, and the Government of Quebec has also stated its intention. You seemed to say that we weren't really there yet, but from what I understand, electrification and heat pumps make financial sense for households.

What is preventing us from getting there? Other countries are moving on this. Why wouldn't Canada do the same when others are moving quickly, particularly in Quebec?

Maya Papineau: As I said earlier, we also have to think about how we are going to price energy, electricity.

[English]

It's a given that electricity consumption will increase significantly if we electrify, and a significant amount of new investment will need to be made in the electricity sector to meet that higher demand. We need to be able to identify what households are actually paying. It will vary by household. Some households don't have much ability to shift their demand from peak time.

In Quebec, there are many different pricing structures that have been tested to see to what extent people are shifting away from peak when they're paying a higher price at peak time. Unfortunately, the evidence so far finds that there's not much elasticity there. It's possible that people will still end up, under electrification, paying significantly more for their total energy bill. This is still an open question. If we get to that point, the will from the populace might not be there to support continued electrification. You don't want to get that backlash without identifying how much more electricity prices will go up.

Should the current model for passing on new grid investments be passed on immediately to ratepayers, or should they go to a system where taxpayers are shouldering a bit more of that? This is why I'm saying that we're not quite there yet in terms of having a market transformation program where we're making it illegal to purchase fossil-fuelled furnaces.

[Translation]

Patrick Bonin: Could the government create an awareness campaign to inform the population? We need to give them a leg up. We

can't wait for the population to take action when a number of countries are already moving on this.

Maya Papineau: It can't hurt, but...

[English]

It's the economy S-word.

[Translation]

If the price of electricity goes up a lot, even with energy efficiency measures, households that aren't able to make an energy transition—

[English]

My time is finished, but it's an open question whether or not people will be on board.

[Translation]

The Chair: Thank you very much.

[English]

We'll now turn to Mr. Bexte for five minutes.

David Bexte (Bow River, CPC): Thank you, Chair.

Thank you, witnesses, for being here today.

Welcome, colleagues, back to our committee and our study on home retrofits.

It's been a fascinating discussion so far. I have so many different new ideas and questions to pursue on this.

I feel our guest from the Canada West Foundation is feeling left out, so perhaps we'll start there.

I'll build on a point that was just made by Professor Papineau that I found fascinating. It's been percolating in my mind. There's the confluence of all of the things we have going on that we have to balance. How do we get the right balance in an electrification effort, with fuel switching and how those decisions are driven? The comment was that electrification—if I may paraphrase—may increase household costs, ultimately, if the grid isn't able to keep up with the demand. It's about the adoption rate of new technology or differences versus the generation, transmission and distribution capacity of the grid.

Could you comment on that, please?

• (1620)

Charles De Land: Sure. I assume you're talking to me.

David Bexte: Yes. Thank you.

Charles De Land: I don't feel too left out—Professor Papineau has been very fascinating—but thank you for the question.

In terms of the overall electricity system, I think there is something to your question. If demand rapidly outpaces supply, then you're obviously going to see prices go up. Conversely, if you have a massive overbuild that needs to be clawed back from ratepayers, that still has to be paid for.

Electricity can be very efficient in the right circumstances. Heat pumps can be a great solution for many homes. Overall, the study we did on electricity showed how different the prices were across the country, and it's not only the current prices. What consumers take into account is their expected prices. Are they going to remain stable? Are they going to go down? Are they going to go up? If people have an expectation that they're going to go high in the future, that's obviously going to go into their decision-making.

A track record of stability and signalling, and perhaps contracts for the future, would help consumers make those decisions to know what their future trade-off between the various sources of electricity would be, because these are long-lived investments.

David Bexte: That's fair. Thank you.

I'll go back to Professor Papineau. It's the same thread. Part of that decision-making in a household, I think, is related to anxiety and changing to something different.

I wonder if there's been any collaboration with the insurance industry on insurance rates versus the technology deployed.

Maya Papineau: I'm not familiar with any, but that does not mean there hasn't been any.

David Bexte: Where I'm going with this is how we calculate risk. We calculate risk, usually, based on likelihood versus consequences to get a risk score. You brought up the Old Crow example. In rural Canada, the risk of electricity outages is much higher than in it is an urban setting. I don't have any statistics to back that up; it's anecdotal. It is where I live. Two or three times every winter, it goes out. If we depend solely on electricity to heat our homes and the power goes out, we have a problem. Hence, a backup is a requirement.

How does having two systems impact the economics of the overall system?

Maya Papineau: Do you mean for Old Crow in particular?

David Bexte: I mean in general. You highlighted the Old Crow example, and I think that epitomizes what the issue is.

Maya Papineau: That's an example of what could happen if you're electrifying significantly and then there's.... There's a regulatory aspect here as well. If they're not able to get the okay to build more generation where they're located.... This is in the Yukon. As you said, it's very spread out. There's low population density. It's a question of whether or not the regulatory system can move along with us.

What I really want to underline—I didn't quite get to finish the point I was making to Monsieur Bonin—is that things like information programs to let folks know the benefits of electrification are great, but we definitely want to ensure that the monetary costs and reliability costs are in place and that the systems are in place to ensure that people will attain the benefits of electrification. Otherwise, we could have a very effective information program, but if

folks are seeing higher outages and higher prices, they're going to be voting at the ballot box about that.

David Bexte: Thank you.

The Chair: Thank you, Mr. Bexte.

Finally, we will turn to Mr. Grant for five minutes, please.

Wade Grant (Vancouver Quadra, Lib.): Thank you, Madam Chair.

I will echo your welcome to our newest member, Mr. Rowe. I'm glad he's here with us.

Dr. Papineau, I have been listening to you for the last hour, and I have a few questions for you as well. When designing and improving the Canadian greener homes affordability program, what types of lessons should the federal government take from any previous home retrofit programs, do you think?

Maya Papineau: I'll be repetitive and say that the lesson is that the next iteration should build in an evaluation mechanism so that we can identify how to deliver the highest benefits possible to Canadian households from decarbonization and electrification.

Our findings that some insulation investments did not save any energy suggest that a targeting strategy can be adopted to give a targeted kind of retrofit pathway, just like the current program does. However, we can change that from the model-based approach to a hybrid approach where you're also using data from past participation. It has to be individual-level data and anonymized, with an anonymization procedure, which is very possible to put into place, so that there's no identifiable information. Build that into the program to learn how to get a targeted retrofit package that will maximize the savings to an individual house.

• (1625)

Wade Grant: Like my colleague Mr. Ross, I come from a first nations community. When I was growing up, I lived in a house that was made in the 1960s. Now I live in a house that was made in the 1980s. One thing I noticed was that I was very cold in the winter and very hot in the summertime. I'm sure Mr. Ross was too.

That's still very prevalent among first nations. I was very surprised to hear that you don't have much data on first nations communities. Why is that?

Maya Papineau: I would say that the groups we've been able to get data from tend to be energy utilities. I will admit that we've targeted utilities because they have very large population bases, and we need large samples to get the optimal mix of what is the best combination of retrofits to recommend to any given house.

It's not for lack of interest. If you were to reach out and email me to tell me there's a first nation that's interested in working with me, I'd be happy to do so.

Wade Grant: I was lucky enough to go to the central coast of British Columbia this past winter. There's a first nation that's taken it upon themselves to.... Any new builds have heat pumps and those types of things, and they retrofit them as well, but they don't have the access to electricity, as you said. A lot of them have turned to rooftop solar and whatnot. What data do you have on that as part of this whole retrofit aspect?

Maya Papineau: For rooftop solar in the community of Medicine Hat, we did request data on it. There were not many solar adopters. We had too small a sample to evaluate the impact of solar. Again, that speaks to the importance of getting access to big datasets. We tried to analyze heat pump adoptions under ecoENERGY in Medicine Hat, and only three people had adopted a heat pump. Once again, we did not have enough data to assess the returns on heat pump adoption. It really is a question about data.

Wade Grant: This is probably my last question, as I think I have only a minute left. How should governments evaluate the cost-effectiveness of retrofits, of which benefits include not only energy savings but also emissions reductions, improved comfort, health benefits and increased resilience?

Maya Papineau: All of those are part of the social benefits of energy retrofits. Once again, a well-designed RCT can identify all these benefits. It's really about *ex ante*, before deploying the program, setting up an evaluation mechanism where you can identify those benefits.

I'm really glad you mentioned comfort, because comfort is one element or benefit of retrofits that I'm really interested in measuring. I've just never gotten the traction from any partners to work on that.

Wade Grant: Well, maybe once you come to some first nations and go to an elder's house, you'll see the comfort they may have by retrofitting their home.

I thank you for your testimony. Thank you.

The Chair: Thank you very much, Mr. Grant.

That concludes our first hour.

Thank you to our witnesses for giving us both time and energy today.

We will suspend briefly to switch to our next panel.

• (1625) _____ (Pause) _____

• (1640)

The Chair: We will resume, please and thank you, for our next hour of witness testimony for the energy efficiency study.

I'd like to welcome the witnesses we have with us this afternoon.

We have Marieke Cloutier, senior director of programs for the green municipal fund. We also have the mayor of Kitchener, Berry Vrbanovic, online. They are representing the Federation of Canadian Municipalities.

We also have Thomas Mueller, the president and chief executive officer of the Canada Green Building Council.

Welcome to you all. Thanks for being with us today.

The witnesses will have five minutes each for an opening statement. I do have a little reminder when you're at a minute and when your time is up just to help you along.

We will begin with Ms. Cloutier. The floor is yours for five minutes.

Marieke Cloutier (Senior Director, Programs - Green Municipal Fund, Federation of Canadian Municipalities): Thank you very much.

I will pass it on to our green municipal fund council chair, Berry.

The Chair: Okay, thank you.

Marieke Cloutier: Thank you, Shannon.

The Chair: Go ahead, please.

Berry Vrbanovic (Mayor of Kitchener, Federation of Canadian Municipalities): Thank you.

[Translation]

Good afternoon, Madam Chair and committee members.

[English]

I'm Berry Vrbanovic, mayor of Kitchener and chair of the Federation of Canadian Municipalities green municipal fund council. I'm joined by Marieke Cloutier, the senior director of programs at GMF.

[Translation]

Thank you for inviting us to talk about home energy retrofits and climate adaptation programs.

[English]

This study is timely as Canada works to strengthen its electricity system, improve energy efficiency, protect households from rising costs and make homes more affordable and comfortable. For 26 years, GMF has partnered with the Government of Canada to turn national goals into local results across the country. Our model pairs funding with training and capacity building so that municipalities can move climate projects from ideas to action.

In partnership with the federal government, GMF delivers clear results. Since 2000, GMF-supported projects have added \$5.6 billion to Canada's GDP, \$3.1 billion in wages and salaries and about 60,000 person-years of employment, while avoiding 3.02 million tonnes of greenhouse gas emissions and helping protect communities from extreme weather.

GMF's model also helps make federal funds go further. Since 2019, GMF has helped mobilize more than \$270 million in private capital, including more than \$60 million for home retrofits.

On retrofits, municipalities tell us the same thing: People want to retrofit their homes, but upfront costs are a barrier. GMF's community efficiency financing initiative and the property assessed clean energy model, or PACE, were designed to address that barrier. PACE lets homeowners pay for eligible upgrades over time, through a charge tied to the property, rather than paying the full costs up front. This makes retrofits more affordable and accessible, strengthens homeowner demand and helps municipalities design programs that meet people where they are.

Just as importantly, PACE helps build durable local retrofit markets. With GMF support, PACE-style financing has launched in more than 40 municipalities across eight provinces. The anticipated results are significant, with more than 16,000 homes retrofitted, about 590,000 gigajoules in annual energy savings, more than 3,800 jobs created and average household energy savings of about 30%.

I see that impact first-hand in portions of the region of Waterloo, where a GMF-funded program recently launched and has been met with enthusiasm from residents looking for practical support.

Demand for GMF financing is strong. We are on track to use the full \$300-million federal investment, and we already have requests from communities that we cannot fulfill. The demand is also growing beyond energy efficiency as homeowners and municipalities look for practical ways to protect homes from flooding, heat, wild-fire smoke and other extreme weather. This is why GMF recently launched residential resilience financing through our local leadership for climate adaptation program, Canada's first initiative to combine home energy retrofits with climate adaptation upgrades. It builds on municipal PACE programs by making resilience improvements alongside energy upgrades while helping municipalities work with insurers so homeowners can maintain insurability and avoid cost increases. Homeowners are eager and municipalities of all sizes are ready to use these models.

• (1645)

[Translation]

The green municipal fund, or GMF, is poised to scale up proven local energy retrofits. Programs are already working, municipal partners are ready and communities want support.

[English]

Scaling GMF would build on a model that already works alongside other federal retrofit programs. It would translate national ambition into faster local delivery, using municipal expertise, practical financing tools and trusted community partners to reach households.

Stable financing and long-term delivery capacity can also help avoid boom-and-bust cycles by strengthening contractor networks, financing partnerships and homeowner awareness over time. This capacity can help to grow the retrofit market, as well as to scale work beyond energy efficiency into home resilience and, over time, commercial and multiresidential buildings.

In conclusion, the federal government has made a bold and commendable commitment to retrofit one million homes. Meeting this ambition will require proven delivery partners with local reach,

practical experience and a track record of results. The demand exists. The local delivery capacity exists. The model is proven, and GMF is ready to help Canada scale.

Thank you to the environment committee for undertaking this important study. I look forward to your questions. Thank you very much.

The Chair: Thank you very much, Mayor Vrbancovic.

We now go to Mr. Mueller for five minutes, please.

Thomas Mueller (President and Chief Executive Officer, Canada Green Building Council): Thank you, Madam Chair. I have a few introductory comments.

My name is Thomas Mueller. I'm the president and CEO of the Canada Green Building Council. We represent 700 companies, large companies, across the building sector. We work not only with industry but also with labour partners across Canada in the green building sector. The sector has a significant size. In 2024, it represented \$81 billion in GDP and supported over half a million full-time, skilled jobs in that industry. I appreciate the opportunity to appear before the committee for its study on home energy retrofits. It's an important topic.

Our central message is this: Canada does not only need more homes; we need better-performing homes. Energy efficient, healthy and resilient homes reduce utility costs and keep Canadians safe. Today I will focus on apartment buildings, homes for millions of Canadians, and how better performance is essential to long-term housing affordability.

All housing projects, new builds and retrofits, must prioritize quality and performance. The latest government data suggests that Canada could warm up to 5°C by the end of the century. As shown by increases in deaths caused by extreme heat events—and I live in British Columbia, where we had 600 people pass away during the heat dome a few years back—buildings must improve if they are to protect Canadians in a warm and unpredictable climate.

Beyond safeguarding Canadians from climate change, building performance also impacts their pocketbooks. Housing affordability isn't just about the purchase price, rent or mortgage. It's also about utility bills, repairs and maintenance costs. These expenses add up. Our recent commissioned poll shows that 60% of Canadians feel their energy bill is at least a moderate financial burden. Our other studies show that operating savings between 37% and 59% are possible for energy-efficient buildings.

Tackling public health and utility costs means prioritizing Canada's vast existing building stock. Retrofitting these buildings will be critical if we are to meet the nation's needs for quality housing for Canadians, in addition to our climate change objectives. Our success in this area will require a shift in thinking from existing buildings as a cost burden to existing buildings as high-impact investments that lower operating costs, ensure utility savings, protect tenants and preserve housing assets for decades. An efficient building stock is also an important part of our competitive economy.

To address the urgency and unlock the benefits of high-performing retrofits, we have five recommendations.

First, the government should embed energy performance requirements into affordable and rental housing investments, recognizing that affordability includes monthly costs such as utilities. There is clear support for this, as 88% of Canadians want efficiency standards in affordable housing projects.

Second, we recommend that the federal policy should support retrofit pathways that align with capital budgets and equipment replacement cycles by owners. This pragmatic approach allows owners to reduce energy use and emissions more affordably, and combines public and private investment into retrofits.

Our third recommendation is for stable, predictable multi-year retrofit funding. Building projects can take years to get off the ground. Short program windows and changing eligibility rules make it difficult to plan and invest, and quite frankly, it discourages small and medium-sized businesses and owners from pursuing retrofits.

The fourth recommendation is that government provide accessible financing for home retrofits, and this needs to be paired with consistent recognized approaches to measuring and verifying building performance. Third party verification of performance is important in ensuring that the performance built into the retrofit is actually achieved and maintained over time. Performance is key to achieving affordability. Savings help to repay loans that have been made by governments and others, as well as to lower utility bills for the occupants.

Finally, we recommend a coherent whole-of-government approach to affordable housing, which means having national strategies and programs that reinforce one another through consistent, stackable performance requirements and expectations for more streamlined, efficient and predictable delivery.

Home retrofits are not only a climate-change strategy; they're also an affordability, public health, equity and resiliency strategy.

• (1650)

Canada needs more homes, but it also needs homes that are safe, comfortable and functional for decades to come.

Thank you. I look forward to your questions.

The Chair: Thank you very much, Mr. Mueller.

We'll now go to questions. We'll begin with the Conservatives and Mr. Bexte for six minutes, please.

David Bexte: Thank you, Madam Chair.

Thank you, witnesses, for joining us today. I appreciate your attendance and hope we will learn a lot.

Wow. Where to start?

Mr. Mueller, you were speaking about energy performance. I was wondering if you could comment a bit, from the residential experience, on how you propose to measure it.

Thomas Mueller: Just to be clear, your question is on how to measure approved energy performance in buildings.

David Bexte: Yes. That's from a residential perspective and in terms of your first point about priority for what needs to be done.

Thomas Mueller: There are two components of it.

Once the retrofit or the new construction is complete, for example, there's testing you do in terms of how airtight the building would be, because airtightness and insulation reduce demand for energy. This would be part of the construction process, in addition to the skills the builder needs to make those changes.

After the fact, a number of metrics are then used to verify the energy performance of the building. Energy efficiency—the amount of energy, both electricity and natural gas—is measured vis-à-vis established standards. You can benchmark that the performances are actually what the level of performance is—

David Bexte: I'm going to interrupt a bit.

Mr. Mueller, maybe I didn't ask the question well. The entire system we're looking at has a bunch of public dollars and a bunch of private dollars going in to motivate certain behaviours and choices to be made.

The value proposition, or the cost-benefit analysis, needs to be positive in order for us to justify continuing any particular program in any particular type of home, dwelling, or commercial or multi-family residential thing. We need to measure that. How do we measure the efficiency of the dollars, which are public dollars, spent in this program?

• (1655)

Thomas Mueller: On the efficiency of public dollars, I can't.... How the government measures its efficiency in how they spend their dollars is hard for me to assess, but I can tell you that what matters to building owners and to occupants is how much they pay for energy, how much they pay for maintenance and how much they pay for retrofit.

If you retrofit a building.... You have a lot of existing building stock that's highly inefficient and uses more energy than it needs to use. For investment in this, there are very clear business model projects that have been retrofitted across the country. I'm talking specifically about multi-unit residential buildings in which owners have invested and retrofitted to provide them with very clear returns. If you would like to see some of these case studies, we'd be happy to share them with you.

I cannot speak to the efficiency of how the government spends its dollars, but I know the investments reduce the results in terms of reduced operating costs and reduced utility costs for the occupants.

David Bexte: You brought up a good point, Mr. Mueller, in that I don't think the government has a very good measure of the efficiency of the dollars that they spend either. This goes for any government in history, present company not exempted.

You bring up a good point, and what I'm trying to get at is that without measuring things, you can't improve them. This is a fairly fundamental notion of systems engineering, but is the biggest bang for the buck multi-unit installations like multi-family dwellings and not individual detached dwellings? Do you understand what I'm saying?

Without making those comparisons from an analytical point of view, you're going to run down the rabbit hole with a limited amount of treasure and not get the results that we need. Couple that with some previous testimony we've had in which a previous witness warned of the possibility of costs actually going up for residential retrofit participants if the grid and the systems around that installation don't match on scale.

If the grid doesn't scale at the same rate as the adoption, and there is higher electricity consumption because of changes from gas to electricity, for example, it puts higher demands on the grid that the grid can't compensate for, and the actual cost to the homeowner goes up. How do you drive analytical decisions then?

Thomas Mueller: You raise a good point. When we talk about electrification of retrofits, the investment the government has made in the national electricity strategy and the role of it is very important because we need to increase our supply of clean electricity to electrify buildings, transportation and some industry. I think that is clear.

The fact is right now you can retrofit any home to a high level of energy performance with the energy sources, the technology and

the skills we have across the country. In some areas, it might be more challenging, but in most of the country, you can do that.

In multi-unit residential buildings, it's the economy of scale. The difference between a homeowner and the owner of a multi-unit residential building is that there's usually an ownership model. You have a property manager, and if the owner makes an investment, the operator and the property manager make sure that the benefits of the investment are realized so that the owner can reap the returns.

In a single-family home, that's—

David Bexte: We're out of time, but I don't think we really resolved the cost impact to the homeowner.

Thank you.

The Chair: Thank you very much, Mr. Bexte.

[Translation]

Mr. St-Pierre, you now have the floor for six minutes.

Eric St-Pierre: Thank you, Madam Chair.

[English]

I'd like to welcome the newest member from Newfoundland, who represents The Eastern Peninsulas. He's replacing another member from Newfoundland, so I'm excited to have him here.

[Translation]

I would also like to say hello to my riding neighbour in Montreal, the member for La Pointe-de-l'Île, and thank him for replacing our colleague from Repentigny.

[English]

I'll be sharing part of my time with the MP for Kitchener—Conestoga.

• (1700)

[Translation]

Ms. Cloutier, thank you very much for joining us today.

As Mayor Vrbancovic said, the Federation of Canadian Municipalities, or FCM, has spent a lot of time on the FIME program, the Financement innovateur pour des municipalités efficaces, which is the French equivalent of the PACE funding model, for property assessed clean energy. It's quite an interesting program.

Could you start by telling us about the pilot projects the FCM has participated in under the FIME program?

I also have a question that is perhaps more important.

[English]

How can we scale the PACE financing programs?

[Translation]

Marieke Cloutier: Mr. St-Pierre, do you want me to answer in French or English?

Eric St-Pierre: You can answer in the language of your choice.

Marieke Cloutier: Okay.

First, allow me to give a nod to your Conservative Party colleague regarding the question he asked earlier.

[English]

I want to mention that in our community efficiency financing program, we're looking at the results that have been achieved, and they're being verified. We're calculating them.

Regarding our community efficiency program at the green municipal fund, you were talking about how we are measuring results and what kind of savings households could realize. We calculated the results that have been achieved, and the anticipated result—it's built into our program—is approximately a 30% average household energy cost saving when using our municipal programs.

Also, we're verifying the pre and post retrofit energy guide assessments done by registered energy advisers. Municipalities also provide annual reporting for their programs on loan portfolios and program performance, and at the end, we have an independent third party evaluation that validates results and program outcomes.

For example, a better homes Kingston evaluation found an average 66% reduction of GHGs per home, and 36% of participants would not have retrofitted their homes without the program.

I wanted to give you an example of how we calculate the results within our program and have them verified.

[Translation]

To answer your question, Mr. St-Pierre, regarding the PACE funding model, it is really a key element of our FIME program. It is one of the financial measures people can use to make home energy-efficient retrofits.

However, it's important to know that there are other financial models that may also work. As we know, we can't have a one-size-fits-all model, but we have noted a lot of interest for PACE-type programs. When municipalities launch such a program, all the spots are often taken as early as the first morning. The results speak for themselves.

We are also creating an ecosystem for entrepreneurs to help municipalities develop their internal capacity. It is not just a matter of providing the funds, that is to say the loan itself, which is drawn out over time and linked to the property, and which evens out the cost and reduces the risk. It's also about creating a market and having credible sources of information for citizens, so they don't have to figure out for themselves how to disentangle all the offers that are in front of them. Support is provided. It also creates internal stability, by not just turning to programs that follow certain cycles.

Eric St-Pierre: Okay.

I have a minute and a half left.

[English]

I'm going to pass my time to the member for Kitchener—Conestoga.

[Translation]

Tim Louis (Kitchener—Conestoga, Lib.): Thank you, Mr. St-Pierre.

[English]

Through you, Chair, I'll talk to Mr. Vrbanovic.

Mayor, municipalities—I spoke with Madame Cloutier—know their housing stock. They understand the barriers residents face. Municipalities play a critical role in delivering their climate and affordability solutions. As we invest in home retrofits, I'd like to focus my questions on this federal-municipal partnership.

Mayor Vrbanovic, you recently became chair of the green municipal fund council, which oversees the funding supporting communities. Can you highlight for this committee a few real-world examples of the green municipal fund's successful initiatives and how partnerships and the federal government and municipalities, working together, are helping advance energy efficiency, affordability and climate action?

• (1705)

Berry Vrbanovic: Thank you very much, Mr. Louis.

As you've noted, the GMF has been around for about 26 years. It has really been instrumental in delivering measurable economic and environmental results across Canada for more than two decades. During that time, we've seen an impact of approximately \$5.6 billion in GDP, \$3.1 billion in wages and salaries, nearly 60,000 person years of employment and more than three million tonnes of greenhouse gas reductions. Those are real results that are impacting Canadian municipalities and, quite frankly, through programs like PACE, Canadians from an affordability point of view as well.

The other thing to think about when we talk about the GMF is that it's really about more than the impact on the climate. We're supporting everything from retrofitting affordable housing and municipal buildings to developing local clean energy systems, tree planting efforts and helping communities prepare for floods, wildfires and other climate risks. These are realities that municipalities face and can't deal with on their own.

It's a wonderful example of what can be achieved when two different orders of government work together on behalf of the ratepayers we all serve.

The Chair: Thank you very much, Mayor Vrbancovic.

Thank you, members.

[Translation]

Mr. Beaulieu, you have the floor for six minutes.

Mario Beaulieu (La Pointe-de-l'Île, BQ): Thank you, Madam Chair.

My first question is for the Canada Green Building Council representative.

The application period for the Canada greener homes loan program offered by Natural Resources Canada is now closed. What are the consequences of that period now being closed?

What is the impact on homeowners, energy efficiency advisers in the renewable energy sector and businesses in that field?

[English]

The Chair: Go ahead, Mr. Mueller.

Thomas Mueller: Thank you for the question.

On the closure of the program, I looked at the programs the government currently has in place, and it's hard to say what the impacts are. For us, it's a question of whether the right programs are in place to support homeowners in their retrofit efforts.

What's really important to us, because there are many programs out there at different levels of government, is that these programs are properly stacked. For example, the programs the federal government provides, even the investment.... Let's say the federal government provides to Build Canada Homes what's being done in the national housing strategy. It's important that these programs are well aligned and they're what we call stackable so that there is no redundancy in there, but there's also less fragmentation.

If you're an owner of an apartment building and you want to do a retrofit, depending on where you are, you have to navigate different rules and different situations. It makes it so much more difficult in terms of really figuring out what you need in investment and capital to upgrade your building.

The alignment of rules and the alignment of programs, particularly, are very important.

[Translation]

Mario Beaulieu: The Canada greener homes loan program, which is a new government program, is only for the lowest-income people. Is it enough to reduce buildings sector emissions?

What are the remaining incentives for the middle class?

[English]

Thomas Mueller: For the existing housing stock in Canada, there needs to be significant investment across the board, from single family homes to multi-family homes, to bring them up to a higher level of performance in terms of energy efficiency in order to align with the national electricity strategy. It's also important to

upgrade these homes now; there's a climate impact imperative now. These projects are being upgraded to protect occupants from climate events. Our target particularly.... We know that populations at the lower end of the income scale are disproportionately affected. They're also affected by energy poverty when it comes to keeping their homes either cool or warm, depending on the season.

It's really important to keep in mind the target programs that have a duality—energy efficiency in order to meet our new objectives and the protection of public health in housing that is currently not suitable—to meet that challenge. There needs to be, I would say, more investment. I would start particularly with those at the lower end of the income scale because they have the least ability to live in adequate housing. This would also affect the middle class. We are all affected by it. The investments and the programs need to be targeted at these groups and with regard to their specific needs, of course. They need to look different; they can't be the same.

• (1710)

[Translation]

Mario Beaulieu: Thank you.

I have a question for the representatives of the Federation of Canadian Municipalities.

In April 2024, the federal government transferred an additional \$530 million to the green municipal fund, bringing the total investments to \$2.155 billion. This funding is related to Canada's national adaptation strategy.

How much of that funding has been used to help Quebec municipalities?

Marieke Cloutier: Thank you very much for your question, Mr. Beaulieu.

That is one of our strategic factors to move towards representation by population. Last year, more investments were made in Quebec.

Another fairly important program is our net-zero acceleration program, which is more focused on reducing greenhouse gases. It was created nearly a year ago. Since then, two new programs have also been offered to Quebec municipalities: the adaptation program and the growing Canada's community canopies program.

Municipalities are submitting their first applications because we negotiated an agreement with the Ministère des Affaires municipales et de l'Habitation to respect Quebec's jurisdiction in this area and to ensure that these programs were aligned with and complementary to the provincial government's existing programs.

You can be sure Quebec municipalities are very interested in these two programs. Projects have already started. There is a lot of enthusiasm.

The Chair: Thank you very much.

[English]

We will now go to Mr. Leslie for five minutes.

Branden Leslie: Thank you, Madam Chair.

I'd like to start with you, Ms. Cloutier. You mentioned in your previous response that the program is saving folks about 30% on average. Is this based on submitted energy bills before and after, or is it estimated?

Marieke Cloutier: It is based on what you just mentioned. Also, after doing what I've mentioned—we calculate the results that are anticipated, the actual results—then we have verification afterwards, pre and post retrofit, with the EnerGuide assessments that we're doing with registered energy advisers. This is how we came up with the average.

Branden Leslie: Is this delineated by...? Our previous witness basically said that all measures generally worked less than promised, but some—windows and doors—really don't work as well as I even thought. Is that broken down? Do you have that data? I assume 30% is an average. It's a nice round number.

Marieke Cloutier: Yes, we can share with you how it's broken down, but we have the average overall per household and—

Branden Leslie: Could you share that data, as well as the verification processes?

Marieke Cloutier: Of course.

Branden Leslie: It would be very helpful.

Marieke Cloutier: Yes. I also want to mention that some of the municipalities, through the PACE program, are putting in place special measures for low-income households. They don't necessarily need to go for a loan right away, but it would necessitate special measures, such as grants or different types of capacity building, to enable them to join the movement of home energy retrofits.

Branden Leslie: FCM has stated that 4,400 retrofits have been completed via this program thus far. Out of those, how much public money has been spent in totality?

Marieke Cloutier: For the community efficiency program, we had an envelope for six years of \$300 million. We are expecting this year to have finalized the spending of the whole envelope. We have more demand, a lot more demand, than what we can fund. This is why we're also looking to leverage the programs that already exist within the municipalities. We want to leverage these.

Some have done this. I have concrete examples and numbers for you, if you want, of municipalities that have been able to invest, after our funding, the federal funding, in their first iteration of the program. They are putting in more millions, let's say. They are choosing to invest in a program so that it can continue, or they are going to partner with a private entity. We have examples of that.

It's showing stability. It's not one program happening for a short period of time. It's staying for a longer time, because there's such a demand from the homeowners.

• (1715)

Branden Leslie: I imagine there's a lot of overhead in administering such a program. How much actually gets to people to do a retrofit?

Marieke Cloutier: I really appreciate the question. Yes, a certain amount is spent on administration, but we have to see what the administration achieves. The administration is not just regarding the loan administration. We have a whole suite of concierge services, such as homeowner outreach, underwriting, rebate administration and customer support. There is really a service layer that comes with that type of project. It is not just managing the loan; it's also accompanying what is brought along to the clients.

As for administering this full suite of services, including loans, mature PACE programs currently average around 16%. I know that can appear high for administrative costs, but you have to take into account the customer support. We're taking clients by the hand. We're also developing the market for the contractors. We're de-risking the markets and having lists of people who can do the work in a way that's credible.

The whole service layer turns homeowner interest into completed retrofits. It really helps them to act. If not, it would be too complex sometimes. It enables the action to just go ahead with the project.

Branden Leslie: Thank you.

Madam Chair, with my remaining time, I'd like to put in a notice of motion, as follows:

That, given that section 9 of the Canadian Net-Zero Emissions Accountability Act requires the Minister of Environment and Climate Change to establish an emissions reduction plan, and paragraph 10(1)(b) requires that plan to describe the key emissions reduction measures the Government of Canada intends to take to achieve its emission target;

Given that the Government of Canada has changed a number of measures described in the existing 2030 Emissions Reduction Plan;

The committee recommend that the Government of Canada:

1. promptly initiate the process to update the 2030 Emissions Reduction Plan so that it accurately reflects the measures the Government of Canada currently intends to pursue, and

2. take all reasonable steps to avoid unnecessary expenditure of public funds on litigation where the issues in dispute concern the existing 2030 Emissions Reduction Plan; and

That the committee report this recommendation to the House.

I'll circulate the written version.

The Chair: Thank you very much, Mr. Leslie.

We will now turn to Mr. Malette for five minutes, please.

Chris Malette (Bay of Quinte, Lib.): Thank you, Madam Chair.

My first question is for Mayor Vrbancovic and the FCM.

Your Worship, having spent several years at the municipal level myself, and proudly as chair of the green task force advisory committee for the City of Belleville council, I was instrumental in helping introduce the FCM's partners for climate protection. I'm fairly conversant with knowing what good policy can look like on paper, but it becomes very different when it reaches municipal staff.

In your estimation, Mayor, what's the biggest implementation challenge municipalities face when it comes to residential energy retrofits?

Berry Vrbanovic: Thank you for the question.

I would tell you that the biggest challenge municipalities face has to do with meeting the demand of residents who are interested in pursuing this and are looking for support from a program. As we've indicated, we have much more demand from Canadian municipalities from coast to coast to coast, and municipalities of all sizes, to engage in the program.

The second challenge, as we have municipalities of different sizes across the country, is making sure we can support all of those municipalities. All of them are important, and the residents in each of those communities are looking for the benefits of these types of programs. We need to make sure we can support municipalities of all sizes, and the staff that they have, in order to assist with the implementation of it, often with a community partner.

• (1720)

Chris Malette: I have another question in this regard.

From your experience, then, Your Worship, what would meaningful federal-municipal co-operation look like when we're trying to get more homeowners to undertake energy retrofits?

Berry Vrbanovic: First, I have to say that the green municipal fund is an excellent example of effective partnership and collaboration that started on a smaller scale, back in 2000 when GMF was first created, and has grown as both FCM and Canadian municipalities of all sizes have been able to demonstrate their ability to deliver successful programs on the ground.

Second is looking at how we ensure that municipalities have the resources they need in order to continue delivering on these programs. As we've indicated in the case of many of them, the demand is greater than the uptake. It's part of the reason, as we look ahead to budget 2026-27, that part of the ask we have for the federal government is to look at increasing the dollar value at GMF by \$800 million, so we can invest and scale three proven deployment programs—namely, the community efficiency financing program, the net-zero acceleration program and the local leadership for climate adaptation program.

Chris Malette: My next question is for Ms. Cloutier.

Ms. Cloutier, what in your estimation has the green municipal fund taught you about the gap between announcing retrofit funding and actually getting projects completed? It goes further back to my question of how some policy looks good on paper, but when the rubber hits the road.... What has been your experience?

Marieke Cloutier: Thank you for the question.

It's really complementary. Of course, at the national level, we need to have these targets and these policies. It really gets done,

from my perspective, at the municipal level. It's more than a complementarity. We are implementing programs within the localities, whether they are small, rural, northern, urban or medium-sized. There is no one size that fits all, but we need to think about the outcomes and let the solution come from the locality, I would say, or the municipal entity. As Berry has mentioned, they can partner and develop their capacity.

This is why it's also so important for GMF, because we're able to de-risk some of the investment with the federal investments that have been made. Then afterwards, either we're able to bring in private capital, or the municipality chooses to invest again within the PACE program, for example, that has been developed, and developing, also, if I may, the market. When I say that, if we're staying in the retrofit sector, of course, there are the contractors and the insurers. When you look at the resiliency side of things, why not invest in home energy retrofits? Also, instead of renovating a home twice, think about the energy efficiency but also the resiliency side of things, because sometimes these measures can be complementary and add up.

This is why we've—

Oh, sorry.

The Chair: We're running out of time. Thank you.

[Translation]

Mr. Beaulieu, you have the floor for two and a half minutes.

Mario Beaulieu: I would like to follow up on my last question.

Ms. Cloutier, I asked you to tell me how much of the total investment of \$2.155 billion in the green municipal fund went to Quebec. You didn't give me any specific numbers. It may be difficult.

Do you have those numbers?

Marieke Cloutier: It is totally possible. You are right, I did not provide a figure. We can get back to you on that. The information is in our annual report, which was just released.

We're on the right track. Things are readjusted every year. Let's say one year, British Columbia receives more funding through some of our programs, then we make sure that is adjusted fairly in subsequent years. It is an equitable approach that evens things out over time.

I just want to say something important, Mr. Beaulieu: The \$2.3 billion is our permanent endowment fund, if I can use that expression. It is not the amount we can invest annually in municipalities, because we have to keep part of it in perpetuity. However, a large portion of that fund is invested every year in municipalities. I just wanted to clarify that. We offer loans, grants and capacity development support, but not all of that amount can be invested every year; only part of it.

• (1725)

Mario Beaulieu: Thank you.

If you have access to those figures, you can send them to us or include them in your brief.

Marieke Cloutier: Yes, we will provide that.

I would also like to mention that there is still no legislative framework for the PACE model in Quebec. However, municipalities are very interested in the program. We have funded a number of pilot projects and studies, including one by the Fédération québécoise des municipalités in the Îles de la Madeleine, where there's a lot of interest in this program. In 2012, we carried out a pilot project with the municipalities of Plessisville, Varennes and Verchères on the PACE model.

Mario Beaulieu: I have one last question.

Do you think the current programs and resources invested by the federal government are sufficient to meet its greenhouse gas reduction targets for buildings?

Marieke Cloutier: To reach the federal government's goal of renovating one million residences, which we've heard about, more funding will certainly be needed at the municipal, federal and provincial levels. I think the committee is conducting a study on such measures. It's a big challenge, but one of the ways we can succeed is by building on what we've started with the green municipal fund's ecoenergy retrofit program. That tool could get us there, but we need additional funding because our program is coming to an end.

The Chair: Thank you.

[English]

Now we'll go to Mr. Ross for five minutes, please.

Ellis Ross: Thank you, Madam Chair. I wasn't paying attention. I didn't have my clock on.

Thank you to our witnesses and to Mayor Berry Vrbanovic for the discussion.

We've been listening to witnesses previous to your testimony as well. We were listening to a lot of discussion around the issue of affordability, basically, and the protection of homes against weather disasters. When we're talking about that, do you think, from your experience, it's important that programs can demonstrate measurable household savings after this money has been spent?

Berry Vrbanovic: Mr. Ross, I would say to you that all the programs the GMF funds, both directly to Canadians in their homes, in terms of energy retrofits and so on, and in the programs that are funded for Canadian municipalities—whether in terms of energy efficiency or around climate mitigation and dealing with some of

the challenges that Canadian municipalities have found they have in recent years—ultimately end up impacting affordability.

There's the direct affordability correlation when we're talking about home energy retrofits, but there's the indirect correlation when Canadian municipalities can upgrade their buildings and when they can deal with things associated with climate mitigation, whether it's wildfires, some of the rainstorms we've seen in recent summers or other things. Those things ultimately impact property taxes, which have a long-term impact on Canadians and their pocketbooks. There is really no one-size-fits-all solution for everyone. In fact, each of these programs targets different areas.

• (1730)

Ellis Ross: As for the energy retrofits in particular, specifically for homeowners, is it important that these programs can demonstrate measurable household savings in that respect?

Berry Vrbanovic: As we pointed out, we are seeing those measurable savings, in fact. Approximately 30%, on average, in household energy cost savings have been realized. An important one to note, and I'll give it as an example, is better homes Kingston and the evaluation that was done on their program. They saw an average of 66% GHG reduction per home. However, the important point here is that 36% of participants noted that they would not have retrofitted their home without the program. It was the ability to access the dollars to do the work that ultimately led to the cost savings that allowed them to pay for the work that was done. Ultimately, it has a longer-term impact on affordability, which I think is in the interest of all of us who serve Canadians, regardless of what order of government we serve them in.

Ellis Ross: Without a doubt it is, especially when we're talking about taxpayers' dollars in these huge amounts. There seems to be a contradiction between what Natural Resources Canada has described and predicted in terms of retrofits and what Ms. Papineau just told us about the reality of retrofits. It's almost 60% less than the predicted models have said. She went on to talk about the value for the dollar, especially when talking about affordability, being more on the insulative side for a homeowner in terms of a retrofit, and then maybe thinking about an energy fit either in parallel or even secondary to that. Have you come across that information, that result or that summary?

Berry Vrbanovic: I'll turn to Ms. Cloutier for the specifics, but I will just make a general comment. I think it's fair to say that there isn't a one-size-fits-all solution for every municipality, of every size, in every corner of the country. There are very different circumstances in Canada's large urban centres than exist in the rural—

Ellis Ross: If I could, Mr. Mayor, as I'm running out of time, I'd say she wasn't talking about municipalities. She was talking about a homeowner, a household and their study. It was a small study, of course, but it showed that the energy retrofit didn't actually deliver the results as promised and that, possibly, insulative measures would have had a better bang for the buck for affordability, as well as for the tax dollar.

I know I'm out of time, Madam Chair. Thank you.

The Chair: Thank you. Mr. Ross.

Now, finally, we go to Mr. Greaves for five minutes, please.

Will Greaves (Victoria, Lib.): Thank you, Madam Chair.

Thank you, colleagues.

I appreciate all the testimony today. It's been great to hear about this topic, and I very much appreciate all the expertise that's been brought to bear.

I might start with Mayor Vrbanovic. Thank you for joining us today, Mayor. Your experience at the municipal level is incredibly pertinent, because we know that municipalities will really have to do a lot of the delivery of some of these programs and play a critical role in connecting federal programs to individual Canadians.

I'd like to ask you, if I may, based on your experience with FCM—the green municipal fund, I should say, in this case—about the particular suitability of different kinds of retrofits for communities like mine. I come from Victoria, B.C., and I'm thinking here, in particular, about low-lying and coastal communities, where there are going to be particular kinds of engineering and technical aspects of the environment that might mitigate against certain types of retrofits and support others. I'm wondering whether you could speak to this in terms of solutions that are going to be a bit more tailored to certain kinds of environments and ecosystems.

Berry Vrbanovic: Thank you very much, Mr. Greaves. This is where I was trying to go with my response to the previous questions.

What's key here is to ensure that the programs offered to Canadians meet, really, some of the uniquenesses of a very vast country, with different challenges experienced in different parts of the country, both with the size of the communities and the regions—rural, northern, smaller communities and so on. As for implementing these programs, we've done so in a way that meets some of those uniquenesses. In Alberta, we've supported different-sized communities. In Bridgewater, Nova Scotia, we've looked at an energy poverty focus. The key is recognizing that flexibility is critical to reflect local realities.

I would ask Ms. Cloutier whether there's anything specific she might want to add that would add benefit to the question you just asked.

• (1735)

Marieke Cloutier: Thank you both.

We also created the residential resilience financing to pair with the community efficiency financing so we can have a look at energy efficiency and adaptation measures, outcomes or resilience financing and go beyond energy efficiency to include floods, wild-

fires, extreme heat or other resilience measures, because many measures can deliver both. If we think about insulation, air sealing or heat pumps, we're thinking about why homes shouldn't be renovated twice. Having a look at this all together would make a lot of sense, especially given the temperatures that we are seeing and a climate that's going to continue to change.

Will Greaves: Thank you very much for those responses.

I'll turn to Mr. Mueller for a moment, if I may.

Good afternoon, sir. Thank you for joining us.

I'm particularly interested in your experience in our province of British Columbia. I'd love to give you a chance to speak to what you would identify as additional measures you would suggest provinces like British Columbia, which has already made considerable progress towards supporting more energy-efficient new builds, adopt to grow or expand their own support for the kinds of retrofits that we've been discussing today. Is there anything you would point to that the province could be doing more of?

Thomas Mueller: Thank you for the question.

British Columbia is known to be ahead of the game in many instances.

What's very important, referring to what the two previous speakers said, is the flexibility of the approach.

If you live in the Lower Mainland, electrifying new builds is a very clear path forward as clean electricity becomes available, but we need higher levels of energy efficiency to be able to electrify. We also need flexibility in other parts of the province. For example, in colder climates in the northern part of the province, from our perspective, it's quite acceptable to have hybrid systems to make sure that people have adequate cooling and heating during the different seasons. Right now, heat pumps are the technology of choice, and they work very reliably to -15°C. They also work beyond that, but they need to work reliably. The technology is evolving. Flexibility is really important.

It's also important to align programs. I welcome the comments from the FCM and the GMF program. It's important that, across the province and the municipalities, the programs are aligned, because they need to complement each other. If they compete with each other and if it's fragmented, then you could potentially hinder adoption and you could change the outcomes you're looking for. Alignment in this day and age is important.

The climate is changing in western Canada. We not only have issues such as flooding—you're from Victoria, but we have the same here in the Lower Mainland and some low-lying areas, like Richmond—but we also have the overheating that we're now seeing in British Columbia, and quite significantly in the summer. A third one is wildfires, and this speaks to air quality.

The Chair: Thank you, Mr. Mueller. Unfortunately, we are out of time.

Will Greaves: Thank you very much.

The Chair: Thank you to all of our witnesses for your time and energy today. We really appreciate it.

Thank you, members.

The next meeting of our committee will be at 3:30 on Tuesday, October 6.

We will now adjourn. Thank you.

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