NEW ZEALAND INFRASTRUCTURE COMMISSION
Te Waihanga

Episode seventeen

TRANSCRIPT

Baselining the carbon impacts of education

Infrastructure for a better future

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Please note: the transcript has been edited to make reading as easy as possible.

Introduction: Welcome to Infrastructure for a better future, a series where we have honest conversations about the infrastructure challenges we are facing and how we can build a better Aotearoa. In each episode we talk to experts from here and overseas about what works when it comes to addressing these issues.

Rebecca Robertshawe: Welcome to the Infrastructure Commission's podcast Series. Today, we are going to be talking about the Carbon Neutral Government Programme and particularly the work being undertaken by the Ministry of Education. So, just to get everyone in the zone and provide a bit of background context, the Carbon Neutral Government Programme aims to accelerate emissions reduction in the public sector. That requires public sector organisations, including state schools and kura to measure and report their emissions annually set the emissions reduction targets, produce reduction plans and to offset remaining greenhouse gas emissions from 2025. We're very interested in the work that the Ministry of Education is doing in this respect, they're undertaking a programme on behalf of all two and a half thousand schools and kura - no easy undertaking by any measure, I'm sure. We understand that the first step was to baseline emissions across all of the Ministry, corporate and school network. We're very lucky today to welcome Tracy Finlayson, the Ministry of Education Programme Director for Emissions Reductions. Tracy, welcome, very keen to hear from you about the Ministry's programme and what you're working on.

Tracy Finlayson: Thank you. Happy to be here. Our programme is essentially set up to meet the requirements of the Carbon Neutral Government Programme. You have set those out in terms of measuring and reporting emissions - what we've done is create our first inventory for schools and kura, which was a large part of my role, and then to look at how we actually achieve setting those reduction targets across 2,100 state schools and kura - a very complex task. Also, to plan and implement emission reduction initiatives based off our baseline and where it makes most sense to do so. The setting of emission reduction

targets, and working out where we want to focus our attention in terms of emission reduction initiatives is interconnected. The better the baseline, the more complete the baseline, the better we are able to identify across our entire portfolio and our 2,100 schools and kura, where the best opportunities for reductions are, and by identifying those opportunities, we can deep dive and test what realistic targets actually look like. A really important part of my job is about not just what the government's targets are, but also, how can we achieve them?

Rebecca Robertshawe: I'm really keen to unpack a little bit about this baselining, from a programme management perspective. I understand in some of our previous chats, of course, you started with a blank sheet of paper. There was no programme, there was no emissions data. Really keen to have you talk to us a little more about, how did you even approach starting this programme and starting the baselining process?

Tracy Finlayson: There was work that had been done prior to my entrance into this role in bits and pieces. We'd done some carbon reporting over 50 schools, we had some idea of what our emissions were going to be looking like, we had other programs that are running within construction, within other emission sources that we've got, which helped to kind of set a starting point for where I was going to begin. Essentially, I looked at the ISO (International Organization for Standardization) reporting standards - we're required to meet international standards for reporting on an inventory. One of the things that I found really interesting about setting an inventory was that there was an enormous scope to report across our entire organisation at different levels of accuracy. ISO allows you to start from the point of simply a dollar figure, so how much do you spend in construction? And to give you an idea from a construction industry perspective, what that would look like for your emissions that were created as a result of that. What I did was start at that level. Right across the board, if we just started at what we spend, what would it look like? And then how do we make that more accurate over time? I wanted to capture the entire organisation, both the Ministry of Education's role in schools in kura, and also our school boards and what they were putting into the system. Very, very big scope. But my approach to that was, the more we have and the more we understand the entire picture, the better we are able to create realistic targets about what to achieve and where to focus our attention. That was really important to me. if the question was, where do you focus your attention for emission reduction initiatives in schools? How was I going to answer that question? That was the question - I needed to answer it. I went big, to allow myself flexibility across our activities to do that.

Rebecca Robertshawe: And how's the accuracy?

Tracy Finlayson: There is greater accuracy to be achieved. But, it's a good start. It's a really good start. Basically, we've created models based on what we understand of the school system, based off the data we have. We have extrapolated those models to all state schools. We have also stress tested and challenged ourselves on every single model that we've created within our inventory, to ensure that it is accurate enough to base strategic decisions off. I am confident that we have got enough of a starting point to do that.

Rebecca Robertshawe: I understand as part of the programme, you've broken emissions down into four key categories, you've got transport, construction, energy, and food, I'm really keen to understand from you why those four categories and if you could tell us a little bit more about the thinking behind that?

Tracy Finlayson: So, those are our top emitters. Our inventory tells us that the highest emitting activities on an annual basis are transport, construction, food and energy, in that order. We're tying energy into construction. But that's really why we're focusing on those key areas, as we're following the inventory. Now transport is a significant category for us, because we are reporting on behalf of 7,000 students, and 135,000 staff and how they get to school every day. We are also including in that the Ministry's school transport network as well. For construction, we have reported on around 450 completed construction projects across the Ministry and school boards. That is only completed projects, our construction portfolio is significantly larger than that and represents a spend of about $1.8 billion annually, which is completed both by the Ministry of Education directly and by school boards. With food, that is our school lunches programme, so our school lunches programme, we are reporting on that this year, which represents significant emissions as well. Then energy comes after that. So that's really our fuel sources, which is how we heat our schools, diesel, gas and coal, and then the electricity as well as tied into the energy.

Rebecca Robertshawe: I'm starting to understand what an enormous task creating that first baseline must have been. I guess the benefit in terms of establishing a starting point for the

rest of the programme, but just talk us through again, in terms of the baseline, the benefit you see to the programme of having that data in?

Tracy Finlayson: I think it tells you where to focus your attention. When I say that we're focusing on these four key categories, we're focusing on them, because that's what the evidence tells us to do. When you pull together the data to report on an inventory to create the whole picture, this is what comes out of it - these big sources. Then you can actually go 'okay, well out of this massive thing that I'm undertaking, where do I start focusing my attention and doing a deeper dive and getting more information, more data and exploring what the reduction initiative opportunities within those big areas are'. For me, it just gives you a place to start. It also gives you a language to communicate in. When it comes to transport, for instance, it's mode of transport, kilometres travelled, and so we can take it down to how we've reported on it, and then also communicate that when we're talking about our initiatives.

Rebecca Robertshawe: And does this get publicly reported Tracy?

Tracy Finlayson: It is required to be reported to MfE (Ministry for the Environment), and they do release publicly some of the information. We will be releasing our report in its entirety on our website (www.education.govt.nz),

Rebecca Robertshawe: Tell me, the programme's only been up and running for a year. What's been the biggest challenge so far?

Tracy Finlayson: Certainly the scale and complexity. You're 100 percent right. 2,100 entities across New Zealand, geographically spread. The amount of money that is invested in the state school system, both between what the Ministry invests directly and school boards and trying to unpick every single activity that is undertaken by both the Ministry of Education and those 2,100 entities on a day-to-day basis to understand this picture has been really complex. Yeah, the volume of data that we have poured over and pieced together. Yeah - it's a lot. I have an amazing team that has helped make that possible. But yes, it's very difficult.

Rebecca Robertshawe: That leads me into the flip side, which is what's been the biggest success within the year?

Tracy Finlayson: So, that is certainly my team. Building a very small, but high functioning team that has, I think, achieved some pretty amazing things this year. Also, one of the things that I really loved was how keen people were to help. I think the Ministry staff, school boards, and our suppliers have all come to the party in terms of giving us this data. No one pulled back from that. Everyone was very willing to provide us with the data, we needed to make this as accurate as possible. There was this incredible open culture across so many people to just say, 'Yep, you're doing this, this is awesome, I want to back you, I want to get behind you and I'm gonna give you what you need' and that's been incredible, because it shows that it's possible, we didn't have all the data sets we needed at the beginning of this process and we obtained a lot within a year to try to understand where our start line was.

Rebecca Robertshawe: I guess that's a good point. It sounds like the year has been information gathering, you refer to it as your start line. For me the next question is, this is the start of what? What's next in terms of actually taking this data and bringing in some reduction initiatives? What's happening?

Tracy Finlayson: Yeah, so the next step for us, which is what we're currently undertaking at the moment is a more detailed data analysis. You take your starting point, we look at our big areas, transport, construction, food and energy, and we fill in the gaps that we need to take that beyond a baseline to an emission reduction initiative. Part of that analysis, really significantly, is the marginal abatement cost curve analysis. That's basically to understand the costs and savings from different opportunities, alongside the volume of emissions that could be reduced. We want to have a comparison. This is basically where do you invest your time and money, right? How much is it going to cost? What is the potential CO2 savings from that initiative? How long is it going to take, and we're looking at multiple emission sources at once. We are looking at transport to start with, construction is underway, construction including energy, and then we hope to focus on food after that. But that more detailed analysis allows us to create emission reduction programs. From that we will be running pilot programs to test essentially the accuracy of our modelling. This starts from modelling, then we need to test whether that modelling is accurate through piloting, and then we can expand the scope of the programme from there.

Rebecca Robertshawe: One of the programmes that I think has already been talked a little bit about is the coal boiler replacement programme.

Can you talk to us about that?

Tracy Finlayson: Yes, so the coal boiler replacement programme has a target to remove all coal boilers by the end of June 2025. That is all funded and is due to be complete in 2025. They're still on target for that. Now we are currently exploring what is next for that de-carb programme. Again, it's the same analysis that we apply across everything. It will be cost benefit analysis in terms of what is the best way to do it, how effective is it and is this the right time? And over what time period do we want to be focusing on pulling out the remainder of our boilers to increase the electrification of school buildings.

Rebecca Robertshawe: Well, that's another really interesting point. We did a lot of good chatting before we hit the record button. That electrification issue is a really interesting one in terms of the lofty goals that we've got, but also the impact it's going to have on the national grid. Are you able to talk to us a little a little bit about that?

Tracy Finlayson: Yeah, what we do know is we have around 450 gas boilers, and about 90 diesel boilers, that will still be in the system following the completion of our coal boiler replacement programme. For every boiler that we replace, depending on the solution that we create, for the school, that's an increase in electrification on the grid, which is increased load on the grid, which is why nationally, we're investing in a lot of infrastructure to try and create more availability of electricity. I think that as we decarbonise and increase our electrification, there are important questions to be answered around what role schools can or should play in that space? And how can we better manage the load on the electrical grid, so that we don't have the peaks and troughs that we currently do. This is something that we're interested in exploring. It will form part of our analysis about what next for our decarb programme, and what solutions we explore for schools in terms of how schools should be heated. What we intend to do is work with the industry and work with schools to find the right mix of solutions. No one solution is right. That comes back to having 2,100 entities that are across the full spectrum of New Zealand and across a whole bunch of different geographical areas. It's a complex problem. For us, it's particularly complex, because we have roughly 18,000 buildings. Managing electrical load across 18,000 buildings is... certainly a challenge.

Rebecca Robertshawe: I imagine those 18,000 buildings are in quite a quite a variety of states of repair and not all suitable for things like solar panels?

Tracy Finlayson: Exactly right, we have to take our portfolio of buildings as they are. Our strategy will be cognisant of that, certainly. Also there are other ways to manage energy as well, in terms of insulating buildings, passive heating, there's a whole bunch of technological stuff that we can pull into this to find what is the right set of solutions? And particularly how much they cost.

Rebecca Robertshawe: What does the future look like for this programme? What is our what does our school network and energy usage look like in 10 years? What's the vision?

Tracy Finlayson: Well, I think we are still finding our vision. But certainly I've got a couple of things. Right off the bat, we want to see a shift towards active and multimodal transport to and from school, thinking about the whole part of that problem. Where we locate schools, where our students are, how do we enable more active modes? How do we enable multimodal transport? Giving more consideration to when and why we build or expand schools. That's coming back to our construction emissions. How can we effectively lower those? What is the full spectrum of options available to us? Where are our opportunities to build less, build smarter, heat and operate our buildings more efficiently, extend the life of our buildings, and also repurpose them at the end of their life. All of these things exist at the moment. It's just how do we how do we align this with our asset management strategy? How do we align this with the goals of schools and the education system? And work together to find a better way to do it?

Rebecca Robertshawe: Does this connect with alternate models of teaching as well, and I appreciate that is somewhat out of the infrastructure area, but you know, this presumably really connects into the ideas around you know, more virtual teaching spaces, you know, post COVID-19, we talk in a different way, but it impacts what we're building and how we're using our buildings. Is there thinking going on in that space as well?

Tracy Finlayson: Yes. I think that there's thinking going on at every level of that conversation, including how we deliver education, and whether that needs to change. I think that it's certainly

up for discussion, something to consider and something to work with schools to decide the best way to deliver education and reduce emissions while we do it.

Rebecca Robertshawe: The school lunch programme gets a lot of a lot of press in respect of the demand there. But you mentioned that a few times in terms of that being quite a high emitter and that you're also working with suppliers around changes to that programme. That's an active issue?

Tracy Finlayson: Yes and look, we've got a fantastic team for our school lunches programme, which has been really dedicated to lowering waste in our school lunches programme and working with suppliers to work out ways to better manage waste, and repurpose food that isn't being eaten at the school. I think there's some great programs that are going on there that are run through that team that are already in place. What we were working on with our suppliers was to understand between the different suppliers what their individual carbon footprints were and aggregating that to a total for us to understand what our per meal carbon footprint was for the school lunches programme. What we want to understand is across the supply chain for our food suppliers is where are our opportunities? Again, this is a collaborative effort with our suppliers, we want to work with them to find opportunities. We were really impressed with how many of our suppliers are interested in the same thing. I think this is something that lots of different industries are grappling with and everyone is looking for solutions. We found that people were really willing to work with us to get into this space where we can try and find them together, and work out what our options are. That is continuing.

Rebecca Robertshawe: In general, do you think there's plenty of appetite within the market in the private sector to assist the government in the space?

Tracy Finlayson: Yes, that's what I've seen. I think that it's coming to them both privately and publicly. I think people are moving into a space where they know they need to do something. If you can have good partners to help you work out what that looks like. That's a benefit to everybody.

Rebecca Robertshawe: I know you've spent a little bit of time visiting a variety of schools around the country. I know you've made an effort not to not to fly around the country doing so, but you have visited some schools, is there a particular school or an initiative that a school is rolling out in the space that you can talk to us about? One that caught your eye?

Tracy Finlayson: I don't have a particular school. I think that there are lots of schools who are working in this space that are interested, like our suppliers, in in finding solutions, and finding partners to find solutions, in this space. I think that the role that schools have played is a lot broader than simply CO2 or emission reduction, which is just a subset of understanding your environment and how they're engaging kids in their environment. I've been really impressed by a lot of programmes that schools are running to do both, not just to reduce their impact in a variety of different ways across these different emission sources, particularly in transport. There are a lot of active transport programmes out there and also in waste. Reducing waste at the school site, and composting, all of that stuff is already underway in schools. I think what we're adding to the picture is giving an opportunity for students to look at this through the lens of CO2, how it is recorded and tracked, and the individual impact that schools can have on reducing our overall number.

Rebecca Robertshawe: Tracy, thank you for your time. Maybe we'll have you back in a year and see how it's tracking. Thanks so much.

Tracy Finlayson: Sounds good.

Narrator: Thanks for listening. Find out more about the work Te Waihanga is doing to transform Aotearoa at **tewaihanga.govt.nz**