
Undertaking #123: Mr. Dunsky to provide an electronic copy of his written report provided to the Public Utilities Board on low-income programming, along with his supporting PowerPoint.

Response:

Please see attached the following reports. Please note that these reports, produced in early 2008, addressed Hydro's proposed low-income program approach at the time. The conclusions may no longer be relevant today, as the Affordable Energy Program has changed substantively since then.

- ***Philippe Dunsky, 2008. Written testimony of Philippe U. Dunsky regarding Manitoba Hydro's Proposed Low-Income Energy Efficiency Program. Feb. 18, 2008, 34 pages.***

- ***Philippe Dunsky, 2008. Oral testimony regarding Manitoba Hydro's Proposed Low-Income Energy Efficiency Program, May 1, 2008, 21 slides.***

dunsky energy
consulting

Written testimony of

Philippe U. Dunsky

Regarding Manitoba Hydro's Proposed Low-Income Energy Efficiency Program

Review of Manitoba Hydro's 2008/09 General Rate Application, before the

Manitoba Public Utilities Board

On behalf of:

Consumers' Association of Canada (Manitoba)

Manitoba Society of Seniors

Winnipeg Harvest

February 18, 2008

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Introduction

Please state your name, address and occupation.

Philippe Dunsky, president of Dunsky Energy Consulting (DEC) located at 3575 Saint-Laurent Blvd, Suite 501 in Montreal, Quebec H2X 2T7. Prior to founding DEC in 2004, I was Executive Director of the Helios Centre for Sustainable Energy Strategies, an energy think-tank, from 1996-2004. Prior to that, I worked for five year in a variety of consulting and analytical capacities in field of sustainable energy, including as a member of the Quebec government commission tasked with revising the province's energy policy (1995-96). I am currently also an Associate at Elenchus Research Associates in Toronto.

In addition to my consulting practice, I sit on the boards of directors of several organizations including the Canadian Green Municipal Fund (loans) and the Quebec Action Fund for Sustainable Development (grants). I am also the past Vice-President of the Sustainable Development Investment Fund (venture capital), among other positions.

Please summarize your experience with energy efficiency programs, including low-income programs.

I have been involved in the design and analysis of energy efficiency and related programs for over fifteen years. In my current consulting practice, I advise a wide range of clients – most notably utilities and government agencies – on energy efficiency program design and strategies, with an aim to achieving the biggest "bang for the buck". My clients include or have included, among others: Hydro-Quebec, Gaz Metro, the Quebec Energy Efficiency Agency, the federal Office of Energy Efficiency, the Energy Efficiency Fund, the Long Island Power Authority, the New Jersey Board of Public Utilities and the New Brunswick Energy Efficiency and Conservation Agency. They have also included a host of private energy efficiency firms as well as stakeholder groups, including environmental, consumer, municipal, business, labour and industry organizations. Over the course of my practice, I have had the

pleasure of serving over 70 clients representing the full breadth of energy decision-makers and stakeholders.

I currently serve as Senior Advisor for the development of a high-level, comprehensive portfolio of energy efficiency programs to meet the State of New Jersey's ambitious goal of 20% energy savings by 2020. I also serve as an advisor for the design of residential sector programs for the Long Island Power Authority's similarly ambitious goal of achieving 15% savings by 2015. I am the lead consultant to Hydro-Québec in the strategic review of its current portfolio of energy efficiency programs. I am also an advisor to the Quebec Energy Efficiency Agency in the context of its own long-term energy efficiency planning process. In 2007, I was named to the Ontario Power Authority's High Level Industry Advisory Group, and more recently was named to Enbridge Gas Distribution's DSM Evaluation Audit Committee.

While not the primary focus, low-income programs are part and parcel of the program portfolios I work on for each of these – and other – clients. That said, I was the author, in 2001, of the first study of a proposed Canada-wide low-income energy efficiency program.[1] I have on numerous occasions provided training to staff of low-income program delivery agents. I recently conducted a review of low-income energy efficiency program best practices throughout the United States and, to a lesser degree, Canada and the U.K. In 2007, I was retained by Hydro-Québec to lead the design of a forthcoming comprehensive, multi-source, low-income energy efficiency program for the province of Quebec. In that capacity, I also chair the low-income working group comprised of representatives of all utilities and the Quebec government.

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[1] Dunsky, Philippe (2001). *Results of Modelling a Proposed National Low-Income Energy Efficiency Improvement Programme: Economic, Environmental and Employment Impacts.* Helios Centre, 57 p.

What is the purpose of your testimony?

I was retained to review and assess Manitoba Hydro's proposed low-income energy efficiency program. As such, I was asked to identify strengths and weaknesses and, where applicable, make recommendations to improve the program's performance and reduce risk.

Context for Low-Income Programs

What are the primary drivers for Low-Income programs?

In some ways, the primary driver for low-income programs is the same as for other programs: the desire to achieve cost-effective energy savings. However, the driver for developing *distinct* efforts aimed at the low-income market segment is typically twofold: first, to maximize savings and second, to address equity concerns.

The first driver is savings. Program designers and implementers have long understood that consumers face an array of market barriers to the adoption of cost-effective energy efficiency products and practices, including: information and search costs, performance uncertainty, transaction costs, hidden costs and benefits, access to financing, what social psychologists term 'bounded rationality', organizational practices and conventions, split incentives, unavailability of products and services, forced aggregation of multiple attributes and distorted pricing. These barriers apply to all customers in varying ways and to varying degrees.

However, it is also understood that for many low-income customers, these barriers are significantly more acute than for mid- and high-income earning households. Particular barrier acuity includes:

- Information and search costs: below average language and computational skills (illiteracy, poor math skills, English as a second language) can represent significant hurdles to both participation in DSM programs and adoption of efficiency measures;
- Performance uncertainty: higher than average housing mobility adds to uncertainty regarding the economic value of long-term energy savings measures;
- Transaction costs: greater difficulty in dealing with complex transactions can lead to lower measure uptake and higher dropout rates;
- Financing: lack of access (or access at unreasonable cost) to capital, as well as an aversion to debt, can seriously diminish ability to pay for higher upfront costs;

- Organizational practices: many contractors are unwilling to work for low-income customers, or charge a premium for the perceived risk; and
- Split incentives: the daunting issue of split incentives, which occurs primarily in rental markets, is a significantly greater barrier among low-income households, whose share of renters is considerably higher than average.

For these reasons, energy efficiency programs that are designed to address the market barriers of "average" populations tend in practice to be inaccessible to low-income customers – they simply do not address the full extent of barriers this population faces. The result – valuable energy efficiency savings opportunities are lost – is therefore the first driver for the delivery of programs designed specifically for low-income customers.

The second driver is equity. Although low-income customers generally do not participate in "standard" DSM programs, they are nonetheless called upon to finance them (through rates). As such, low-income customers pay for a service that, by design, they cannot access, raising important equity issues. Low-income programs therefore also exist to ensure that an important segment of the residential market (typically upwards of 20%) has access to the programs to which it contributes funding, much in the same way as distinct programs are often developed for small commercial customers because of their own distinct market channels and barriers.

Ultimately, low-income energy efficiency programs are not charitable programs. They are merely energy efficiency strategies adapted to the specific market barriers faced by an important segment of the customer base, thus ensuring that the segment is treated equitably *and* that the utility does not lose valuable energy efficiency opportunities.

What makes for a good low-income program?

Low-income energy efficiency programs have been around for nearly 30 years now, and in that time, a number of different approaches have been (and continue to be) experimented with. Nonetheless, experience has provided a wealth of valuable lessons, and while no single approach should be construed as one-size-fits-all, most successful programs share the following five characteristics:

1. **Keep it simple.** Participation drops precipitously as complexity increases. Program implementers need to take A-Z ownership of the complexity involved in conducting audits, hiring contractors and overseeing work. Complexity must occur on the implementer's side, not the participant's. Similarly, proof of income and other eligibility requirements need to be flexible.

2. **Keep it free.** While it may be tempting and intuitive to request even symbolic participant contributions, attempts to do so have generally met with failure.[2]

3. **Incent "sales" (outreach).** The difference between a good theoretical design and good performance is sales. Ideally, the utility, the contractor and a host of other low-income stakeholders will contribute to an active outreach effort, and the latter two will have the capacity, the tools and the incentives to find potential customers and "close the sale".

4. **Be comprehensive.** As with any sale, the hard part is getting in the door. Once a participant is in the program, it is critical to capture all possible opportunities, recognizing that any measures not installed will likely be lost for years to come and/or their savings will cost significantly more to achieve at a later date. Comprehensive programs typically include education, a suite of "light" measures (CFLs, caulking/weatherstripping, low-flow aerators and showerheads, etc.), envelope measures (insulation and weatherization) and appliances/equipment replacements (especially old fridges and furnaces).

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[2] This comment applies to low-income home owners or the owners of homes in which low-income renters pay their own utility bills directly. The case of non-low-income owners who pay the utility bills of their tenants is not as cut and dry.

Manitoba Hydro's Proposal

Briefly describe your understanding of Manitoba Hydro's proposed program.

Manitoba Hydro has proposed a program approach aimed largely at addressing low-income customers' lack of funds by using the AEF to supplement existing incentives. The program would also leverage the federal ecoENERGY incentives, as well as Manitoba Hydro's own on-bill loan infrastructure. It would be delivered primarily by community organizations, if enough are interested, and would include both low-income owners and tenants, privately- and provincially-owned (MHA) units, and would not discriminate based on heating source. The program would seek to ensure that low-income tenants benefit directly from the program by negotiating arrangements individually with non-LI owners.

The following table provides a snapshot of the proposed approach, broken down by delivery stream and sub-segments. I have also taken the liberty of including an estimate of the likely market shares of each segment.

*Segmented Description of MH Program Concept**				
Market shares (approx.)	Bill payer	LI customer	**CBOs track**	**Indiv. (MH) track**
64%	Low-Income customer pays bills	Owner	Community-based organization (CBO) *may* provide one-stop shop service, including outreach, sale, audit, installation of low/no cost measures, financing capital costs, potentially aggregating incentives and conducting/overseeing/paying for work. Customer uses bridge loan to pay part of upfront costs; reimburses loan with ecoENERGY grant.	MH pays for free audit and installation of low/no cost measures. Customer applies for on-bill bridge loan to finance work. Customer gets 3 quotes and submits to MH for approval. Chooses and pays contractor, who does work. Loan is then reduced by amount of MH incentives after work verified. Customer applies to ecoENERGY for subsidies and pays back loan.
12%		Renter	Same as above, but landlord contacts CBO, provides proof of tenant eligibility and enters into negotiations with CBO. Owner also finances costly measures (no bridge loan). Where landlord pays energy bills, will be obliged to negotiate TBD obligations to ensure benefits flow to tenants.	Same as above, but landlord contacts CBO, provides proof of tenant eligibility and enters into negotiations with CBO. Owner also finances costly measures (no bridge loan). Where landlord pays energy bills, will be obliged to negotiate TBD obligations to ensure benefits flow to tenants.
24%	non-LI pays bills			

** With the exception of furnace replacements, which are addressed differently.*

Finally, the program would not address large multi-unit residential buildings (MURBs), a segment that is set to be addressed separately in a distinct, forthcoming effort.

Can you clarify your estimate of the market segmentation as it pertains to Manitoba Hydro's approach?

Manitoba Hydro provided estimates of the eligible households according to whether they own or rent. However, we understand from their response that these include only households that are direct utility customers, not households who pay their energy costs indirectly through rents.

We know that by LICO standards, 64% of low-income Manitobans rent, while only 36% own. Because Hydro's program expands the definition to 125% of LICO standards, we assumed the percentage of renters would be smaller: 60%. We also made another key

assumption, in the absence of specific data: that of the non-bill paying low-income customers, two-thirds would be housed in large multi-unit residential buildings (MURBs), which are outside the scope of this program. This is more than the 55% of bill-paying renters who, according to Manitoba Hydro, live in MURBs ("apartments", in MH's parlance).

Manitoba Hydro has committed to developing a distinct program for the roughly one-third of large MURB tenants, so I will not be commenting on this segment.

Provide an overview of your findings

Let me begin by saying that there are many aspects of this program design that are praiseworthy. Specifically:

- Cost coverage (in theory): Based on its responses to our second round interrogatories, it appears that Manitoba Hydro has calibrated its incentives to cover, in most cases, roughly 100% or more of the likely measure costs. As such, it has resisted the temptation to require a modest but ill-advised contribution from low-income households.

- One-stop shop (in many cases): Manitoba Hydro is proposing a structure wherein, for what it estimates to be roughly half of the program participants[3], a single entity could conceivably provide customer intake, arrange work, finance the work and perhaps even take responsibility for collecting incentives. There are a lot of "maybes" in this scenario, but the intention at least is appropriate.

- Income judgement: In its responses to interrogatories, Manitoba Hydro clarified that it would allow for judgement calls in the determination of income eligibility. This is an

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[3] We derive the estimate of "roughly half" by multiplying the 80% of participants it expects to flow through the CBO track by the 64% of participants who are expected to be owners. Of course, the 80% is only a rough estimate, and so the total share of participants serviced through this approach may in practice be smaller.

important caveat to its stated requirement of valid tax returns, as many low-income customers either do not keep copies or do not even file tax returns.

- Multi-fuel: Finally, many low-income programs limit participation by fuel type, thus losing economies of scale and energy savings opportunities. Manitoba Hydro's inclusion of all customers, irrespective of fuel type, is an important value-added to its program.

These are not insignificant aspects of the overall program design.

That said, the program design also suffers from some key flaws that will hamper participation and result in potentially significant lost savings. These are detailed below, but summarily include:

- Issue 1 – Unnecessary Complexity and Uncertainty: While some aspects of the program design *may* produce a simplified approach to participation, others almost guarantee exactly the sort of complexity that will keep all but the keenest potential participants away. This is a significant design flaw that requires urgent redress.

- Issue 2 – Missing Measures: While most key measures are included in the program scope, others are not, leading to lost opportunities for cost-effective savings.

Issue 1: Complexity

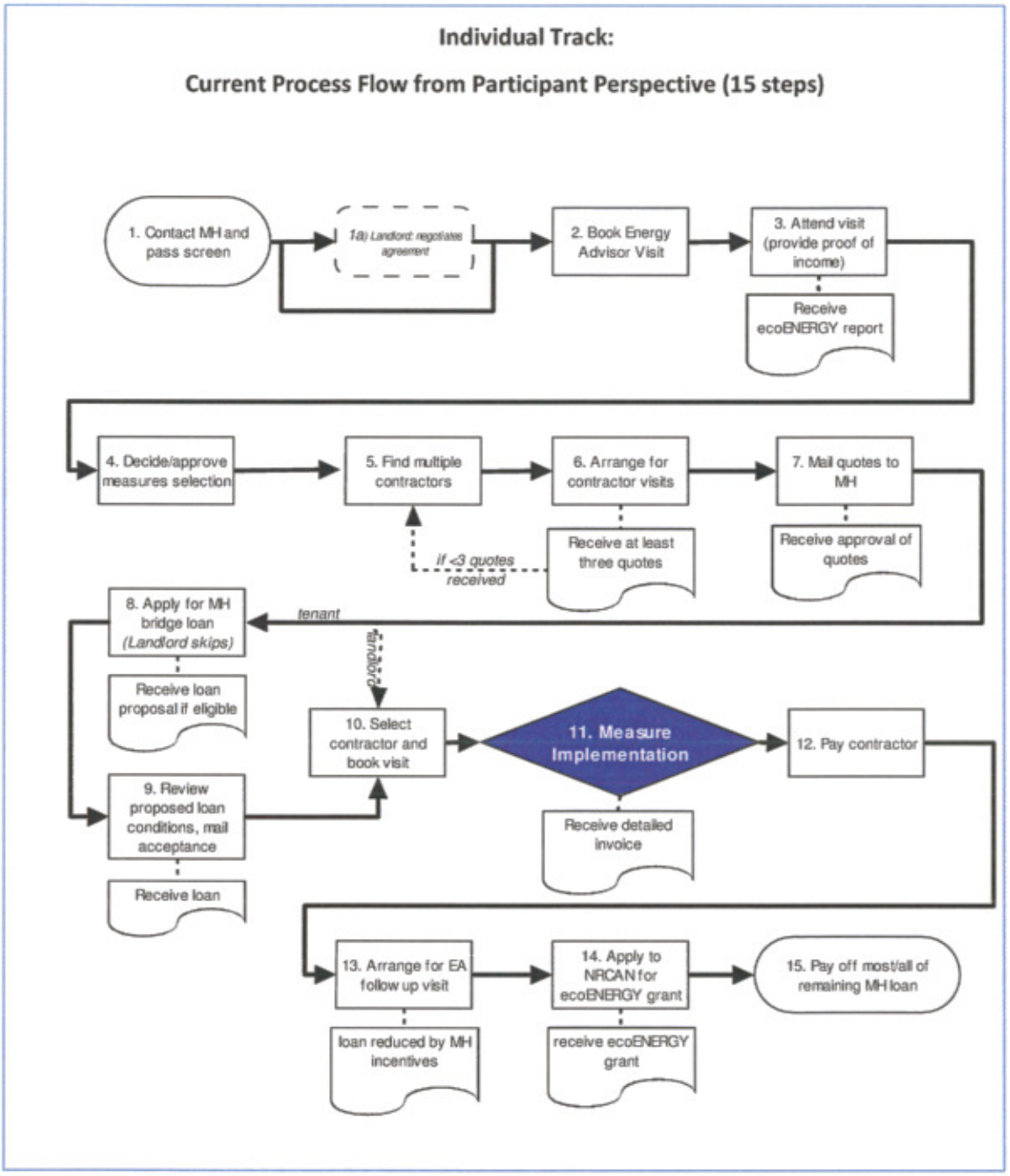
Why do you talk about "unnecessary complexity"?

I understand and agree with the logic behind this program model – that AEF funds top-off existing incentives such that measure costs are by and large paid for. The goal of covering 100% of select measure costs is at once appropriate and necessary for program success. However, the proposed approach puts unnecessary burden on the participant, who is asked to jump through too many needless hoops and face too much needless uncertainty. These hoops and uncertainty create significant barriers to participation that could be avoided with little or no cost for Manitoba Hydro.

What "hoops" and uncertainty are you referring to?

Well, they all depend on the specific segment. So to start with, let's look at the most egregious case: what Manitoba Hydro refers to as the "Individual Track", which means where community-based organizations are not involved. This is expected to account for roughly 20% of participants, but we understand that to be more of a "guesstimate" than an assessment. It could also be considerably more, depending on the interest and ability of CBOs throughout the province to deliver the program themselves.

I have prepared a flow chart (below) that outlines my understanding of the steps a low-income home-owner must go through to participate in the program.



Can you walk us through this chart?

Sure. To help, let's think of this through the eyes of a fictitious participant; we can call her Mary. Mary is a divorced mother of one child, owns and lives in a small, poorly insulated home in Brandon. Mary first finds out about the program, calls the 1-800 number and talks to

Manitoba Hydro. A couple of weeks later, she receives a call informing her that she is indeed eligible, and proceeds to book a time for an Energy Advisor to come and assess her home. A week or two later the advisor arrives as planned; she presents proof of income, and receives low/no cost measures. So far so good.

When the report is ready, Mary either reads through it or talks directly with the Energy Advisor to understand its findings and recommendations, and is now asked to decide on the measures to be installed. Once she does this, she has to find contractors who can do the work – enough to get three quotes. Mary doesn't know of any contractors, or perhaps knows of one, but goes through the Yellow Pages and finds several. She contacts them, tries to explain what she's doing, the Manitoba Hydro program, the quotes she needs. She doesn't necessarily sound convincing, but in the end, she finds three contractors who actually do show up at the agreed time, and several weeks later she has three quotes. Mary's made it quite far now, all the way through step 7.

Mary goes and makes copies of the quotes, and mails them to Manitoba Hydro. A couple of weeks later, she receives notice that two of the three quotes are valid. She also completes and mails in the paperwork to apply for Manitoba Hydro's bridge loan to help pay for the work. She is approved, and receives a package in the mail explaining the nature of the loan, the requirements and conditions made of her, etc. She struggles but, with the help of a neighbour, understands the gist of the conditions and, despite her nervousness borne of a bad experience with debt, agrees to abide by them. She signs the document and mails it back to Manitoba Hydro.

Mary then calls the cheapest contractor, who asks her how he will be paid. She tries her best to explain it: Manitoba Hydro offers some grants, and the government – of Canada, she recalls – will pay other grants, and all together she added the numbers and thinks the grants will cover the costs, or at least that's what the advisor told her, so she'll take out a short-term loan and pay him with that loan and the loan will be reduced in part when the work is complete and then she'll pay the remainder when the other grant money comes in, after she applies for it, after the work is done. It turns out the first contractor is no longer available. She calls the second one, who thankfully is still available and interested. She books a time for him to come do the work. She has no experience or technical knowledge, and so can't be sure

if the work is done well or not, but nonetheless tries her best to oversee the work while he's there.

A couple of weeks later, she receives the invoice (it's unclear from the evidence whether the invoice would be sent to Mary or directly to Manitoba Hydro, so I'm assuming the former). She has also received the loan money, and so can and does pay the contractor. Now Mary is nervous – she's happy the work has been done, but she has debt on the books and knows she can't pay it. So she quickly arranges for a follow-up visit by the Energy Advisor, whose report will somehow lead to her debt being reduced by the amount of Manitoba Hydro's incentives. A couple of weeks later, she receives the 'B' audit report. She remembers that she has to send that to Natural Resources Canada in order to receive the other grant money. She makes a copy of the relevant page, and also of the receipt the contractor gave her, goes to the post office and mails it. Some time later, Mary receives a cheque in the mail. She's relieved, and can now pay off nearly all of the remaining debt.

So in your example, the program worked.

The example of Mary here has worked because I made a number of very optimistic assumptions. But it doesn't take a lot of creativity to imagine how often this *won't* work. Indeed, customers may drop out (or not enroll at all) for a host of reasons:

- After Step 1: They do not understand the process, costs, risks and obligations, and as a result, feel overwhelmed and choose not to enroll. They have other experiences with deals were unclear, complex and that turned out to be "too good to be true".
- After Step 2: They learn more about the process and find there is greater risk than they thought: *What if the sum of grants does not cover costs? What if the evaluator isn't satisfied with the contractor's work – will I still be eligible for the federal grants? What if the "feds" scrap their program before the grant money is sent – will I be left hanging? What if it takes 6 months to receive the grant – will I have to pay interest on the loan all that time? Why does everyone say there won't be a problem, but no one is giving guarantees?* These customers are highly risk averse,

and would rather wear an extra sweater in the winter than run the risk of ending up with a debt they can't pay.

- After Step 3: Two weeks have gone by since the visit. They receive the ecoENERGY report, but aren't clear on the steps to follow. They are dealing with other things in their lives and drop out.
- Around Step 5: They are not able to find multiple contractors, because the contractors don't want to work for low-income customers, or because they don't know where to go, or because they aren't able to organize multiple site visits.
- After Step 6: They arranged for multiple contractor visits, but in the end were not able to get three written quotes, because some contractors, at the sight of the home or not understanding the program, balked.
- After Step 7: They aren't sure about the bridge loan; they don't want to contract new debt based on an "expectation" that they'll get grants to cover it later.
- After Step 10: The contractor they chose has in the meantime found a more lucrative and promising client, and drops out.
- Finally, there is also a risk that customers in the most precarious of situations will not follow through steps 12-14 properly, and as such may inadvertently forfeit the incentives and indeed wind up with debt they cannot pay.

Taken together, these scenarios create far too many opportunities to lose potential participants. Most importantly, they are not necessary.

Why do you say these steps are not necessary? What exactly do you recommend?

As I mentioned earlier, the best low-income energy efficiency programs ensure that the participant's experience is as simple and straightforward as possible. The complexity – finding contractors, short-term financing, etc. – is kept on the utility side of the curtain.

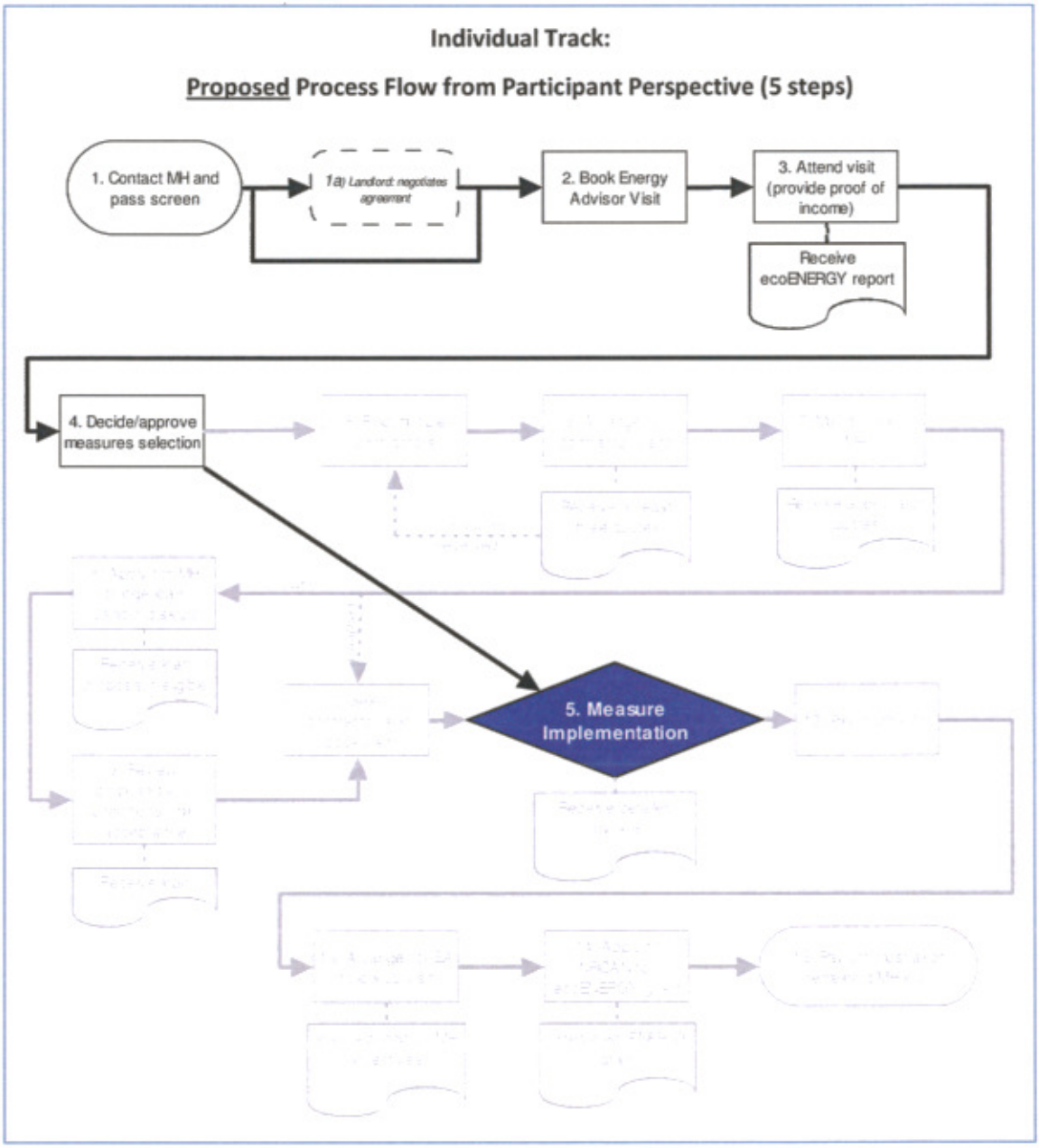
I recommend that Manitoba Hydro take several steps to take ownership of the more daunting steps in this process, specifically the financing, the selection of contractors and aggregation of incentives.

Regarding financing, since Manitoba Hydro has rightly adopted the principle of paying 100% of the cost of eligible measures, there is no reason why it should not assume responsibility for those costs. This means dealing directly with contractors. It also means dealing directly with Natural Resources Canada, such that ecoENERGY incentives are paid directly to Manitoba Hydro and it, in turn, takes on the burden of payment.

At the same time, this approach necessarily addresses the two other tasks: removing the contractor selection process from the participant's equation, and eliminating the need to jump through a second administrative granting process.

How much would this really improve the program?

These relatively small changes would significantly improve the program's simplicity and remove a host of critical hurdles on the participant's path. You can see in the chart below the extent of the steps these two changes would eliminate.



Put simply, a low-income customer would call, receive the evaluation, and receive the work. Manitoba Hydro – in partnership with Natural Resources Canada – would take care of the rest. This approach essentially eliminates all undue complexity and risk for the participant.

How realistic is it to ask Manitoba Hydro to contract the work directly?

It's perfectly realistic. I can't imagine any reason why Manitoba Hydro – or a contractor to it – would be less able to do so than the many other North American utilities that run similar programs.

As an example, let's consider the 15 low income programs considered as "exemplary" by the American Council for an Energy Efficient Economy, in its two most recent reviews (2008 and 2005). Most of the programs are run by regulated electric and gas utilities like Manitoba Hydro, and a few by government agencies. Some are delivered directly by the utility (or government agency), others are delivered on its behalf by community-based organizations, or by private, for-profit contractors. They cover customer bases smaller than Manitoba's, bigger than Manitoba's and of roughly the same size. They cover rural and urban regions, within climates both warm (California, Florida) and cold (New York, Massachusetts, Vermont, Ohio, New Hampshire, Colorado, etc.).

Of all these best practice programs, not a single one requires that participants take on the burden of finding and selecting contractors for measure installation. That's because they know that this is an onerous process with little benefit and hefty potential cost. Rather, programs take on both the hiring/paying of contractors, and the oversight/management of work. Participants are left to enroll, demonstrate eligibility and allow the evaluators and contractors to do their work. Period.

Similarly, none of the programs require participants to take on a loan and pay for measures upfront before then receiving grants. Again, the fundamental driver is "keep it simple". Even when multiple funding sources are involved, it is coordinated behind the scenes such that hoops and hurdles to the participant are minimal.

Can you give a specific example?

As I said, there are countless examples of this.

One example is the program run by National Grid in the northeast U.S. (covering Massachusetts, New York, Rhode Island and New Hampshire). After initial program contact

and screening, the participant receives an in-home visit and energy audit, including installation of initial low/no cost measures. Based on the results of the audit, the auditor discusses recommended measures with the participant and receives his approval for measure installation. Either the auditor or another program staff then arranges a time for contractors to come and do the work. A follow-up quality assurance visit may also be organized.

As you can see, the effort required of the participant is limited to applying for the program, participating in the audit, and making their home available for measure installation. There is no financial risk or uncertainty. The program administrator takes care of all of the potential issues that could block participation: paperwork, contractor management and quality control, risk exposure, and managing multiple funding sources that vary in the measures covered and the amount of coverage.

What about for cases where the low-income customer is a tenant?

That's a good point, because the difference between the two cases can be significant. In fact, the additional complexity involved with renters – split incentives and split tenant/landlord decision-making – make achieving low-income tenant participation even more daunting than we previously described. Experience elsewhere shows that tenants are significantly less likely to participate in even the best low-income programs.

We can understand why by considering the landlord's perspective. For example, consider a low-income tenant who pays his energy bills directly. In this case, the landlord stands to gain very little if anything from the program – bill savings accrue to the tenant, and unfortunately, private housing markets tend to grossly undervalue energy efficiency unless there is a clear aesthetic component. Yet in the face of negligible economic value, under Manitoba Hydro's proposal, the landlord will be called upon to (a) enter into negotiations with Manitoba Hydro to agree to conditions aimed ostensibly at *ensuring* the landlord cannot benefit (e.g. by ensuring that rents will not increase as a result of the work), (b) undergo a complex and time-consuming administrative process, (c) pay the costs upfront, in effect providing short-term financing for the work (unlike the home-owner scenario) and (d) take on

the risk that incentives will not even fully cover costs. Not exactly a compelling value proposition.

The context is somewhat different for landlords who pay energy bills directly. Here, at least, the value proposition is stronger, because energy bill savings would conceivable accrue to them. Yet in these cases, Manitoba Hydro's negotiating objectives will focus on the *transfer* of some or all of these benefits to the tenant, in the process diminishing or annulling the landlord's value.

How would your recommendations change this?

The changes I propose would all but eliminate the latter three hurdles – time, cost of financing, and risk of non-reimbursement – to the landlord. A good sales effort would still be required, and some landlords would balk at the mere thought of negotiating with Manitoba Hydro, but one could nonetheless expect considerably higher participation.

Put differently, renters would at least have a *chance* of being treated equitably.

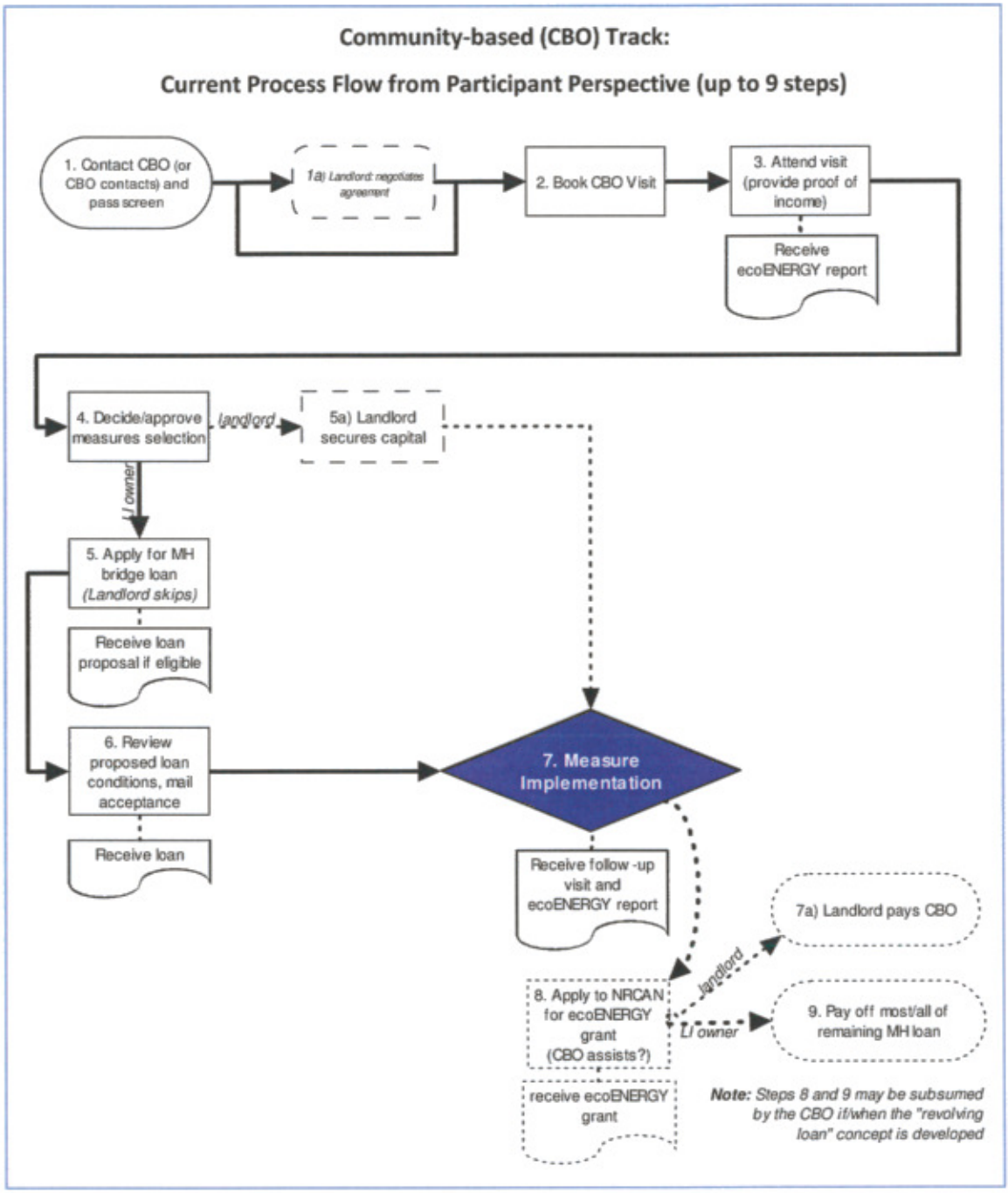
Why the concern for the landlord? Aren't we interested in the low-income tenant's interests?

Sure, but if landlords don't see the value proposition, and instead see headaches, costs and risks, neither low-income tenants nor Manitoba Hydro will benefit. The energy savings simply won't happen, because the household won't participate.

You've made the case based on the "individual" track, but what about the community-based, or "CBO" track?

That's true. And it's worth mentioning at the outset that the CBO track proposed by Manitoba Hydro, although not yet perfectly defined, at least *lends itself* to less complexity and uncertainty for the customer.

As you can see in the flow chart below, Manitoba Hydro's proposed CBO track effectively eliminates a number of the steps identified in the individual track, most critically the need to arrange for contractors and, conceivably at least, to deal with Natural Resources Canada (this part is not yet clear). In those respects, it addresses some of the concerns I previously noted.



Are you saying the CBO track is alright "as is"?

Not quite. There is still the issue of financing, and again, this must be viewed through the eyes of both the low-income homeowner and the landlord in the case of a low-income tenant.

For the low-income homeowner, as with the Individual Track, there is simply no compelling reason for Manitoba Hydro to ask its poorest customers to take on financial uncertainty and short-term debt when its entire process is devised to finance and pay for that debt in its entirety. This is what I mean by "needless" complexity, in that the burden put on low-income customers does not provide any significant value to Manitoba Hydro. This is why, as with so many other utilities with similar programs, Manitoba Hydro should simply take ownership of the costs directly. The cost to it will be negligible, and will most certainly be compensated by the benefit of significantly improved participation due to the removal of yet another key hurdle to participation.

For the low-income tenant and his landlord, the situation is more daunting, but the answer is rather similar. As I mentioned earlier, where energy bills are paid by his tenants, the landlord receives no significant value from the insulation work, yet is being asked to take on costs, risk and time commitments, making the balance of interests, here as with the Individual Track approach, uncertain to say the least. Experience shows that renters are already less likely to benefit from low-income programs than are low-income homeowners.

But with CBOs, there is a further perceived risk or cost that, from a landlord's perspective, is equally important to recognize: the uncertainty involved in opening his doors to a community organization that may be more interested in the tenant's interests than his own. In practice, this will depend on the CBO itself, but experience suggests that some landlords will be reluctant, concerned for example that the CBO may identify health and safety issues that he's been neglecting, or otherwise help his tenants learn about rights they may not be fully aware of. This will make access to savings for low-income renters even more difficult.

But don't we want them to identify health and safety problems? Don't we want their rights protected?

Yes, of course we do. But the program is not offering to pay for measures to correct health and safety concerns, so again, from the landlord's perspective, the question is "What's in it for me?". And in many cases, the rhetorical answer may well be *"Not much at all, except a lot of paperwork, some financial liability and having a community group stick its nose in my business."*

Isn't that a very negative view?

Again, these are real issues in delivering energy efficiency programs to this customer base. These are not insurmountable problems – there are relatively simple design solutions – but since the program's success depends in part on landlords' approval and buy-in, we ignore them at the peril of the program's performance. That doesn't mean ignoring health and safety concerns, but it does mean eliminating as many *other* costs and risks from the process.

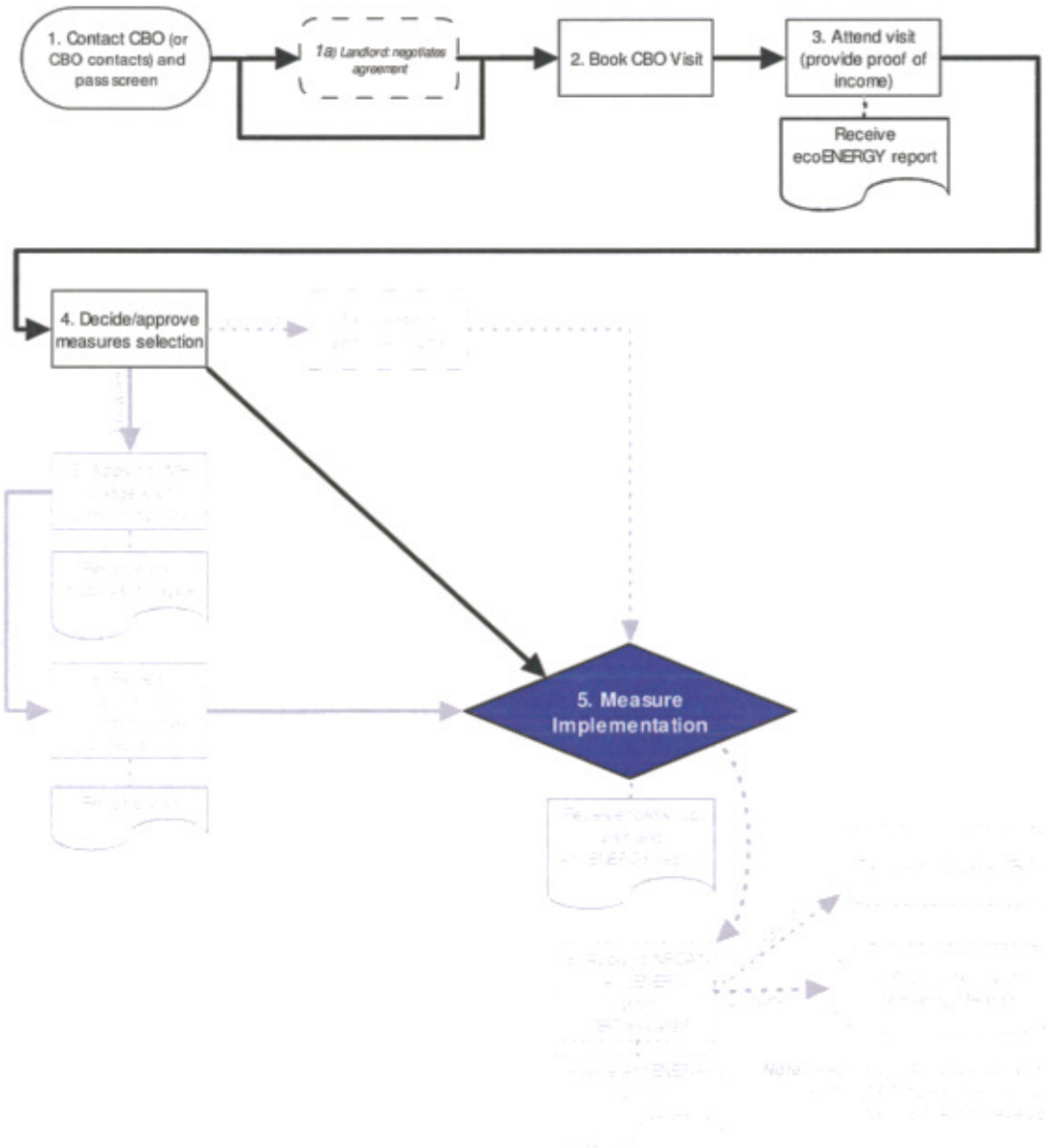
OK, so aside from eliminating the need for short-term financing, are you proposing any other changes?

The changes I am proposing here are no different than for the individual track. And as with the individual track, I am also recommending that Manitoba Hydro negotiate with Natural Resources Canada such that it takes in the ecoENERGY incentives directly. This is not very different from what Manitoba Hydro itself seems to be alluding to in its evidence.

The chart below illustrates the impact of these changes to the participant's process flow.

Community-based (CBO) Track:

<u>Proposed</u> Process Flow from Participant Perspective (5 steps)



These proposed changes sound relatively simple. Are they really?

Nothing is simple, but these are indeed "relatively" simple, to the extent that we are comparing them with the alternative burden placed upon the participant – whether the low-income homeowner or the low-income tenant's landlord.

Practically, the changes I propose will require that Manitoba Hydro either take on or outsource the function of hiring and managing contractors. Although contractor management will add responsibilities and challenges to the work load of Manitoba Hydro's program managers, this is clearly a workable approach for other, similar jurisdictions. Centralizing contractor management will likely offer *additional advantages* to the program, beyond increased participation. For example, the possibility of multiple contracts with a single, solvent customer (Manitoba Hydro or community groups) may be more appealing to many contractors than the hassles involved in dealing with low-income customers one by one. Manitoba Hydro will have better negotiating power, will be in a better position to evaluate contractor costs, and will be able to assess (and thus encourage) work quality, since it will be looking at contractor performance over time.

All of these benefits add up to much greater "bang for the buck", which again is why this approach is taken in countless other North American regions, and specifically in those that are generally deemed to be the best low-income programs on the continent.

What about the CBOs. Do you agree with using them to deliver the program?

Community-based organizations bring to the table a significant advantage over other entities: trust. Low-income homeowners will tend to put more faith in CBO promises than in those of a private company or of a large utility. Furthermore, they have easier access to channels that often fall under the radar screen of large firms and utilities (this is particularly important in the case of fixed-income seniors, whose channels can be very different than those of other low-income customers). In that respect, CBOs can be a useful delivery vehicle,

and indeed, CBOs deliver some of the best low-income energy efficiency programs in North America.

That said, not all CBOs have the organizational capacity to effectively deliver low-income energy efficiency programs. Furthermore, the flipside to greater trust among low-income customers, is greater *distrust* among landlords. For this reason, some of the leading low-income programs on the continent are instead run by private firms. For example, Honeywell – which delivers leading programs like those on Long Island and in New Jersey – does so in collaboration with CBOs, but remains entirely responsible for results.

I do not know the CBOs in Manitoba enough to hold a view as to their capacity for effective delivery. I can say, however, that the value that CBOs will bring to the table will depend significantly on Manitoba Hydro's ability to discern among those that have – and do not have – the combination of organizational capacity, tools and reputation to effectively deliver this program. As such, Manitoba Hydro will have to take great care in selecting eligible CBOs, and in providing them with the tools they need. It should also, as other programs do, allocate jobs and territories based on a close evaluation of CBO performance. Ultimately, it is only by being selective, by bearing the risk of fallout from rejecting unprepared CBOs, by offering appropriate incentives and by taking ownership of the results that Manitoba Hydro's openness to CBO delivery will be able to succeed.

Manitoba Hydro ran pilot projects before coming up with this design. Does that allay your concerns at all?

No. In fact, the pilot results are telling, in that not a single participant came from the private housing market. The hurdles and hoops I am talking about may be overcome when the "customer" is the Manitoba Housing Authority, but will prove daunting at best when attempting to address the private low-income marketplace.

Issue 2: Measures

You said earlier that the program needs to be comprehensive. Is it?

No. Manitoba Hydro's proposed program does cover the majority of cost-effective energy savings opportunities. However, it neglects at least one significant opportunity, and falls short on another.

What does it neglect?

As I mentioned earlier, leading low-income programs cover low/no-cost measures, weatherization and appliance/equipment replacement. Manitoba Hydro's proposal fails to include the most common and significant appliance measure: fridge replacement.

Modern retail refrigerator energy efficiency improved considerably throughout the 1980s and early 1990s, thanks to a succession of efforts on both the incentive and regulatory fronts. Because these efforts succeeded in slashing the energy consumption of new fridges, it also opened a very large gap between the consumption of "old" and new units.

As a result, many regions today operate programs aimed at early retirement of old refrigerators. In Canada, Ontario recently launched a large-scale fridge buy-back program, and Québec is on the verge of launching its own (these two programs alone will aim to retire some 200,000 fridges annually). In the U.S., these programs operate throughout California and the Pacific Northwest, as well as in the Midwest and the Northeast, among other areas. A review I recently conducted of seven such programs found that the average consumption of the retired fridges was 1,728 kWh/year. This compares with new fridges that use only 400-450 kWh, for gross savings of roughly 1,300 kWh/yr.

Similarly, most leading low-income programs also include a fridge retire/replace component. Because low-income customers tend to replace costly appliances less often, thereby owning older fridges on average, the savings delta can be even higher, in the range of

1,500 kWh per replaced unit. This represents a very significant opportunity for any low-income program.

You say fridge replacement measures are "common". How common?

Replacement of old fridges/freezers is part and parcel of most leading low-income energy efficiency programs. For example, it is included in the low-income programs of leading utilities and program administrators like National Grid (northeast U.S.), Southern California Edison, Pacific Gas & Electric, Efficiency Vermont, New Jersey Board of Public Utilities, Long Island Power Authority (N.Y.), Focus On Energy (Wisconsin) and many others.

Furthermore, it is one of the most widely applied measures: depending on the program, between 20 and 50 percent of participants receive a fridge replacement. For example, 28% of participants in Wisconsin have their fridge replaced, while that number is 51% in New Jersey, 32% in Long Island and 48% in National Grid's service territory.

Would fridge replacement be cost-effective in Manitoba?

Yes. Using reasonable fridge replacement assumptions and an assumed cost of $800 per replacement, the cost of adding this measure to the package would come in at roughly 9¢/kWh. This is less than Manitoba Hydro's stated average program cost of 11.2¢/kWh. As such, inclusion of a fridge replacement measure would increase overall savings while lowering the average per-kWh cost of the low-income program.

As the authors of a recent report noted: *"From CFLs to water heater blankets, every little bit helps. But the most bang for the buck arises from more expensive fixes such as insulation and replacement of old, inefficient appliances."*[4]

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[4] Chartwell, *Low Income Energy Efficient Programs*, February 2007, p. 10.

You also said the program "falls short" on another key measure.

The other area of concern involves furnaces. Manitoba Hydro is right in proposing to include a furnace replacement measure in this program. Yet from what I understand, the proposal is limited to a *very* moderately improved version of the financing already offered to all Manitoba Hydro customers. Specifically, Manitoba Hydro would offer the same small grant ($245, or roughly 10% of costs), and would offer a moderately reduced interest rate (4.9%) that in any event would revert back to market rates after only five years. The utility's loan would also be repayable upon sale of the home.

By its very definition, this proposal ignores the complex set of barriers that low-income households face. Besides the moderate, term-limited interest buy-down, there is no reason to believe this proposal would generate participation among low-income customers beyond what the current *Furnace and Boiler Replacement Program* achieves. And what participation it does achieve is likely to be limited largely to natural replacements, not early replacements, where the bulk of energy savings lies. To attract low-income customers and to entire early replacements will require compensating the higher barriers they face with a much more aggressive value proposition.

Are you suggesting paying the full cost of furnace replacements?

No. Much as it might be laudable, in some respects at least, to offer furnace replacements free of charge to low-income customers, it is not clear that the benefits could justify the cost, at least not in the absence of appropriate accounting of non-energy benefits. And while NEBs should ultimately be accounted for in determining a measure's benefits stream, I have not had the opportunity to do so at this time.

As a result, at least pending further analysis of NEBs, I believe there is value to leveraging Manitoba Hydro's existing on-bill financing infrastructure. However, a much more powerful value proposition will need to be sold to low-income customers to overcome some of the more acute barriers this population segment faces.

What do you recommend?

I recommend a more aggressive proposal, specifically a zero-interest loan or, preferably, lease. The loan/lease would be tied to the owner of the furnace, and be repayable in a maximum of 10 years.

Won't this be costly?

No. Let's assume for example that a new furnace costs $2,500 and is financed with a zero-interest loan/lease over 10 years. At Manitoba Hydro's current cost of borrowing, the cost of the interest buy-down would amount to $560. If instead, the furnace cost $3,000, the cost to Manitoba Hydro would amount to $672.

Now we need to compare that with the value of the measure to Manitoba Hydro. Using a set of reasonable, even conservative baseline, persistence and free ridership assumptions, and considering only avoided gas supply costs, I find this value to fall just below $2,000 per furnace. This does not account for non-energy benefits (NEBs), whether accruing to participants, society or Manitoba Hydro itself. It is worth mentioning here that a growing body of evidence points to very significant NEBs arising from low-income programs, and these certainly should be considered in future cost-benefit analyses. Still, leaving NEBs aside, the value to Manitoba Hydro would appear to be significant: roughly three to four times the cost of the interest buydown.

What if Manitoba Hydro's cost of borrowing goes up?

That's a good point. I redid the analysis to look at what I consider to be a worst-case conceivable scenario, one that assumes serious economic disruption on the order of past energy crises: Manitoba Hydro's cost of capital jumps from its current 6.1% to 15%. Worse, it does so immediately, and is sustained for the full ten-year period of the loan/lease. In the meantime, Manitoba Hydro is locked into these interest-free terms. In this scenario, the cost to Manitoba Hydro amounts to some $1,907 – still cost effective, though only marginally.

Again, this is not accounting for the vast array of non-energy benefits, and is making assuming a very, very dark economic scenario.

What about Manitoba Hydro's proposed loan conditions?

Let me begin with the requirement of repayment upon sale. One of the considerable advantages of on-bill financing of energy efficiency measures is precisely that, when done right, it can remove customer uncertainty regarding future mobility, because the cost stream – loan repayments – can remain tied to the benefits stream – bill savings, irrespective of changes in ownership. As such, tying a loan to the equipment allows a customer to feel confident adopting a measure with a long payback; without such financing, many customers apply a very high implicit discount rate to future savings, thereby judging the measure to not be cost-effective. This is especially true for fixed-income seniors, whose prospects of having to sell their home to move into assisted living is always close in mind.

Regarding the reduced-interest term limit, there is simply no reason to believe that low-income customers will cease to be so after five years. More importantly, many low-income customers will be reluctant to take the risk that their financial situation will be improved by then.

I strongly recommend that both these conditions be eliminated in the case of low-income customers. As such, the zero-interest loan/lease would apply to the full fixed term, and would remain tied to ownership of the furnace itself. In other words, it would survive the sale of the home.

Would this be sufficient to overcome the barriers faced by all low-income customers?

No, surely not. But by providing a simple, straightforward and clearly preferential value proposition, it would at least compensate for many barriers, thereby generating greater participation. Returning to our example of a $2,500, 10-year, zero-interest loan/lease, the

value proposition to a customer considering an early furnace replacement is clear: annual payments of $250 will be offset by annual savings in the range of nearly $400. No complicated formulas, no questions about how payments will increase partway through the term and no concern in the unlikely event he needs to sell his home. The case of a natural replacement will be even more compelling.

That said, there will unfortunately always be a certain number of customers for whom the barriers they face are simply too great a hurdle to participation.

Are there any other measures you believe should be addressed differently?

It is not clear in Manitoba Hydro's evidence whether and to what extent non-insulation weatherization measures, namely comprehensive air sealing, will be eligible to the program. I have assumed that it will be, as it should.

Similarly, the program does not seem to address other, potentially cost-effective measures, including electronic thermostats and water heaters. Again, to the extent these measures are cost-effective, they should be included in the basket of measures for which low-income customers are eligible. In the case of water heaters, they may more appropriately be provided through the same mechanism as the furnace, i.e. a zero-interest loan/lease approach.

Finally, it appears from the evidence that Manitoba Hydro does not plan on taking into account the costs associated with health and safety measures that may become necessary in order to install recommended energy efficiency measures. Clearly, Manitoba Hydro needs to account for these in its measure eligibility protocols; otherwise, it will forfeit significant energy savings opportunities. The new structure proposed earlier in my testimony lends itself more easily to this consideration than does the current Manitoba Hydro proposal.

Summary

Can you summarize your recommendations?

My first recommendation is for Manitoba Hydro to take ownership of the complex transactions involved with both contractors and Natural Resources Canada. The result would be a revamped process that is significantly simplified for the participant, and that emulates the practices of leading low-income programs throughout North America. I believe this is key to securing significant low-income participation.

My second recommendation is to expand the scope of the program to encompass early replacement of inefficient refrigerators. This is a significant, cost effective energy savings opportunity that once again is in line with leading North American practices.

My third recommendation is to transform the furnace replacement loan into a zero-interest loan/lease with a ten-year term, with no repay-at-sale conditions and no mid-term change in interest rates.

My fourth recommendation is to give further thought to rolling other measures – cost-effective measures already included in the overall Power Smart program – into the low-income program, as well as to integrating health and safety measures. I have not examined these in detail, and so my recommendation is limited to urging their consideration.

Does that conclude your testimony?

Yes it does.

Oral testimony regarding Manitoba Hydro's

Proposed Low-Income Energy Efficiency Program

Philippe DUNSKY
President
DUNSKY ENERGY CONSULTING
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Before the Manitoba Public Utilities Board
May 1, 2008

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consulting

Need for the LIEEP

- Barriers to efficiency
- Equity for ratepayers

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Market Barriers

- Economic Principle: The Invisible Hand
  - > Self-interested choices → optimal societal outcomes
    ... so long as certain conditions apply
  - > If these choices do not result in optimal outcomes, it's because of **market barriers**.
- Market Barriers

  Any market characteristic for an energy-related practice, product or service that explains, in whole or in part, the gap between the achieved level of energy efficiency and the level of efficiency that would be cost-effective for society.

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.../ barriers...

- Market barriers
  - > Information and search costs
  - > Performance uncertainty
  - > Transaction and hassle costs
  - > Access to capital
  - > Organizational practices and customs
  - > Split or displaced incentives
  - > Unavailability of products and services
  - > Bounded rationality
  - > Hidden costs and benefits
  - > Aggregated attributes
  - > Average cost pricing
  - > Externalities
- Apply to all markets, not just low-income

Total market

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.../ barriers...

- Low-income customers face some of these barriers much more acutely*
  - ➲ **Access to Capital**
    - + *LI*: **Restrained or high-cost access**
    - + *LI* **Distrust of debt**
  - ➲ **Split Incentives**
    - + *LI* : **Very high share of renters**
  - ➲ **Organizational Practices and Customs**
    - + *LI* : **Renters – Landlords uninterested in investing (low-cost business model)**
    - + *LI* : **Owners – Contractors uninterested in servicing low-income customers**
  - ➲ **Others**
    - + *LI* : **Education –, illiteracy +**
    - + *LI* : **Linguistic challenges +**
    - + *LI* : **Distrust +**

* *The presence and intensity of these barriers vary among different LI segments: immigrants, students, seniors, renters, etc.*

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Efficiency and Equity

- Low-income customers contribute to the PowerSmart effort through rates
- Low-income customers face higher barriers to participation
- Results:
  - > **Lost savings opportunities**
  - > **Inequitable treatment of low-income segment**
- Response: Develop programs designed to address low-income barriers and enable both their participation and their contribution to efficiency goals.

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Review of MH's Proposal

- Principles for success
- Strengths and weaknesses
- Summary and recommendations

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Principles for Success

Twenty-five years of experience with low-income programs suggests four **keys to success:**

1. **Keep it simple**
2. **Keep it free***
3. **Focus on outreach**
4. **Be comprehensive**

** As a general rule; some situations may lend themselves to customer contributions.*

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Manitoba Hydro's Proposal

Market shares (approx.)	Bill payer	LI customer	Individual (MH) Track	CBOs Track
64%	Low-Income customer pays bills	LI = Owner	•MH pays audit and low/no cost measures. •Customer applies for bridge loan. •Customer gets 3 quotes and submits to MH for approval. •Customer gets bridge loan •Selects contractor; oversees work; pays. • Loan reduced by MH incentive after work verif'd •Customer applies to ecoENERGY for subsidies and pays back loan.	•CBO provides one-stop shop. •Bridge loan to pay part of upfront costs •Reimbursed with ecoENERGY grant.
12%		LI = Renter	*Same as above, but client is landlord (not LI) and no loan component*	*Same as above, but* •Landlord provides proof of tenant eligibility •Negotiates with CBO to ensure benefits flow to tenant. •Finances costly measures (no loan).
24%	non-LI pays bills			

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Strengths

- ✓ **Goal of 100% cost coverage**
  - *"Goal"; not guarantee*
- ✓ **One-stop-shop approach**
  - *CBO track only*
- ✓ **Proof of income flexibility**
- ✓ **Multi-fuel approach**

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Weaknesses

- ✕ **DESIGN: Complexity / Hoops / Ownership**
  - *especially for Individual Track*
- ✕ **DELIVERY: CBO Challenges**
- ✕ **MEASURES: Furnaces and Fridges**

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DESIGN: Complexity / Hoops

Market shares (approx.)	Bill payer	LI custo-mer	Individual (MH) Track	CBOs Track
64%	Low-income customer pays bills	LI = Owner	•**PROBLEM:** Asking too much of LI customer: (1) Contractor selection, negotiation, oversight; (2) Debt and risk; (3) Paperwork and hoops. •SCALE: VERY SIGNIFICANT •**SOLUTION:** MH takes ownership: Chooses / pays contractor & deals directly with NRCan. •**KEY BENEFITS:** (1) eliminate needless hurdles, (2) negotiate better prices, (3) quality control.	•**PROBLEM:** Asking LI customer to take on risk re. debt v. incentives. •SCALE: MODERATE •**SOLUTION:** MH takes ownership of costs/NRCan incentives. •**KEY BENEFITS:** (1) eliminate needless risk / debt concerns.
12%		LI = Renter	•**PROBLEM:** Required benefits transfer to tenants vs. time/risk/lack of financing = uncertain value proposition. •SCALE: MODERATE •**SOLUTION:** As above + reduce expectations of benefits transfer / consider NEBs •**KEY BENEFITS:** As above.	•**PROBLEM:** (1) Lack of financing; (2) possible distrust of CBOs. •SCALE: MODERATE •**SOLUTION:** Offer financing and consider using private delivery agents for MURBs. •**KEY BENEFITS:** (1) facilitate participation, (2) minimize reluctance.
24%	non-LI pays bills			

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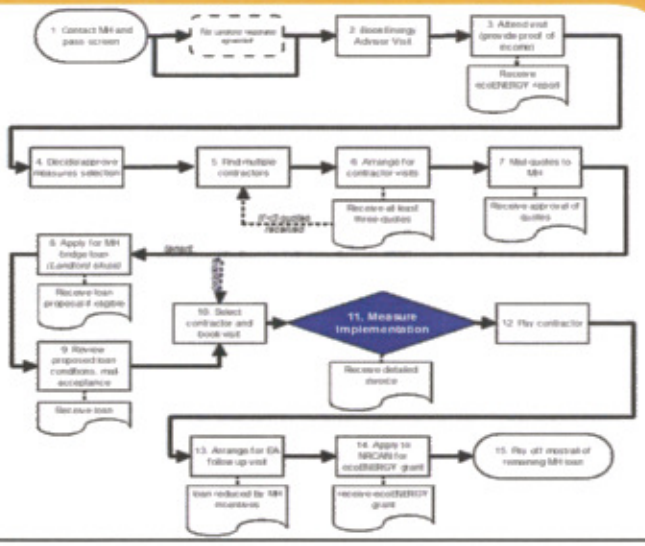
Individual Track Process Flow (MH)



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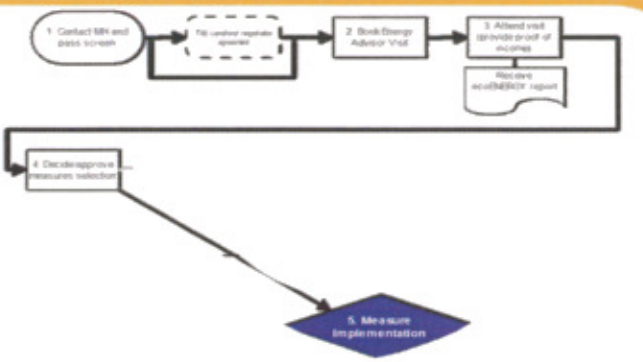
Individual Track Process Flow (modified)



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DELIVERY: CBO Challenges

- Capacity vs. Quality
  - > Some CBOs will have what it takes; others won't.
  - > Key: Will MH allow itself to be selective and/or invest in ensuring/building the capacity?
  - > Similarly, will it allow itself to "Just Say No"?
- Right culture for the right job?
  - > For LI owners: CBO may add value (trust)
  - > For non-LI owners: CBO may diminish value (distrust)
  - > Depends entirely on nature of CBOs
- No easy answers, but need to ask the tough questions NOW

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MEASURES: Fridges

- Not currently included
- Common measure for LI programs with significant participation rates
  - > Wisconsin: 28%
  - > New Jersey: 51%
  - > Long Island: 32%
  - > National Grid: 48%
- Cost of 9¢/kWh < avg. program cost of 11.2¢
  - > Using conservative assumptions
- Significant savings opportunity: >900 kWh/yr

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MEASURES: Furnaces

- MH Proposal
  - > No add'l incentive
  - > Marginally lower interest rate
  - > 5-yr "revert-back" clause = uncertainty
  - > Full payment upon sale

- Impacts
  - > Natural Replacement opp's: very unlikely to change customer decisions
  - > Early Retirement opp's: zero chance of impact
- **Misses the opportunity**

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...furnaces

- Options
  - > Free replacement (several U.S. WAP programs)
  - > 50% subsidy (e.g. Columbia Gas)
  - > Aggressive financing
- **Recommendation: zero-interest 10-yr loan**
  - > Highly cost effective: **B/C=3.5** (conservative assumptions)
  - > Leverages existing loan infrastructure
  - > Strong sales argument to generate real participants
  - > Longer term: examine feasibility of leasing strategies

MH net buydown cost (PV)	Original Scenarios			Additional PUB-Requested Scenarios			
	Scenario 1	Scenario 2a	Scenario 2b	Scenario 3a	Scenario 3b	Scenario 4a	Scenario 4b
Loan	2 500 $	3 000 $	3 000 $	2 500 $	3 000 $	2 500 $	3 000 $
MH's cost of capital	6,1%	6,1%	15,0%	9,0%	9,0%	12,0%	12,0%
term (yrs)	10	10	10	10	10	10	10
interest rate	0%	0%	0%	0%	0%	0%	0%
MH annual cost	(326,49 $)	(391,79 $)	(560,31 $)	(368,50 $)	(442,20 $)	(415,80 $)	(498,96 $)
customer annual payment	(250,00 $)	(300,00 $)	(300,00 $)	(250,00 $)	(300,00 $)	(250,00 $)	(300,00 $)
MH net buydown cost (PV)	560,32 $	672,39 $	1 906,87 $	868,05 $	1 041,66 $	1 214,55 $	1 457,46 $
B/C Ratio	3,5	2,9	1,0	2,2	1,9	1,6	1,3

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Summary

- LIEEP addresses a serious need
- LIEEP is good-faith effort to address complex market / opportunity

...but...

- **DESIGN: Individual track for homeowners has fundamental design flaw, while other aspects can be improved. Need turnkey approach.**
- **DELIVERY: Need to seriously consider role of CBOs based on clear assessment of their capacities and MH's willingness to support their development and/or be selective.**
- **MEASURES: Consider addition of fridge replacement measure and more aggressive approach to furnace replacement.**

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Key Recommendations

- **DESIGN: Modify program design to ensure turnkey service in which Manitoba Hydro (or its contractors) subsume all contracting, payment and incentive collection tasks.** This is essential to ensuring participation, especially for the "Individual Track".
- **DELIVERY: Assess CBO capacities prior to contracting.** Particular attention should be given to (a) investigating the trust issue for non-LI owners, and (b) considering MH's willingness/ability to support CBO development and/or be selective in contracting process.
- **MEASURES: Add a fridge replacement component and adopt a more aggressive approach to furnace replacement.** For the latter, MH should *at least* offer zero-interest financing on a 10-year term. It should also investigate the feasibility of an equipment *lease* structure in which debt remains tied to the furnace, not the participant.

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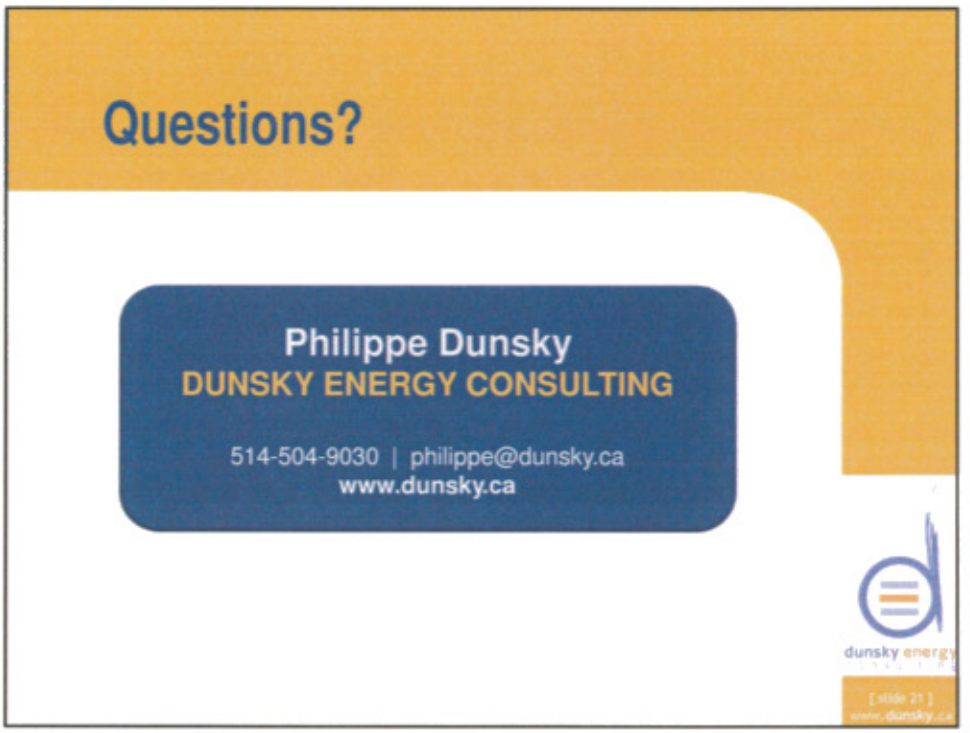
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