Lindsay Hunter: Welcome to Manitoba Hydro's information session on our modelling process that we're using to support our 2023 Integrated Resource Plan or IRP development. In addition to what we've heard in our engagement, there's one more topic I want to review before handing the presentation over to Ryan to get into the initial modeling process, and that is energy use in Manitoba today. We are using modelling for the IRP to understand the potential energy futures being driven by the evolving energy landscape. But to understand how the energy landscape can evolve in Manitoba, it can be helpful to understand our current energy landscape, how energy is currently used in this province, and how Manitoba Hydro and the energy we provide fits into this larger picture.

The electricity and natural gas supplied by Manitoba Hydro contributes to just over 50% of the total energy used in Manitoba. The remaining energy used is mainly refined petroleum products, which are generally used to fuel vehicles. Decarbonization is one of the main forces driving the evolving energy landscape. As part of our work to understand the potential energy futures, the IRP scenarios are looking at various levels of decarbonization, generally through electrification of other energy sources. The scale of this potential change can be seen in the graph above. Overall, the existing electricity supply and delivery system accounts for only 24% of the energy used in the province. If other fuels for transportation and uses of natural gas are decarbonized through electrification, this would result in a significant increase in electricity use as compared to what we see today.

It is also important to understand sources of GHG emissions in Manitoba because some of these sources could change based on future energy choices. As you can see on this chart, GHG emissions are separated into four categories, stationary combustion, transportation, generation, and other. Manitoba Hydro can directly impact three of these categories by supporting decarbonization efforts. First in the orange segment, stationary combustion emissions. These emissions include those from space heating as well as industrial process uses. Second, as shown in yellow, transportation emissions, moving from internal combustion engines to electric vehicles will directly impact electricity needs and future emissions. Finally, the skinny segment are the current emissions from electricity generation, which is another form of stationary combustion. Differences in fuel sources may impact future emissions. The other category refers to the emissions that Manitoba Hydro cannot impact. These are generally GHG emissions from processes related to agricultural production and are not energy dependent.

Another important aspect of energy use in Manitoba is the variability in the demand for electricity. Electricity demand varies significantly by season, day of the week, and time of day. This graph demonstrates the seasonal variation of Manitoba's electrical use. As you can see, we are a winter peaking province, meaning we have the most demand for electricity in the winter. That probably comes as no surprise. There are also daily variations in electricity demand between weekdays and weekends as well as throughout the day. This demand can vary by as much as 30% in a single day. You can see this in the peaks and

valleys overlaying the seasonal demand line. This variation needs to be considered in our planning so customers are supplied with electricity when they require it. Just like electricity, natural gas demand in Manitoba has a lot of variability. As this graph shows, natural gas demand in Manitoba is extremely weather-sensitive and very seasonal, mostly due to Manitoba's winter heating needs. Industrial use is also part of the total gas demand. This load is more constant throughout the year.

If we compare the peak demand for both natural gas in green and electricity in blue, we can see that Manitoba's peak natural gas demand when converted to an electrical equivalent is much higher compared to the peak electricity demand. If you consider decarbonization through electrification, you can start to see that electrifying this peak natural gas demand could have a significant impact on overall electricity demand in Manitoba, particularly because of the fact that both natural gas and electricity demand peak in winter. To explain this with specifics, two years ago, peak electrical demand in Manitoba was approximately 4,900 megawatts. During that winter, the natural gas hourly peak demand in Manitoba was the electrical equivalent of more than 7,000 megawatts. To serve this demand exclusively with electricity, Manitoba Hydro would have to more than double the size of our current electricity system. This is shown in the difference between the yellow total bar and the blue electricity bar. This leads me to my final point, Manitoba Hydro's role in Manitoba's energy landscape.

Simply put, Manitoba Hydro's role is to provide reliable electricity and natural gas to Manitobans at the lowest possible cost. This means we must aim to provide electricity regardless of time of day, season, or weather condition, and over a range of water conditions including severe drought. We cannot just consider the average, we must plan for the extremes. The energy landscape is evolving and this is increasing uncertainty and the pace of change. Developing an integrated resource plan and doing the modeling and analysis that is part of that process will help us ensure we can continue fulfilling our role.