

# The Future Fix

## Season 4 – Episode 2 – Ending Energy Poverty

### Transcript

00:00:09 Glyn Bowerman

Welcome to the future fix.

00:00:28 Glyn Bowerman

To me, the best tech and data solutions are the ones that are able to address multiple problems at once.

00:00:35 Glyn Bowerman

It can often help the idea come to fruition if it's serving a number of purposes and is more likely to scale outward and take hold in more communities if it can make that promise.

00:00:45 Glyn Bowerman

Take energy efficiency, for example. There are a number of reasons a community would want to encourage energy efficiency, combating climate change, easing pressure on infrastructure, et cetera.

00:00:56 Glyn Bowerman

But what if it could also help families who are struggling to make ends meet and be delivered as part of a network of community services?

00:01:04 Glyn Bowerman

You're listening to the Future Fix: solutions for communities across Canada.

00:01:41 Glyn Bowerman

This is season four of the Future Fix and audio exploration of the way technology and data are shaping communities across Canada. I'm Glyn Bowerman.

00:01:50 Glyn Bowerman

Each episode we present community challenges and solutions and take you to places large and small from coast to coast to coast.

00:01:58 Glyn Bowerman

The town of Bridgewater, NS, is a picturesque community on the LaHave River in Lunenburg County.

00:02:04 Glyn Bowerman

In 2019, it was awarded the Smart City Challenge Prize in the \$5,000,000 category for its Energize Bridgewater Energy Poverty Reduction Plan.

00:02:15 Glyn Bowerman

Since then, it has worked to identify where energy waste is occurring. Retrofit living spaces to be more efficient and therefore affordable, combat climate change and help vulnerable community members.

00:02:28 Glyn Bowerman

To explain Energize Bridgewater, we spoke to Bridgewater senior energy manager Asad Hussain and Planner Meghan Doucette.

00:02:36 Glyn Bowerman

I think the best way to begin is you know very succinctly what is Energize Bridgewater.

00:02:43 Meghan Doucette

Energize Bridgewater got started through work that the town was doing back in 2016, 2017 and 2018 to develop a Community Energy Plan. So right around the time that the federal government had announced the Smart Cities Challenge we had just developed this plan for how we wanted to move forward in our community to reduce energy and reduce energy poverty. So that is kind of how our projects initiated. So we had done all this planning work and community engagement and things like that leading up to it and then being able to participate in the Smart Cities Challenge really launched the programming that we knew we wanted to do but would not have been able to move as quick as we have since then.

00:03:30 Meghan Doucette

So there's several programs related to energized Bridgewater that we're delivering. One of them is a retrofitting program, so it's called Energized Bridgewater Home Upgrade.

00:03:42 Meghan Doucette

And we are supporting people with lower incomes to do home energy upgrades like heat pumps, installation, all that good stuff and a lot of those are free and it's an income qualified program. So people need to fall under the low income cutoff set nationally to participate.

00:04:01 Meghan Doucette

And if they want to go above and beyond and do things like solar panels or upgrade their windows and doors or any kind of additional things that aren't covered for free, we also offer low interest financing for that through our clean energy financing program. And so that has a 1% interest rate. So it makes it a lot more accessible for people to do some of those upgrades as well.

00:04:24 Meghan Doucette

And then another program that we're offering in collaboration with our partners at the South Shore Open Doors Association is a coordinated access system and this is really about providing some wrap around community supports. We know that people who are experiencing energy poverty and are struggling to pay for their energy bills may be facing other challenges as well. So the South Shore Open Doors Association works largely with people experiencing housing insecurity and homelessness, and all the array of challenges that people may be experiencing at the same time as those things and they help

connect them to resources in the community. Other nonprofits that can help housing and things like that. They can also help connect them with Nova Scotia Power to support working through a process if they have energy arrears and things like that.

00:05:18 Meghan Doucette

So they are doing an amazing job working on the ground with people who are really struggling the most in our community. And then maybe I'll pass it off to Asad to talk about our energy management information system.

00:05:31 Asad Hussain

So I want to start with the energy transition, so it is well known like we need to transition from hydrocarbons to renewable energy and this transition would not be easy. For instance, like we are investing significantly and we will achieve, but the amount of energy we need to go towards renewable energy is not actually there. So we have some investment. They have been increasing for investment towards renewable energy. And there has been decrease in investment towards hydrocarbon. However, the demand for energy has been increasing.

00:06:05 Asad Hussain

And there was a report, I believe, basically by end of 2023, there will be about 1.3 billion people without access to energy. So in this picture of energy transition, the quotient of energy access becomes very, very important and energy poverty is linked with that.

00:06:25 Asad Hussain

And when we talk about energy transition, we have to consider climate change because climate change is already here. So we cannot delay our energy transition because of these all these challenges that we have in terms of investment.

00:06:39 Asad Hussain

So we have to implement the energy transition and then we have some of the issues that are influencing this picture. That includes COVID, geopolitics. All of these things have influenced our global energy market and energy prices have increased significantly when that is affecting the energy poverty levels. So the energy poverty levels will continue to increase and they will have impact on health in economics and the food prices. We can already see the food prices have been increasing significantly over last two years.

00:07:16 Asad Hussain

So it is having a cascading effect and how we would basically transform our energy infrastructure, it would influence our development outcomes as well in Nova Scotia and in Canada in general and all the impacts that we will basically experience due to energy quality that includes health, economics of the food prices. They will have a social impact as well.

00:07:40 Asad Hussain

So the energy poverty is a very important issue that we should consider because it is experienced throughout the world. It is experience all over Canada, but on the on the Atlantic side, it is much more

severe. I believe it is 2 out of every five houses that is experiencing energy priority and according to International Energy Agency basically, we can address this problem immediately. Governments and policymakers have a significant role to play in this picture and the immediate response could be the energy efficiency and we are trying to consider the energy efficiency through our programs that Meghan has covered quite well already. So we are trying to directly address the energy efficiency and for instance, like when we talk about buildings or residential buildings, we can improve the energy efficiency of those buildings by addressing the operations, by addressing the building envelope, and by addressing the energy systems.

00:08:33 Asad Hussain

So we are already considering the building envelope and the energy systems by considering through our home upgrades program by considering the different retrofitting that we can already went to.

00:08:44 Asad Hussain

And in order to make sure that we don't have a rebound effect once they start saving some money, they don't spend again a lot more on the energy we are trying to implement Energy Management and Information System and through this EMIS system, we want to instill energy efficiency habits and we want to consider slightly slow and slight behavior change in residential energy use as well.

00:09:13 Asad Hussain

Through operational energy usage or operational side of things, basically we can improve about 40% of the energy. And overall like if we consider energy efficiency in all of the energy sectors considering like commercial buildings, essential buildings, industry or energy sector itself, if we consider energy efficiency up to 30%, we can't meet the Paris Agreement that is curtailing our environmental temperature increase to 1.5°C to pre-industrial levels.

00:09:49 Asad Hussain

We can do that by just by addressing the energy efficiency. So I would say like basically we are trying to hit this through this program, we are trying to improve the energy efficiency directly because this is the most cost effective thing that we can do while we wait for the investment towards renewable energy.

00:10:10 Glyn Bowerman

So I think people understand generally the the need for energy efficiency in terms of climate change and that when you talk about energy poverty, let's say I I'm struggling to to pay the bills for, for my family. And my house is inefficient. I'm getting billed money. I I don't necessarily have that. I don't need to be spending just because of the lack of efficiency. That's kind of where the social help comes from.

00:10:35 Meghan Doucette

Exactly. Yeah. So the goal of Energize Bridgewater is that the homeowners that we work with will see a 50% on average for the whole cohort of the program on average, 50% reduction in their cost of energy for their home.

00:10:51 Gyn Bowerman

And then the the ultimate goal or the immediate goal I should say is, is to reduce energy poverty by 20% by 2026 which is coming up!

00:11:00 Meghan Doucette

Yeah. So we're we're getting to that point and we are starting to see some of the results rolling. We have 55 homes signed up for the energized Bridgewater home upgrades program so far and we're still taking applications in and it's been interesting to work through this process and work with some great partners here in Nova Scotia.

00:11:21 Meghan Doucette

We have Efficiency Nova Scotia, who are working with and a nonprofit called The Clean Foundation, who are helping us to deliver these programs. And we really learned as a small town that we wouldn't be able to do this on our own. So it's been great to be working with others in our community who can help make the biggest impact for the people that live here.

00:11:42 Glyn Bowerman

Right. And I I gave the hypothetical of a single family, but I know that through this program you're also working with landlords of multi unit residential to retrofit those entire buildings and hopefully the cost savings would be passed down to the to the tenants.

00:11:59 Meghan Doucette

That's right. So our program for multi unit buildings is called affordable multifamily housing and landlords in Bridgewater can sign up to participate. We have 46 units going through that program right now. And so how that works is.

00:12:16 Meghan Doucette

We really wanted to make sure that these units would remain affordable because typically when a building owner does upgrades, it can lead to raising the rent to cover those costs. So with the program that we offer, landlords get up to 80% rebated for the cost of their energy upgrades. And then in exchange, they sign an agreement to hold rents for 12 years at affordable rates, so that would be the number of units depends on the building, but it's at least 4 units or 30% of the units in the building, whichever number is greater. So we're trying to build an on affordability everywhere we can.

00:12:55 Glyn Bowerman

And Asad, in terms of finding where those efficiencies might lie, can you explain a little bit about the the energy assessments that you do have, you know where these savings can happen or this you know increase in efficiency?

00:13:09 Asad Hussain

Here we start with the energy assessment that we energy assessment reports that we get from Anakin (sp?)s.

00:13:17 Asad Hussain

With the home upgrades there, there would be a survey of the house. They will realize the current state of the building, they would do some energy modeling and with that they would capture the actual pictures they have for the residents. OK, and from there basically we get the building characteristics data that we would need for our analysis.

00:13:40 Asad Hussain

And with our EMIS program we are trying to capture real real time data stream that would include energy usage and some of the internal environment like CU 2 levels, temperatures, indoor temperatures, humidity levels, these sort of things and also we would like to try to connect the energy uses indoor environment with the outdoor environment. So we will get some of the other data and with this data stream we will connect the building characteristics. We will try to connect some of the particular details about the occupants and we will make a connection between basically we will have a model that will be estimate using these conditions to the energy usage and with that model basically we will do some basic analysis. However, we will try to connect the energy usage with these some of these socioeconomic information about the household can connect it to energy poverty as well.

00:14:36 Asad Hussain

So we can have some better understanding about the energy poverty for that particular household and energy poverty in our community in general. For the analytics that we are considering to bring about energy efficiency and try to educate our program participants. We have divided these analytics into different phases.

00:14:56 Asad Hussain

And right now we are in the first phase of analytics and in this phase we are considering four groups, the first one is the energy efficiency analysis and in this energy efficiency analysis, we will consider energy consumption analysis, building characteristics versus energy use occupying behavior analysis.

00:15:16 Asad Hussain

And energy use versus outdoor environment and energy efficiency improvements.

00:15:23 Asad Hussain

So this this is the first group and then the second group we we try to consider the cost and environmental impact and in this we will try to cover cost analysis. So in the cost analysis we will consider how much they are spending during the weekdays during the weekends and in these segments during the day they are spending more. So basically they would have the information their some self and they if they want to consider some change they can.

00:15:48 Asad Hussain

And next we have the environmental impact analysis. So we will try to connect the energy usage cost and also provide the GHG missions in real time, their daily or their weekly GHG missions. These sort of things, if they are doing well, we will try to replace them as well. So they will know about these things.

00:16:09 Asad Hussain

And lastly, we have in the team conservation and indoor comfort in this group and this is very important. So here we try, we would try to come up with energy conservation strategies for them based on their environment.

00:16:22 Asad Hussain

Try to improve their comfort levels. For instance, these analysis are still very basic, I would say, but I think we can make slight difference in their operational habits.

00:16:34 Asad Hussain

And try to consider temperatures, humidities, CO2 levels and basically we will classify the temperatures. We will sample the data throughout the week and at the end of the week we will try to provide them they performance.

00:16:49 S Asad Hussain

For the temperature wise, like if they are within 18 to 20°C range, they would receive one notification that says congratulations or you are doing really well and if they are not then we'll try to connect the dots with the building characteristics. If it's a leaky household.

00:17:08 Asad Hussain

So maybe they need to use better ventilation on those sort of things. Or maybe we can prescribe them some improvements in terms of temperature change and same thing for the humidity levels. So if it is between 35 to 50% or 60%.

00:17:27 Asad Hussain

For relative humidity, we will place that like you are fine. You are meeting being a very healthy informant or in those for yourself. But if they are not, if they are below you, try to prescribe them some changes and if they are above same thing as well so they will need to make certain changes, maybe used humidifier or something.

00:17:46 Asad Hussain

And especially like we have the humidity levels in Nova Scotia are generally very high. So we try to identify these problems and maybe there could be a some initiative from the Town or like where we can provide them with humidifier dehumidifiers.

00:18:05 Asad Hussain

And after this we have Group 3 where we are considering consumer satisfaction and well-being in this group we will consider consumer satisfaction surveys. And so we are basically building some of the surveys that we would do on regular basis in our new system to realize their feedback. And then we have comparative analysis. So we'll try to draw some peer-to-peer comparison with the benchmark case where we will consider an ideal building and see if if they are doing well or not as compared to that ideal case and that will help us identify the improved energy improvement areas where we can work with them and after this we have alerts and notification system that we are considering for the indoor environment.

00:18:59 Asad Hussain

So if if, like they have significantly high CO2 levels, we would like to send them a notification like there is something wrong, or maybe you may need to make consider some changes here.

00:19:10 Asad Hussain

So for the last group, we are considering energy poverty mitigation and in this group we are considering energy poverty analysis, affordability assessment and energy saving identification. So it is extension to what cost and environmental impact analysis over here. We will try to consider and encourage them towards more energy efficiency or energy efficient habits. So like let's say, if they are maintaining like 18°C during summers.

00:19:41 Asad Hussain

Maybe we can encourage them to increase 1°C more and but we'll try to reason with them through their cost benefits through the environmental impact that basically triggered by changing just 1°C in their households. So these are the things that we are trying to do in terms of information that we want to share through the analytics utilizing their data.

00:20:06 Glyn Bowerman

I was just thinking that I would like the City of Toronto to call me and give me a congratulations, but I'm sitting in this drafty apt. I don't think I get that call. For the record I rent though, but but there's also a kind of a social outreach and and transit planning component to this, if I understand that. You you connect people experiencing poverty and homelessness with services and as well you you've been looking at the transportation systems in Bridgewater. Can you explain a little bit about that?

00:20:38 Meghan Doucette

Yeah. So the homelessness and housing insecurity piece is where we partner with the South Shore Open Doors Association. So for short, they're called SODA, and that's how a lot of people know them in our community here. And they opened up in May of 2022. So last year and there was a great need, right off the bat for them to provide these services, so there are central intake point, so anyone who is experiencing homelessness, housing and security or related challenges can go do an intake with their intake worker and then they as an organization will identify what services are available in the Community and match the individuals or the households up with those services. They also have housing support workers and a trustee so they have some eviction prevention kind of measures that they can support with and things like that.

00:21:30 Meghan Doucette

So we have a contract with them to deliver those services and we were anticipating that they would serve 350 households by the end of our project in 2026.

00:21:39 Meghan Doucette

And they have already intakes 415 households who are in great need in the community. So it's been very eye opening to see their work unfold over the past year and a half or so and see how much need there is in the community. I moved to Bridgewater from Halifax, where homelessness is more visible and we



don't really, we still don't see it as much in Bridgewater. There aren't tent encampments and things like that, but there are people sleeping around here.

00:22:11 Meghan Doucette

And it's really illuminated the the severity of the issue of affordable housing, homelessness and the fact that this is very present in our community and and in smaller towns all around Nova Scotia. So it's been interesting to see their data rolling in and then see how we might be able to support more services for that. So our Community Development Department is working on affordable housing plans and policies, and that's just kind of one thing that's rolled out from that.

00:22:42 Meghan Doucette

And in terms of the transportation piece of our project, that is something that was part of our original proposal and has somewhat been rescope. So we aren't actively working on that at the moment, but we do have a transit system in place that was just started up a few years ago in 20 either 2017 or 18. It was before I started with the Town so it's something that we're kind of trying to monitor and support and hopefully connect back in with Energize Bridgewater. We know that transportation is a huge cost for people, and so we also have an active transportation plan that was approved in 2020. So there are kind of some of those pieces happening, but it's not as much of an active part of the Energize Bridgewater project at this point, right? S

00:23:32 Glyn Bowerman

As you said the kind of inception of of energized Bridgewater, I think you said 2016.

00:23:38 Meghan Doucette

Yes, our Community Energy Plan was approved in 2017, I believe 2017 early 2018 I think.

00:23:47 Glyn Bowerman

Bridgewater was awarded the for the proposal of \$5 million in 2019. It seems like the scope of this, if it can continue to build, is going to reach from kind of a very simple, not simple to solve, but a simple problem in that how you know, energy efficiency, let's make housing more energy efficient to basically reaching, you know, every aspect of people's lives and affordability, getting around and participating in the city.

00:24:17 Glyn Bowerman

Is that the the ultimate goal to kind of energize in, in every sense of the word, the town at large?

00:24:24 Asad Hussain

Yeah, I would like to add add to this point, there is lack of recognition and consideration of energy poverty in in most of our frameworks at the provincial level, at the federal level. So this initiative is I think in that sense it's very important with this understanding that it could provide us with better understanding and then we can come up with a better response as well towards poverty and energy and the energy poverty.

00:24:50 Asad Hussain

Yeah, and it is extremely important to consider in this energy transition phase the world is going through an energy crisis. So the poor household would be affected by it most. Yeah. They spend roughly 30% of their food needs from their income, 30% of their income on their food needs, and if they all overspending on energy usage, then it will be really difficult to get by for them, yeah.

00:25:19 Glyn Bowerman

So it it seems like this program has been pretty successful. You've you've already spoken about some of the outcomes. What are some of the immediate goals you know in in let's say the next two years we we talked about the the 2026 goal of reducing energy poverty by 20%. Are there any other benchmarks that you're looking to in, in the short term?

00:25:38 Meghan Doucette

So with the Energize Bridgewater Home Upgrades Program and the Affordable Multifamily Housing Program, we have a target of supporting 125 units, whether that be homeowner, kind of single family or duplex or mobile homes or apartment buildings, by this March coming up 2024. So we are hoping to move 125 households through our programming by that time. That's one of our more immediate goals and then really just rolling from there.

00:26:10 Asad Hussain

And for EMIS, basically Energy Management Information System, we plan to take the 1st 3 households by early 2024. And then scale up, scale it up to 15 households at the production level. Then we will go to a larger scale implementation that would consider Around 300 households.

00:26:30 Glyn Bowerman

So well, Meghan Assad, I wanted to thank you so much for taking the time to speak with me.

00:26:34 Meghan Doucette

Yeah, no problem. Thanks for the opportunity.

00:26:37 Asad Hussain

Yeah. Thank you.

00:26:49 Glyn Bowerman

Energized Bridgewater is more than a climate change initiative. More than an anti-poverty strategy. Both of those are obviously important, but taken together, it all amounts to more than the sum of its parts.

00:27:02 Glyn Bowerman

With good data and the right application of new technology, these types of big win solutions can happen very simply and affordably, and continue to grow and provide community benefits.

00:27:13 Glyn Bowerman

All over this country, we are facing big, immediate, sometimes overwhelming problems which often affect us simultaneously it makes sense then, that our solution should be able to combat these issues simultaneously.

00:27:27 Glyn Bowerman

For the town of Bridgewater, bringing an end to energy poverty is the fix.

00:27:41 Glyn Bowerman

Thank you for listening to the Future Fix solutions for communities across Canada. We are a partnership between Spacing Magazine and Evergreen for the Community Solutions Network. As the program lead. Evergreen is working with Open North to help communities of all sizes across Canada navigate the smart cities landscape.

00:28:02 Glyn Bowerman

The Community Solutions network is supported with funding provided by the Government of Canada.

00:28:08 Glyn Bowerman

This podcast was produced by myself, Glenn Bowerman and Neil Hinchley. Original music, composed by Neil Hinchley. Our content consultant is Angela Perillo. Tune into the next Future Fix where we talk about emergency Geo mapping.