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Hello everyone. My name is Lindsay Melvin, and I am the Manager of the Integrated Resource Planning Policy and Coordination Department at Manitoba Hydro. The introduction to integrated resource planning video provided background on key inputs and scenarios and their role in the Integrated Resource Plan process. Today, I am going to be speaking about the scenarios proposed for discussion as part of developing the integrated resource plan. [00:00:30] You can also check out our separate video on proposed inputs.

The following presents are proposed scenarios. These scenarios were reviewed in Manitoba Hydro's phase two engagement. A scenario is a combination of inputs resulting in a specific energy future. Scenarios build upon the inputs. For today's presentation I'll first provide some background and context for why we are looking at scenarios [00:01:00] and how we develop scenarios and then share the proposed scenarios.

Developing scenarios is helpful to describe the future. We look at scenarios because our energy landscape is changing and we need to prepare for the future. We've discussed several key inputs and factors that influence the energy landscape. Policy is one example of a consideration. Given the inputs and factors could have varying possibilities, [00:01:30] we want to figure out what those possibilities might be and use a logical grouping of specific inputs to describe a future.

Given the inputs can have multiple possibilities, we will look at multiple scenarios. From there, analyzing scenarios allows us to see what the potential implications of the proposed futures might be. We want to look at a range of scenarios so that we can [00:02:00] learn what the range of potential implications might be. Then we can start to plan what we should do to be prepared for the future. Scenarios ask us to think about the range of possibilities. Scenarios are very different from a forecast or figuring out which future is likely to occur. Today, we will be presenting four proposed scenarios, all of which have the potential to become the future in Manitoba, either individually or as a combination. You [00:02:30] are going to see four potential scenarios today. To develop the scenarios, we first set the objective of identifying a reasonable range of futures for Manitoba. We are not aiming to identify and analyze every possible future for Manitoba.

We are aiming to have a group of scenarios that together represent a reasonable range of what the energy future might look like in Manitoba. Inputs can vary due to the timing and pace of change for various factors [00:03:00] impacting that input. Therefore, we attempted to characterize what that pace of change may look like and have developed four distinct characterizations of change: slow change, modest change, steady change, and accelerated change. As mentioned in the definition of a scenario, a scenario is a combination of inputs. Therefore, we did our best to group specific inputs that together describe a likely future. [00:03:30] Let's look at those inputs and the scenarios now. This table shows a summary of four proposed scenarios which were

discussed as part of phase two engagement. The four scenarios are based on the potential rates of change, slow, modest, steady, and accelerated. These scenarios are also based on the biggest influencers in Manitoba's evolving energy landscape presented in the introductory video, decarbonization [00:04:00] and decentralization.

We looked at what the rate of change might be for decarbonization and decentralization in Manitoba and developed likely combinations of the two. We also looked at each of the key inputs and attempted to identify how much change is happening for each of those inputs for each scenario. We see the inputs and scenario descriptors as working together. Scenario [00:04:30] one, slow decarbonization and slow decentralization represents our slowest rate of change. There is still some change, but it is slow compared to the other scenarios. If we jump to scenario four, we are now at the opposite end of the spectrum from slow change. Scenario four proposes that we have accelerated decarbonization and steady decentralization. Scenarios one and four are essentially bookends. Each scenario [00:05:00] in between represents an incremental difference in the amount of change happening in the landscape.

Scenario two proposes modest decarbonization and modest decentralization. Scenario three proposes steady decarbonization and modest decentralization. Scenarios allow us to have a structured view of the future. Each scenario would be developed relative to one another. Another way of looking at the scenarios [00:05:30] is that each scenario is a bucket of likely grouping of inputs. We need to have this scenario described in this format so that we can then develop what the specific inputs will be for each scenario. Scenarios are what guide us in developing the specific inputs that should be modeled and evaluated together. Let's now look at each scenario individually.

Scenario one is proposed as slow decarbonization and slow [00:06:00] decentralization. This does not mean that our expectations for energy, supply, and delivery do not change. It just means it has a relatively slower rate of change. In this scenario, economic growth is likely slower. The implementation of decarbonization policy could be slower for various reasons.

Sometimes targets and policies can have unforeseen implementation challenges. There would be continued adoption of electric vehicles, but the rate of adoption is not as much. [00:06:30] Potential causes could be lack of incentives or the availability of electric vehicles and the necessary infrastructure. Natural gas would continue to be used with limited customers choosing to switch from natural gas to electricity. Similarly, there would be limited uptake of customer self-generation due to the varying factors discussed such as available technology and cost.

Scenario two proposes a step change from scenario one with modest [00:07:00] decarbonization and modest decentralization. An increase in the amount of change from scenario one could be realized through economic growth and an

increased prioritization on climate policy. However, climate policy is one of several policy priorities in this scenario.

Customers are starting to switch to zero emission vehicles, especially for light duty or the passenger vehicles. There would now be a change in the rate of growth for natural gas [00:07:30] usage. And we would start to see the introduction of low carbon alternatives. Customer self-generation is still seen as having some challenges for large uptake, likely due to economics.

Scenario three proposes, steady decarbonization and modest decentralization. Economic growth and self-generation are comparable to scenario two. The amount of change for decarbonization policy, electric vehicles, and natural gas increases relative [00:08:00] to scenario two. In this scenario, decarbonization policy is a priority. This could influence the uptake in electric vehicles. And in this scenario, we proposed uptake in medium duty vehicles in addition to light duty vehicles. We start to see a reduction in natural gas as an end use fuel and alternatives such as renewable natural gas and hydrogen are starting to play a role.

Scenario four describes a future for Manitoba with a significant [00:08:30] amount of change in the energy landscape. Decarbonization is accelerated due to a variety of reasons and is accompanied by steady decentralization. All inputs have an increase in the amount of change relative to scenario three. And in this scenario economic growth is such that new load is attracted to Manitoba. Decarbonization policy is a key focus and priority, which would result in stringent targets for greenhouse gas reductions. This scenario would see [00:09:00] the highest number of switching to electric vehicles for all vehicle types and the role of natural gas and its infrastructure changes significantly. Given the significant move towards decarbonization, there is increased use of renewable natural gas and hydrogen specifically for some sectors, which may be more difficult to decarbonize. Customer self-generation becomes cost effective and is likely present in forms such as solar.

This concludes [00:09:30] our discussion on proposed scenarios. The scenarios are intended to represent a range of futures that could come to be in Manitoba. This combination of scenarios is proposed to provide an overall range of potential energy futures in Manitoba, for which Manitoba Hydro's should be planning. The scenarios have a range of the timing and pace of change for decarbonization and decentralization. And they are built based on describing a likely combination of inputs [00:10:00] that align with each scenario. Thanks for joining us in this important step in developing the integrated resource plan.