

MARCH 2018

INNOVATION starts here

Insights and Impacts of the Office of Energy
Efficiency's Social Innovation Unit

About the Office of Energy Efficiency (OEE)

As part of Natural Resources Canada, the Office of Energy Efficiency (OEE) is Canada's centre of excellence for energy, efficiency and alternative fuels information.

We develop regulations, information tools, and premium standards to support the smarter use of energy across Canada. We directly engage citizens, stakeholders, and partners to test service improvements and to shape and deliver policy.

innovation starts here

Our aim is to increase energy efficiency in our homes, buildings, industries, and on our roads to save Canadians money, fight climate change, and support sustainable, livable communities.

TD;LR

The world is changing. So must the OEE:

- Energy efficiency is no longer nice, it's necessary.
- New technologies could save or squander energy.
- Cutting through the noise requires new and improved tools and approaches.
- Customization is the new black.
- Collaboration is critical.
- Putting a premium on understanding what works and why.

OEE's Social Innovation "UnLab" (SIU) is not your every day innovation unit. We're embedded in the OEE to help design and deliver policy and service innovation in three interrelated ways:

1. Exploring: Building Relationships and Co-creating Possibilities;
2. Testing: Starting Small and Experimenting; and,
3. Scaling: Adapting and Doing What Works.

New thinking and doing is required to address complex challenges, like making energy efficiency a reality and transitioning to a low carbon economy:

- Being open: We will work in the open and tap into diverse perspectives and ideas.
- Being social: We will build partnerships based on true collaboration for collective impact.
- Being digital: We will adopt a digital mindset and adapt our services to achieve our goals.

We've worked with partners to put innovation principles into practice in value-added ways:

- Carrot Rewards: Getting Canadians into the Game
- EnerGuide for Homes: Engaging "Resident" Experts
- EnerGuide for Vehicles: Driving Better Choices
- The Sentinels Foresight & Scanning Club: Seeing Ahead of the Curve
- Strategic Community Investments: Expanding Our Impact Through Partner-Led Projects.

We're learning and adapting as we go:


Designing Innovative Interventions: Top Six Findings:

1. Involving experts and partners increases the potential for success.
2. Each tool we use has strengths and limitations. That's why we need a toolkit.
3. Engaging end users is a smart investment.
4. Nudges work. But we have more to learn about motivation.
5. Start with baselines and measure results.
6. The future won't look the same as the present.

What It Takes to Create a Culture of Innovation

- Directing experiments to address high-priority challenges.
- Mobilizing talent and skills.
- Coordinating, curating, and scaling knowledge.

The next generation of Canada's energy efficiency policies and programs starts here—with all of us.



**“INNOVATION (N): A VIABLE OFFERING
THAT IS NEW TO A SPECIFIC CONTEXT AND
TIME, CREATING USER AND PROVIDER VALUE.”**

– VIJAY KUMAR IN 101 DESIGN METHODS



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1 | THE CASE FOR INNOVATION

THE SIU “UNLAB”: WE’RE NOT YOUR EVERY DAY INNOVATION UNIT.

Put the words “innovation” and “government” in the same sentence, and you’re bound to raise some eyebrows. Is it possible for government—the epitome of bureaucracy—to fail fast, embrace experimentation and deliver breakthrough innovation? If so, how do you make that happen?

For us, it’s not just about stepping out of the lab and into government. It’s about turning the lab inside out and meeting colleagues, citizens and stakeholders where they’re at. It’s about weaving innovation into the fabric and culture of the OEE and beyond, together.

Put the words “innovation” and “government” in the same sentence, and you’re bound to raise some eyebrows. Is it possible for government—the epitome of bureaucracy—to fail fast, embrace experimentation and deliver breakthrough innovation? If so, how do you make that happen?

Since our establishment in 2016, SIU members have worked side-by-side with our colleagues responsible for developing policy and delivering services. We don’t parachute in and out; we work collaboratively to bring capacity and value to the OEE’s teams every day. It’s a deliberate design choice, because—in our view—innovation can’t take root in a vacuum. It has to relate to the people who are ultimately on the front lines of government, our partners, and stakeholders. When innovation is part of the fabric of an organization it changes and reflects the way everyone thinks and works. It permeates our culture. It becomes what we value and practice. That’s our aim.

To meet the challenges of climate change and clean growth in a rapidly changing world, innovation must become one of OEE’s core values.

*“The real work of social innovation
is to fix our broken human systems”*

– Cheryl Heller, President of The Measured Lab

THE WORLD IS CHANGING. **SO MUST THE OEE.**

Since NRCAN was formed more than 25 years ago, Canada’s OEE has been working to solve one big question: how can we help Canadians use less energy while maintaining the same or better level of service, comfort, and performance we expect from our homes, cars, appliances, and buildings? The world has changed rapidly over the past two decades, but that question has never been more challenging or more important than it is today.

According to the International Energy Agency, we’re at an “energy efficiency crossroads.” Making big gains in energy efficiency has become essential to meeting major global goals—from achieving targets outlined in the Paris Climate Agreement to creating more secure energy systems worldwide. At the same time, progress on energy efficiency has slowed. “Yesterday’s policies” won’t meet the demands of today or tomorrow.

*“If the world is to transition to a
clean energy future, a pipeline of
new efficiency policies needs to
be coming into force.”*

– International Energy Agency

It’s clear, we are facing one of the biggest energy transitions in history. In an effort to better understand what this means for Canadians, NRCAN’s Generation Energy reached out to close to 400,000 people and the message we heard back was unambiguous: Canadians want a low carbon future, and they believe that it must be created collaboratively and inclusively. The path forward will require new and creative approaches to energy efficiency policies and actions—to scale efficiency and to ensure policies and services meet Canadians’ needs.

But it’s not just our energy systems that are in transition. The way people communicate and consume information is radically changing too. The rise of digitalization, the advent of social media, and the democratization of information has shifted communication flows from being one-way and top-down to being viral and co-created. News cycles, moving at a rapid pace, are driven as much by consumers and social influencers as they once were by big media organizations, journalists, and governments.

The upshot: we have the opportunity to communicate energy efficiency and engage citizens and stakeholders in climate change and clean growth solutions in new ways and with new tools.

WHAT DOES THIS MEAN FOR CANADA AND THE OEE? NEW CHALLENGES AND OPPORTUNITIES.

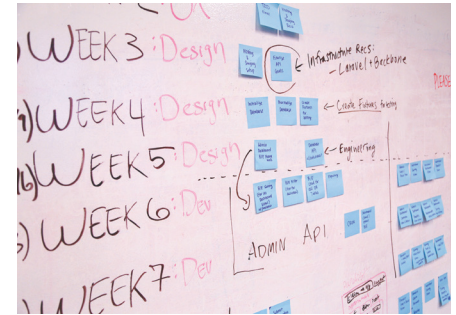
The global trends and disruptions described above are as real in Canada as they are everywhere else in the world. For the OEE, that means grappling with new challenges and opportunities, as we strive to improve the impact of energy efficiency policies and services across Canada.

Energy efficiency is no longer nice, it's necessary. Almost a quarter of Canada's greenhouse gas emissions (GHGs) come from transportation. Seventeen percent comes from the consumption of energy in homes and buildings. Significantly increasing efficiency in terms of fuels and vehicles, heating and cooling, and building energy use is paramount to Canada achieving our climate commitments under the Pan-Canadian Framework.

New technologies could save or squander energy. Emerging technologies—from AI to the internet of things—hold incredible potential for energy and cost savings. For example, smart homes and buildings could help people proactively manage their energy use in ways that boost efficiency and suit their lifestyles. However, without smart policies to incent and shape the impacts of new technologies, we could lose out on their potential or, worse, end up with unintended consequences.

Cutting through the noise requires new and improved tools and approaches. Canadians live in a saturated “information market,” with numerous messages and media platforms competing for a slice of their mindshare. While energy efficiency is, arguably, one of the most important issues of our time, no one has ever called it “sexy.” In this rapidly evolving online-offline communications environment, we will need to find new ways to connect with Canadians. That means speaking to them where they are and about what matters to them.

Customization is the new black. In the era of individual step-counting apps, automated smart thermometers, and personally-tailored investment platforms—people have come to expect a higher level of customization in their service experience. For OEE, this will mean breaking “cookie cutter” approaches to meeting the efficiency needs of Canadians, and learning how to either create more personal and responsive tools or support others in the market who are better positioned to do so.



Collaboration is critical. Complex challenges, like transitioning to a low carbon economy and addressing climate change, require governments to work together across jurisdictions and with partners across society. Taking a “systems change” approach means seeing our work, at the OEE, in the context of a larger network of actors and using that understanding to create and leverage partnerships that achieve more than the sum of their parts.

Understanding what works and why. To improve our services and shed light on new policy directions in the context of a rapidly evolving landscape it will be critical to find ways to design, test and evaluate interventions directly with Canadians and communities on an ongoing basis. Becoming nimble and adaptive will require an organizational commitment to continuous learning.

Ultimately, to face these challenges, innovation is imperative for the OEE. It’s not about doing things differently simply for the sake of trying something new—it’s about meeting our mandate as an organization. Most importantly, innovation in the delivery of energy efficiency policies, programs, and services is necessary for Canada to meet our climate change goals and create the livable, sustainable communities that Canadians want and need.

2 | TRANSFORMING HOW WE WORK

FROM WHERE WE ARE TO WHERE WE NEED TO BE.

In this era of disruption, change is the only constant—and that applies to the role of government too. As technologies and the means of communication rapidly evolve, governments must find ways to become more adaptable and understand how to make and deliver policy in an increasingly complex environment. As our landscape changes, we need to be forward-looking and constantly learning not just to keep up, but to get ahead of the shifting needs and demands of our stakeholders.

At the OEE, we know that we can do better when it comes to engaging Canadians and other stakeholders in our work. A 2014 evaluation suggested that we must do more to demonstrate the value and relevancy of OEE's services and tools. The good news is, we have a solid foundation to build from: a clear mandate, talented staff, valuable information assets, and strong networks.

The key, now, is to find ways to adapt what we do and how we do it to ensure our offerings are effective and responsive to change. Evolving will mean speaking with our users and stakeholders, not just to communicate our own perspective, but to listen and obtain a deeper understanding of their needs. It will mean busting through silos and finding new ways to collaborate on solutions. In sum, we need to work differently. But how? Helping the OEE answer, and continually ask, this question is the mandate of the SIU.

CO-CREATING, TESTING AND LEARNING FROM WHAT WORKS

Innovation, whether we're talking in the context of a society or a single organization, is a process. Even if we knew exactly what the OEE needed to do differently to achieve its impact today, that wouldn't necessarily tell us how we need to evolve or prepare to achieve that impact tomorrow. That's why the aim of the SIU isn't simply to replace one set of activities with another, but rather to continuously evolve the way the OEE approaches its work and solves problems.

So, how do we do this? It starts by working with our colleagues to identify a specific, strategic challenge for the OEE—one that is central to the delivery of our mandate and that requires new ways of thinking and working. For example: How do we better communicate energy efficiency opportunities and tools to car drivers and homeowners? Or, how do we prepare for new and emerging digital technologies and business models that could disrupt not only Canada's energy system but also what the OEE does and how we do it?

“The next best thing to having good ideas is recognizing good ideas from your users. Sometimes the latter is better.”

– Eric S. Raymond, The Cathedral, and the Bazaar

Once we’ve identified that challenge, we design novel approaches to exploring solutions based on three inter-related strategies.

1. EXPLORING: **BUILDING RELATIONSHIPS AND CO-CREATING POSSIBILITIES**

Relationships - with colleagues, other jurisdictions, and stakeholders - are the foundation of the SIU’s overall approach to innovation. Engaging people inside and outside of the OEE opens pathways and ideas that we couldn’t possibly have discovered on our own. One of the ways we embed this into our approach is by fostering relationships, new partnerships, and teams around each challenge. By drawing together a mix of OEE staff, outside experts, and external stakeholders, we form diverse project teams that bring different experiences and perspectives to the problem at hand. This also gives us the opportunity to work more directly with the people we are aiming to serve, and respond to, their real-life needs. In this way, we can build the capacity for innovation by working beyond organizational and jurisdictional boundaries.

2. TESTING: **STARTING SMALL AND EXPERIMENTING**

Experimentation, learning what works and what doesn’t, is critical to innovation. An important part of our process is creating the space for action research, rapid prototyping and testing of new tools or practices directly with users to integrate feedback and make them more effective. Through this strategy, we build in both nimbleness and responsiveness, ensuring that we’re paying attention to how people interact and respond, and if we’re creating value.

3. SCALING: **DOING WHAT WORKS**

At the end of the day, this is all about putting learning and what works into practice. The approach enables the OEE and its partners to take tested program and policy interventions—that we know resonate with stakeholders and end users—and weave them directly into the design of existing policies and programs as well as new policy directions. This may mean scaling them up or adapting them to suit different contexts and needs.

In the section that follows, Innovation in Action, we will shed light on what this approach looks like in the context of real projects—those directly led by the OEE as well as those led by partners through strategic OEE investments. As we’ll see, this work is far from linear. It can be messy, it can be challenging, and it can also result in learnings and outcomes we could not have achieved in any other way.

COMMITTING TO NEW THINKING & DOING

Transforming how we work requires a commitment to try new tools, invite new ideas, and bring a different mindset to the table.

Our strategies – exploring, testing, and scaling – are underpinned by three core commitments:



Being Open

We are committed to engaging Canadians and stakeholders in shaping and delivering OEE's policies and services. We will work in the open and tap into diverse perspectives and ideas.



Being Social

We are committed to co-creating opportunities and actions with partners inside and outside the OEE. We will build partnerships based on true collaboration for collective impact.



Being Digital

We are committed to using digital tools, technologies, and approaches to reach and engage audiences. We will adopt a digital mindset and adapt our services to achieve our goals.

3 | INNOVATION IN ACTION: TESTING POSSIBILITIES

TACKLING STRATEGIC CHALLENGES

In the last year and a half, the SIU worked directly with OEE colleagues, stakeholders, and Canadians to launch initiatives, pilot projects and invest in partnerships to find innovative solutions to the OEE's strategic challenges. Together, we:

Envisioned how the world and Canada's energy system might change in the next 5, 10 and 30 years.

Assessed what these changes could mean for how Canadians use energy and how the OEE might have to adapt to achieve our energy efficiency goals.

Experimented with new ways of engaging Canadians on energy efficiency and OEE tools, like ENERGY STAR, in an increasingly digital world.

Built relationships, fostered partnerships and made investments at the municipal level since municipalities are crucial players in creating a low-carbon future.

Engaged Canadians and stakeholders, the users of OEE services, to shed light on their experiences and find ways to boost service delivery.



While each project we describe in this section is unique, they all reflect the common themes that underpin the SIU's work: rethinking our assumptions, collaborating with partners and users, and testing ideas to create effective new tools and policies. In the pages that follow, you'll find synopses of key projects, plus the lessons and insights we gained along the way.

CASE STUDY 1

CARROT REWARDS: **GETTING CANADIANS INTO THE GAME.**

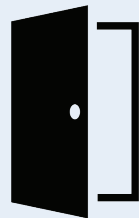
Hypothesis: Engaging Canadians on their smartphones with an app that offers points-based incentives will boost their awareness of energy efficiency and prompt them to adopt more energy-efficient behaviours.

Project Partners: Carrot Insights, OEE Housing, Equipment, and Transportation and Alternative Fuels Divisions.

Over the past few years, awareness of the ENERGY STAR and EnerGuide labels has decreased. To reverse this trend, OEE identified two needs: to engage more effectively with Canadians and to improve our understanding of how they view energy use and efficiency.

Carrot Rewards offered an avenue to do both. The app was established through support by the Public Health Agency of Canada, not-for-profits and several provincial governments to reward healthy behaviours with loyalty points (Aeroplan Miles, Scene Points, etc.). By partnering with Carrot Rewards, OEE could take advantage of an engaged user base and leverage the app developer's specialized knowledge of IT and consumer behaviour.

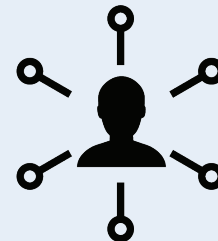
To test the potential of this approach, we ran several pilot projects in Ontario, B.C., and Newfoundland, and Labrador, offering rewards to Carrot app users for completing quizzes and learning more about energy efficiency.



open



digital



social

Findings

In total, these projects engaged 400,000 Canadians, raising Energy Star awareness by 24–27 percentage points.

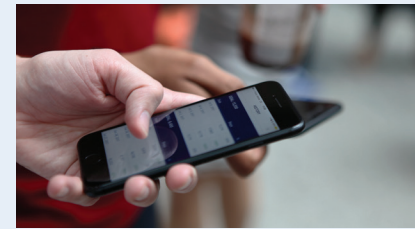
Key results include:

- 1 million quizzes completed by Canadians
- 40% click-through rate on link-outs to ENERGY STAR Canada social media pages, resulting in:
 - 5,857 new Twitter followers
 - 9,867 new Facebook likes
 - 12,019 new Facebook followers
- Over 80,000 unique views of the ENERGY STAR Home video
- 18,000 completed home energy advisor searches
- 8,600 users took the ecoDriving online course
- 250+ new ideas generated on the Generation Energy website within 48 hours

Successes: The pilots demonstrated that Canadians are very responsive to rewards and that gamification and nudge techniques can effectively increase energy-efficiency engagement.

Challenges: Currently, it's not clear how much of that success was due to the rewards points (which cost money to provide) and how much was due to the content. Post-evaluation surveys could help tease that apart.

Scaling up: Three new Carrot pilot phases were launched from January – June 2017 with new content on home, appliance, and vehicle energy use. We're also aiming to establish new partnerships with organizations such as Home Depot, Enbridge, BC Hydro and Toronto Hydro to build on this project, focusing on behaviour changes such as choosing ENERGY STAR products, minimizing energy use during peak hours, and installing smart meters.



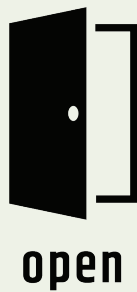
CASE STUDY 2

ENERGUIDE FOR HOMES: **ENGAGING “RESIDENT” EXPERTS.**

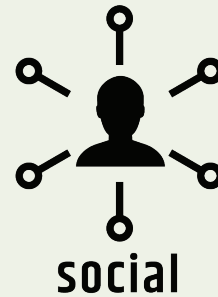
Hypothesis: Improving the user experience of EnerGuide for Homes will improve service uptake and results of the program.

Project Partners: Government of Alberta CoLab, City of Edmonton, OEE Housing Division, Situ Strategy, City of Edmonton Homeowners

Each year, OEE issues approximately 105,000 EnerGuide labels for homes, giving owners a rating of their home’s energy performance. However, the process currently takes more than a month. We also know little about the homeowner’s experience with the assessment program.



To streamline the process, we launched a Lean EnerGuide pilot project, informed by training in the Basic Lean approach. We interviewed OEE employees and together mapped out the current process, identified root problems and recommended improvements.



We also conducted a citizen-centred pilot project with the City of Edmonton and the Government of Alberta to learn more about the homeowner experience. Through a contest offering a free home energy audit, we attracted 24 homeowners willing to offer feedback on the auditing process, the EnerGuide label and the assessment report they received. After observing how their energy audit unfolded, we interviewed them about the process and the results.

Findings

Although issuing an EnerGuide label represents approximately 1.5 days of effort, the process requires at least 71 days due to factors like the number of handoffs involved, the inefficiencies created by paper forms, and the frequency of errors and missing information. Through the Lean EnerGuide project, we identified major bottlenecks and recommended improvements for a more efficient process.

In Edmonton, homeowners were able to tell us what they liked about the current EnerGuide label, what needed to change, and what motivates them to make their homes more energy efficient. We learned that homeowners weren't aware of what a home assessment covers or what the process involved. Moreover, the resulting report was less easily understood than we had expected. Based on these insights, the team worked with citizens in co-design workshops to prototype and test improvements to residential energy labelling and reporting.

Successes: The Lean EnerGuide project resulted in a list of actions to improve the system, together with estimates of the resources and time required to execute them. Meanwhile, the cross-jurisdictional Edmonton initiative helped build relationships and capacity across three levels of government and generated new insights on home energy labelling. We were able to design improvements to the EnerGuide Home Evaluation Report to make it more reader-friendly and usable, and the City of Edmonton successfully applied for NRCan funding to support further experimentation and the delivery of their home labelling and reporting program using EnerGuide tools. This project improved one of our main services and could not have been done without directly working with partners and citizens to understand their experience and how to improve it.

Challenges: The current home report software makes it difficult to implement changes proposed by participants. In addition, although converting from paper to digital would speed up the process of issuing labels, switching would require considerable resources.

Scaling up: The improved version of these reports and labels are now being implemented, and we are supporting a follow-up project led by the City of Edmonton.



CASE STUDY 3

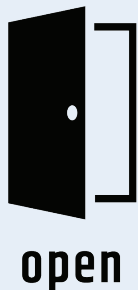
ENERGUIDE FOR VEHICLES: **DRIVING BETTER CHOICES.**

Hypothesis: Improving our understanding of consumer behaviour and how auto manufacturers determine fuel efficiency will inform improvements to the EnerGuide labelling system, making it more widely adopted

— and more likely to lead people to buy energy-efficient vehicles.

Project Partners: Akendi, OEE Transportation, and Alternative Fuels Division

Under a voluntary agreement between the federal government and auto manufacturers, new cars, vans, and light-duty trucks should display an EnerGuide label indicating the vehicle's fuel efficiency rating. That information is also compiled in NRCan's annual Fuel Consumption Guide. However, some manufacturers fail to comply. Meanwhile, sales of fuel-intensive vehicles like SUVs and pickup trucks continue to rise. To help address these issues, we undertook two pilot projects aimed at better understanding the labelling and purchasing processes.



Firstly, we interviewed ten auto manufacturers to look at how they determine fuel efficiency ratings, at what stage of production the vehicle is labelled and other relevant details.

Secondly, we commissioned the user-experience company Akendi to conduct 40 in-depth telephone interviews with consumers about issue such as the usefulness of EnerGuide labels and the importance of fuel consumption when choosing a vehicle. Akendi also spoke with auto dealers to discover what questions they typically get asked by prospective buyers.

Findings

On the manufacturing front, we discovered that the process of fuel efficiency testing and labelling differs from one manufacturer to another, and decisions are often made outside of Canada. Those factors make it difficult to craft targeted policy interventions.

In terms of consumer behavior, we learned that a lot of their activity takes place online—from looking for information (Google, AutoTrader, CarandDriver, Kijiji), to advice (including their peers on social media), and to even purchasing products. We also found purchasing decisions were more likely to be driven more by situation than by personality types.

In addition, we were also able to learn from car buyers directly which elements of the label they found useful and not useful.

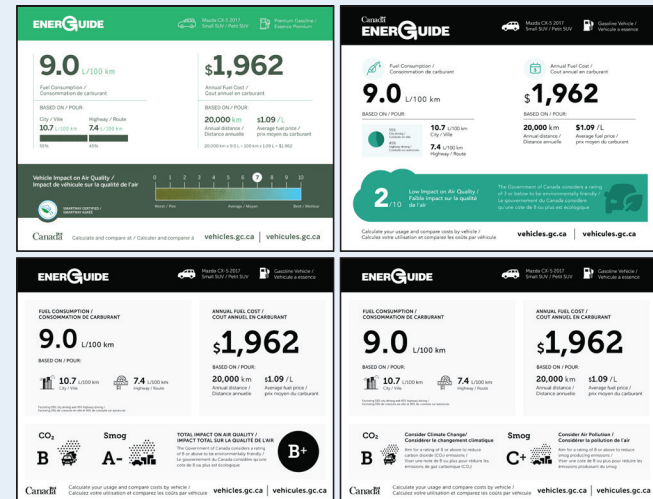


Based on these findings, we identified a significant opportunity to make the labels available online and to engage consumers early in the car-buying process. We then created four prototypes of the EnerGuide vehicle labels, with an emphasis on designs that were digitally accessible. This work is informing further research and experimentation.

Successes: An important aspect of this project was learning how to meet consumers where they are when it comes to information delivery. Instead of telling them what we think they need to know or using focus group approaches that remove consumers from the real world context – we found innovative ways to better connect with consumers’ real-life needs. As a result, we identified gaps and opportunities that we would not have discovered otherwise, demonstrating the value of this approach.

Challenges: Although interviews provide valuable insights and offer more depth than surveys, it’s important to keep in mind that what consumers say doesn’t always reflect what they do.

Scaling up: We are currently looking at developing and testing digital tools – for example, apps and games, content for social media, and customizable online tools – to further engage consumers and promote energy-efficient vehicle choices.



Developed EnerGuide Label prototypes to inform further research and experimentation

CASE STUDY 4

THE SENTINELS FORESIGHT & SCANNING CLUB: **SEEING AHEAD OF THE CURVE.**

Hypothesis: Exploring how change drivers might affect energy use will reveal outdated policy and program assumptions and generate insights to inform new policy directions.

Project Partners:

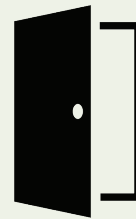
- The Sentinels Foresight & Scanning Club: OEE Strategic Policy(Co-lead), OEE Program Division Representatives, NRCan Sector Representatives
- Future Disrupted Hackathon: OEE Strategic Policy(Co-lead), Deloitte, Representatives from NRCan, other Government Departments, Academia, and Not-for-profits

Rapid social and technological change is affecting the way people, organizations, and businesses use and interact with energy. From technical advances like the internet of things to economic trends like the sharing economy, getting a grasp on what's changing means being in a better position to adapt and stay effective.

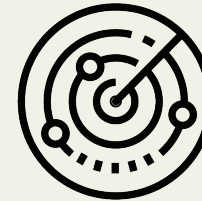
To identify key change drivers, OEE convened “The Sentinels”: a group of OEE members, outside experts, and project stakeholders who gather weekly to tackle the challenges and explore the opportunities that change presents to the OEE.

Findings

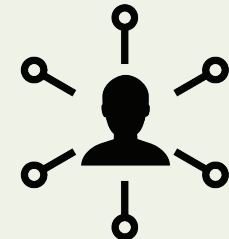
Since launching in 2016, The Sentinels have identified eight key change drivers and created three scenarios challenging the assumptions that underpin current policies and programs. From this work, they've generated new policy insights and ideas to inform continuous improvement, stakeholder engagement and policy directions.



open



digital



social

Their scenarios and insights have informed Generation Energy engagement and actions, including the “Future Disrupted” hackathon in partnership with Deloitte. This two-day brainstorming event brought together federal public servants, students, industry representatives and experts from Deloitte to envision pathways to a low-carbon future.

Successes: Over the past year and a half, The Sentinels have progressed from making sense of trends and challenging OEE assumptions to using that information to generate new policy ideas. Meanwhile, the ideas emerging from the hackathon will contribute to federal policy development.

Challenges: The main challenge for initiatives like The Sentinels is freeing up time from urgent, day-to-day priorities to focus on longer-term effectiveness. Further, more time needs to be channeled into raising the profile of the group and better communicating their findings.

We also gleaned some important learnings through the application of the foresight process. For example, the hackathon provided an important opportunity for stakeholders to participate and engage in OEE policy development. However, there are limits in terms of what can be achieved through this type of event. A future-oriented hackathon focused on policy pathways was a challenge for some participants given the accelerated pace.

Scaling up: Moving forward, The Sentinels will inform OEE’s future policy and program design through action research and reviewing projects that are gearing up, such as developing smart labels and smart contracts and reviewing the Energy Efficiency Act with a digital lens.



CASE STUDY 5

STRATEGIC COMMUNITY INVESTMENTS: **EXPANDING OUR IMPACT THROUGH PARTNER-LED PROJECTS.**

Hypothesis: Building capacity with community-based organizations and municipal partners will advance energy-efficient, low-carbon communities.

Project Partners: OEE Housing Division, Simon Fraser University Renewable Cities and Centre for Dialogue, Quality Urban Energy Systems of Tomorrow (QUEST), The Atmospheric Fund (TAF), City of Edmonton, Pembina Institute.

When it comes to implementing energy solutions, cities have a significant role to play. So, what can the federal government do to help municipalities make the transition to a low-carbon future? One important way is by supporting community-based innovation and building capacity at the municipal level.

To help accelerate the development and adoption of innovative, locally relevant low-carbon solutions in urban regions across Canada, OEE is strategically investing in partner-led projects that convene stakeholders and build relationships, co-create and experiment with new ideas and technologies, and scale what works.

Engaging and convening

In many cases, great ideas already exist — they just need to be shared. By connecting stakeholders, we can facilitate that exchange of knowledge and best practices.

That's why we supported Simon Fraser University's 2017 Renewable Cities Global Learning Forum — an event that brought together more than 300 municipal innovators to participate in a solutions-focused dialogue on energy efficiency and the transition to 100 percent renewable cities. Through 30+ workshops and panels, participants explored ideas on designing and implementing sustainable energy policies. For OEE, the forum was an opportunity to build new relationships, strengthen existing ones and plant seeds for future collaborations. The SIU also engaged Renewable Cities Forum participants on Generation Energy for their views on Canada's energy future.

Meanwhile, we provided funding to Quality Urban Energy Systems of Tomorrow (QUEST) to organize three community energy mapping workshops, in which participants visualized the future of energy efficiency at the local level. The results contributed to our Generation Energy initiative, which invites Canadians to share ideas about our country's energy future.

The SIU and OEE Housing Division also helped The Atmospheric Fund (TAF) — a Toronto-based not-for-profit organization working to reduce carbon emissions — explore the idea of creating a network of urban climate innovation centres. The agency, which was supported by the SFU Centre for Dialogue, engaged 60+ municipal stakeholders from across the country to discuss the value and feasibility of establishing funds, hubs, and incubators to help cities reduce the barriers to low-carbon innovation and scale up solutions. As a result, plans are now moving forward for six such centres across Canada.

Co-creating and testing new tools and approaches

Partnerships offer a valuable way to develop and assess new ways to boost energy efficiency in Canadian households.

OEE's Social Innovation Unit and Housing Division has co-funded eight residential energy projects with totaling \$2.5 million. Developed and led at the local level, these projects propose innovative ways to drive demand for home energy retrofits, improve the supply of energy-efficient homes and reduce home energy use.

For example, a project in Medicine Hat is working with partners to improve the uptake of EnerGuide Rating System evaluations and retrofits by evaluating “nudges” such as sending homeowners text notifications and thermal images of heat loss. Meanwhile, two municipalities in Nova Scotia will test non-traditional financing mechanisms that encourage energy-efficient retrofits and educate builders. And in British Columbia, the Pembina Institute is launching a pilot project to drive more energy retrofits by pooling contracts for similar homes.

We're also partnering with QUEST to support the development and growth of Smart Energy Communities across Canada: urban areas that maximize energy efficiency through integrated energy networks, smart land use planning, technologies and other approaches. With funding from the OEE, QUEST developed and trialed a scorecard that benchmarks and evaluates the progress of Smart Energy Communities in Canada. The scorecard provides policymakers, business leaders and the public with ongoing insights and information on how to make the most energy-efficient decisions.

Adapting and scaling what works

Testing projects and working with partners through strategic investments has helped us surface and ground-proof effective new approaches that we, and other stakeholders, can both adopt and share.

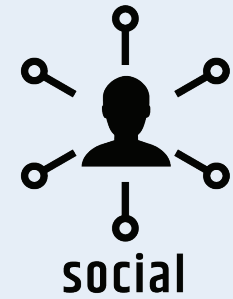
For example, after QUEST developed the proof of concept for a Smart Energy Community Scorecard, the organization went on to pilot the scorecard in six Canadian communities with the support and investment of OEE. We're currently monitoring this work with an eye to scale it across Canada.

Additionally, the success of the OEE's cross-jurisdictional home labelling project led the City of Edmonton to launch a "Spot the Difference" program, with OEE funding. The initiative offered rebates to homeowners for completing an EnerGuide evaluation and for publicly sharing their energy rating on the city's EnerGuide for Homes map. The aim is to encourage neighbours to follow suit and to give home buyers a clear way to compare and assess the energy efficiency of different listings.

Findings

OEE's strategic investments have built important relationships and enhanced the capacity of like-minded organizations to undertake projects that advance energy efficiency and facilitate the transition to a low-carbon future. By funding these multi-sectoral projects, we are spurring social innovation, driving demand for energy efficiency and scaling effective policy interventions in Canada.

Moving forward, we will continue building on existing collaborations and identifying new opportunities. We will also ensure the voices of our strategic partners are heard in the ongoing Generation Energy dialogue and in discussions about future policy directions.



4 | LEARNINGS AND INSIGHTS

Over the past year and half of investigating, testing and innovating, we have gleaned important learnings that will guide our work to (1) design projects that help us explore and solve the OEE's strategic challenges and (2) enable a culture of innovation within the OEE. Clearly, there is a relationship between the two. By designing better and smarter interventions and projects, we strengthen the fabric of the OEE's innovation culture and by working at the macro-level, to create the environment for innovation, we bolster and increase the success of the initiatives we design. Our aim is to apply learnings for continuous improvement on both the project and the organizational scale.

DESIGNING INNOVATIVE INTERVENTIONS: **TOP SIX FINDINGS.**

1. INVOLVING EXPERTS AND PARTNERS INCREASES THE POTENTIAL FOR SUCCESS.

For example, there have been in-house attempts at creating digital solutions without user research and behavioural specialists, but it proved unsuccessful. In contrast, teaming up with Carrot Rewards enabled us to work with specialists who understand both IT and human behaviour, leading to impressive results. Meanwhile, partnerships create the opportunity to draw on diverse perspectives and develop deeper insights. As we discovered by participating in the SFU Renewable Cities Global Learning Forum, getting out of the office to engage with cities and direct delivery groups expanded our understanding of energy futures.

2. EACH TOOL WE USE HAS STRENGTHS AND LIMITATIONS. THAT'S WHY WE NEED A TOOLKIT.

When we plan projects, it's important to recognize what different tools can and cannot do. Hackathons are useful in sparking discussions and fostering relationships, but they will not get you fully cooked policy proposals. Carrot Rewards is effective at generating awareness and engaging with consumers but does not replace public opinion research. That's why, going forward, it will be critical to clearly articulate the specific question or questions we are trying to answer and ensure we are using a strategy designed to meet those specific needs. To answer "hairy" questions, we will likely need to employ a range of tools and triangulate the intelligence and insights each can provide to paint a bigger picture.

3. ENGAGING END USERS IS A SMART INVESTMENT.

At OEE, our analyses and assumptions aren't always right, which makes consultation, co-designing and user evaluations crucial. Consumer interviews indicated that our ideas about vehicle purchase patterns were off-base. Observing EnerGuide home assessments on the ground revealed the need for better communication beforehand and clearer reporting afterward. Co-designing and testing different prototypes of EnerGuide labels allowed us to quickly identify and resolve problems. Investing in these processes reduces risk and enhances the probability that our projects will succeed.

4. NUDGES WORK. BUT WE HAVE MORE TO LEARN ABOUT MOTIVATION.

Carrot Rewards made it clear that Canadians respond to gamification and rewards — an insight we can apply to many other programs. However, we do have more to learn about what constitutes an effective “reward” or behaviour-driver. It may be wrong to assume that financial carrots are the only or main driver of behaviour modification. To what extent can real-time information, reminders, or social competition play a role in motivating Canadians to embrace energy efficiency actions? This is an area ripe for future exploration and testing.

5. START WITH BASELINES AND MEASURE RESULTS

Before we start innovating, establishing a baseline not only lets us measure progress, it can also provide valuable insights and justification to proceed — as with the Lean EnerGuide initiative, for example. Meanwhile, projects should include ways to quantify success, such as tracking how many Carrot Reward users signed up for a fuel-efficient driving course. This means, at the front end of every project, we must push ourselves to define what success looks like by outlining clear objectives linked to metrics.

6. THE FUTURE WON'T LOOK THE SAME AS THE PRESENT

As our hackathon and the ongoing work of The Sentinels make clear, the landscape we operate in is evolving quickly and we will need to evolve with it. What does that mean for the OEE? Perhaps it looks like adopting a new disruptive technology that helps us to deliver services more responsively and effectively, for example. These are the types of shifts we need to anticipate and plan for going forward.



WHAT IT TAKES TO **CREATE A CULTURE OF INNOVATION.**

If there is one key lesson we have learned from our work in the SIU it is this: innovation isn't a project or an activity—it is a way of working. To design experiments that are valuable, and to glean the value from those experiments, we need to take a strategic and systematic approach to policy and service innovation at the organizational level. That means embedding R&D into the OEE as a core function—one that is deeply connected and interrelated to policy development and service delivery, but that has a distinct track and mandate. It means creating the space within our organization to continue delivering on the day-to-day, while at the same time looking ahead, seeking new ideas, and feeding insights back into our work.

Ultimately, this is about orienting the OEE toward continuous learning and improvement, creating an internal culture of innovation that will enable us to become increasingly responsive and adaptable to meet the critical demands of our time.

To achieve this, we've identified three important areas of growth that will enable the SIU's work to mature and to contribute increasing value to the OEE's mandate:

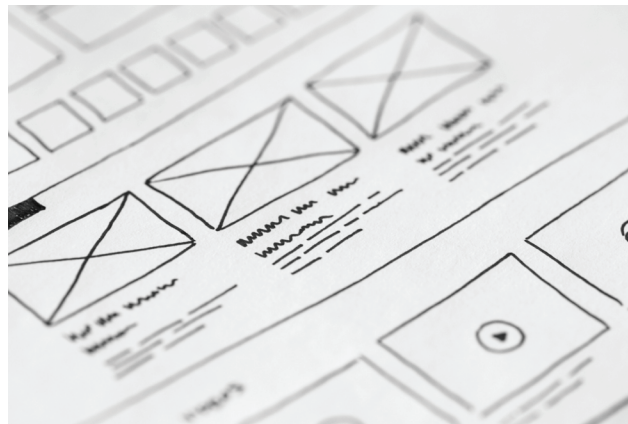
Directing experiments to address high-priority challenges: To ensure our R&D investments are strategic and valuable, we need to engage OEE senior management, colleagues, and other key stakeholders to identify the highest-priority challenges for the SIU's efforts. This means pivoting away from one-off and ad hoc projects, to a focus on the core issues that will determine the OEE's success. This will ensure the SIU's efforts are deeply aligned and integrated with the OEE's goals and mandate.

Mobilizing talent and skills: Solving problems with new approaches requires the flexibility to tap into talents and skillsets wherever they exist, internally or externally. This will mean shifting from a “do what we can with what we have” to a “what do we need to do this right” mindset. It will also mean looking more broadly at the skillsets across our organization, and in our external networks, to form unconventional and diverse project teams.

Coordinating, curating, and scaling knowledge: To grow as a learning organization, we have the opportunity to pool the insights we glean from each strategic project to inform new experiments, research, and—ultimately—policy and program changes. We can also extend these learnings beyond our organization to inform collaborative and complementary action by partners and stakeholders. Achieving this means designing and enhancing information sharing processes and systems within the OEE.

For the OEE, innovation means adopting open, social and digital mindsets and approaches at scale over time. It means direct engagement with the stakeholders and users of our policies, services, and tools to develop and test new concepts, improvements and new policy directions. To be successful, we will need to embed a practice of continuous improvement and innovation into our service delivery in a more proactive and deliberate way. This will take leadership and openness at all levels of the OEE to surface and test our assumptions and to work in new ways to meet Canada’s and Canadians’ needs in a time of rapid change.

The next generation of Canada’s energy efficiency policies and programs starts here—with all of us. As the famous physicist Dennis Gabor wrote, “the future cannot be predicted, but futures can be invented.” Together, we can continuously and collaboratively invent a better future for Canada’s relationship with energy—the need and the opportunity has never been greater.







**Office of Energy Efficiency's
Social Innovation Unit**