2025 Integrated Resource Plan

July Information Session – Video Transcript

0:03
Hello and welcome to this recording of the project information session for the 2025 Integrated Resource Plan.

0:10
My name is Ryan Siegel and I'm a community consultant with Urban Systems supporting Manitoba Hydro on the engagement for the 2025 Integrated Resource Plan.

0:19
Before we begin, I'd like to invite Lindsay Melvin to provide a land acknowledgement to honor the traditional territories we are joining together on.

0:30
Manitoba Hydro has a presence right across Manitoba on Treaty 1, Treaty 2, Treaty 3, Treaty 4 and Treaty 5 lands, the original territories of the Anishinaabe, Anishininew, Cree, Dakota, and Dene peoples, and the national homeland of the Red River Métis.

0:50
We also acknowledge the ancestral lands of the Inuit in northern Manitoba.

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We acknowledge these lands and pay our respects to the ancestors of these territories.

1:00
The legacy of the past remains a strong influence of Manitoba Hydro's relationships with Indigenous communities today, and we remain committed to establishing and maintaining strong mutually beneficial relationships with Indigenous communities.

1:19
Thank you, Lindsay.

1:21
I'd like to take a moment to introduce our presenters for this session, Lindsay Melvin, Director of the IRP Division; Lindsay Hunter, Manager of the IRP Policy and Coordination Department; Mike Shaw, Head of Manitoba Hydro's Greenhouse Gas Expertise Section; and Andrea Ruth, Technical Lead for Capacity Expansion Planning.

1:43
We'll start the session with an overview of the 2025 integrated Resource Plan and an update from round one engagement.

1:50
Most of the session we'll look at two key findings for modelling and analysis, and then we'll wrap up with a summary of next steps.

1:59
Today's session is intended to provide an interim update of where we are in the development process, to share two key findings from our modeling and analysis and how these will contribute to the formulation of potential development plans, and to share the next steps in the process.

2:16
To start, Lindsay Hunter will set the stage for the session with an overview of where Manitoba Hydro is in the 2025 IRP development process.

2:28
Thank you, Ryan.

2:29
My name is Lindsay Hunter and I am the Department Manager for Integrated Resource Planning Policy and Coordination here at Manitoba Hydro.

2:38
I'm going to start with a quick overview of the 2025 Integrated Resource Plan and where we are in the development process.

2:45
First, it is helpful to understand what an IRP actually is.

2:49
It is a repeatable utility best practice that plans for how to serve customers long term needs.

2:56
To do this, it incorporates evolving energy policies from all levels of government.

3:01
It considers all energy supply and grid delivery infrastructure including natural gas, electricity generation, transmission, distribution, non Manitoba Hydro assets as well as Efficiency Manitoba programming.

3:17
The 2025 IRP itself includes analysis that extends to 2050 and will result in a road map which will include a recommended development plan of 10 years.

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The goal of the 2025 IRP is to arrive at a balanced recommended development plan that considers the many priorities of the energy future.

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It will be a 10 year plan that: meets Manitoba's future energy needs.

3:44
Balances factors that are important to Manitobans. We've heard over the last few years that these factors include reliability, cost, environmental and socio economic impacts.

3:57
The plan will also provide flexibility for meeting load growth, and it considers risk to new and existing supply, so it can perform well under changing circumstances.

4:08
And finally, there is a plan that will align with our new energy policy, Manitoba's Affordable Energy Plan.

4:16
With that in mind, let's take a closer look at where we are currently in the process.

4:22
The development process for the 2025 IRP consists of five steps.

4:27
We completed Step 2 in Fall of 2024 and are currently working to complete the third step of modeling analysis and evaluations.

4:36
After we are done this, our next steps include working towards a draft recommended development plan to be shared in round two engagement which is planned for Fall of 2025.

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On this slide, we are showing a breakdown of the second and third steps in our development process.

4:54
In round one engagement in the fall of 2024, we reviewed the draft 2025 IRP key inputs and scenarios and introduced the evaluation metrics.

5:05
In our next section of this presentation, I will review how the feedback heard through this engagement was incorporated into the 2025 IRP to finalize the key inputs and scenarios.

5:19
Since this fall, we have been working on the modelling and analysis and today's conversation will provide an interim update to share some key findings.

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One thing we have experienced is the modelling and analysis is taking more time than expected.

5:34
After this fall engagement session.

5:36
We had committed to presenting a draft recommended development plan this spring, but we're not quite there yet.

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Creating a development plan is a very complex process and any plan we recommend needs to reflect many different considerations.

5:51
To do this properly takes time, more time than we had thought when we committed to sharing the development plan this spring.

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For that reason, we are taking some additional time to complete a more fulsome evaluation and review process prior to shortlisting and making a recommendation.

6:10
Now I will spend some time reviewing the feedback that we've heard from a round one engagement and how we've incorporated this into the 2025 IRP.

6:22
An important aspect of an IRP is the engagement feedback received and how that informs the development of the IRP.

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Last fall, we sought feedback through our round one engagement.

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We had great participation and a lot of really good feedback was heard and we asked for this feedback from a number of different audiences.

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Our customer survey had 6800 responses with a variety of customer perspectives from across Manitoba.

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We also share communication through our subscriber list.

6:54
The list grew by about 1500 people, so people are showing an interest of following along and participating in the process.

7:02
We interviewed customers to understand their future energy needs to make sure that the 2025 IRP reflected these in our study.

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There were four virtual workshops, much like we are doing today, where interested parties could share feedback and engage in dialogue.

7:18
And new to the 2025 IRP is the Technical Advisory Committee.

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The Technical Advisory Committee is a group of people and organizations who are active participants in energy planning and have committed to sharing their expertise and feedback in more detail during the development of the 2025 IRP.

7:37
If you would like to know more, there is a section on our website with the committee's presentations and meeting notes.

7:44
If you would like to know what kinds of feedback we heard during round one engagement and how it was used, there's a full summary on our web page.

7:53
One of the areas of focus we sought feedback on during the fall was the drafted key inputs and scenarios.

8:00
A few themes emerged from the feedback.

8:03
The first was to understand how electricity demands might change in a future where the goal was absolute zero emissions.

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While the proposed analysis of the 2025 IRP included net zero by 2050 economy futures, we heard that it should also considered what is required to go beyond net zero and achieve absolute zero emissions from the transportation and space heating sectors.

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This analysis was added to the 2025 IRP.

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The second key theme of feedback was centered around assumptions proposed for policies that restricted fuel based electricity generation resources and that these assumptions did not reflect realistic policy and would overly restrict the analysis.

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These assumptions were adjusted based on these feedback.

8:53
We also had a lot of discussion and feedback around assumptions related to economic development impacts and the reliance on negative emissions technology in the analysis, such as direct air capture to meet net zero objectives.

9:08
We reviewed the analysis based on this feedback to ensure that it adequately captured economic development impacts.

9:15
We also planned additional analysis to test and ensure that the assumptions made related to negative emissions technology around 2050 would not have an impact on the decision that needed to be made in this IRP.

9:30
In addition to these key themes heard, the feedback also confirmed the proposed 3 load projections and the 8 scenarios.

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The second area of focus we sought feedback on during the fall was on the evaluation metrics.

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The summary of engagement feedback on our website includes a more fulsome account of engagement on the evaluation metrics.

9:53
Overall, we heard that the appropriate evaluation themes and metrics were included.

9:58
Some key pieces of feedback that we did hear, which are being incorporated into our work include the importance of considering reconciliation efforts in the IRP development, including acknowledgement of past and current impacts in the evaluation metrics.

10:13
We also heard that a focus on economic reconciliation is appropriate when considering and evaluating potential development plan opportunities and perhaps should be its own theme.

10:25
We heard consistently through all of our audiences that reliability was the most important factor for energy planning.

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We still chose to weight the metrics equally when using the themes and metrics to evaluate the trade-offs between potential development plans.

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We also heard a lot of feedback to make the descriptions of the evaluation metrics clearer.

10:46
We also heard some feedback that was not specific to the IRP or cannot be included in the 2025 IRP.

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Where we can consider this feedback in other ongoing energy planning or future IRPS, it has been shared with other relevant teams at Manitoba Hydro.

11:04
One example is that geographic or regional differences should be considered. Because the IRP considers all of Manitoba's needs,

11:12
this type of analysis is best done outside of an IRP.

11:16
We also heard from many communities that system reliability and enhancement to minimize outages are important.

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Another example heard was the expressed need from communities for more energy related information and resources.

11:31
Now that we have reviewed the feedback heard in round one engagement and how it helped to finalize our key inputs and scenarios, I will pass the presentation along to Mike Shaw who will start us off by explaining our two key findings from the modelling and analysis.

11:47
Thank you, Lindsay.

11:48
Hi, everyone.

11:49
I'm Michael Shaw, the head of our Greenhouse Gas Expertise section here at Manitoba Hydro.

11:55
Along with my colleagues Andrea and Lindsay, we will share on two key findings that will guide the formulation and evaluation of potential development plans.

12:05
First, we'll share more detail about the six feasible resource options that show the most promise for meeting demand in the next 10 years, which is our development plan time frame.

12:15
We'll look at the advantages and key limitations of each of these options and we'll clarify why they're available for inclusion in potential development plans.

12:24
We'll also look at the advantages and limitations of the other options that aren't considered available in the 10-year timeframe but may be available after 2035.

12:34
Secondly, we'll discuss how we are working to narrow our focus as we look closely at the next 10 years.

12:41
Taken together, the range of load projection studied in this IRP result in a really broad range over the next 10 years, nearly a 2000 MW difference between the highest and lowest projections by 2035.

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As a point of reference, Manitoba's peak load is currently 4700 megawatts, So for Manitoba, 2000 megawatts is quite a bit.

13:03
So to create a development plan, we need to understand what level of build allows us the flexibility to best serve a reasonable range of loads.

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To do this, we are narrowing the range of load projection uncertainty we're planning for by setting a minimum build out target.

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This will help us ensure we're not planning to build too much or too little.

13:24
We will also include a risk margin to ensure there's flexibility to consider evolving policy, marketing conditions and other circumstances.

13:35
First, let's take a quick step back before beginning our discussion of the six feasible resource options.

13:43
We'll start with a review of all the resource options we currently have in our model, which are shown in this figure.

13:49
And even though it is not currently an option in our model, we've also included long term batteries on the list as it's a conceptual resource that we'll discuss later on.

13:59
Each resource option has its own unique set of characteristics in the model and this includes cost, greenhouse gas, emission rates, dispatch ability, maturity, and the earliest time to in service.

14:12
Since the development time frame is 10 years, the earliest time to in service is a key characteristic.

14:18
Some options have an in service date after the 10 year time frame and therefore cannot be included in potential development plans.

14:26
In the figure, the resource options have been categorized based on some of these characteristics.

14:31
Resource options shown in blue are dispatchable and mature.

14:36
Options shown in green or intermittent and mature, and those shown in orange are dispatchable and emerging, typically with assumed earliest in service dates beyond the next 10 years.

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While this slide highlights individual resources and how their characteristics vary, it's also important to consider how different sets of characteristics can complement each other and help resources work together in the system.

15:01
For example, pairing a variable energy resource like wind with a dispatchable capacity resource option such as a combustion turbine can ensure that we are reliably supplying customer demand.

15:16
Over the course of the 2025 IRP’s modelling and analysis work, we have confirmed 6 feasible resource options that can be used in a 10-year development plan.

15:25
These resource options include efficiency Manitoba's based plan, additional energy efficiency programs along with demand response and curtailable rate programs, wind, utility scale battery

storage, enhancements to our existing hydropower system, and combustion turbines supplied by our Centra Gas system.

15:47
These are the six feasible resource options that will be used to formulate the potential development plans.

15:53
And as you can see, all six of these resource options are mature technologies.

16:00
Once we move beyond the 10 year development plan time frame, there are other options that could potentially become feasible for meeting growing demand.

16:09
These resources are highlighted on this slide.

16:12
In the near term, these resources are not considered feasible since they are either still emerging, have unreliable or uncertain fuel supplies, have earliest in service states that are too late to help meet our near term needs, or they just aren't a good match for a system.

16:30
We'll start by getting into more detail on the resources that are not considered feasible to 2035.

16:38
Let's start with new hydropower options.

16:41
Hydropower resources offer several advantages, including a very long useful service life which can be over 70 years.

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They're also a source of dispatchable capacity for a system, and their associated reservoirs can provide some energy storage that lets us shift generation to times when we need it most, hour to hour, day-to-day, and sometimes season to season.

17:04
However, new hydropower is not considered a feasible resource option for the 10 year development plan due to its long lead times.

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These options won't be ready when we need them.

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Most of our new hydropower options cannot be in service until the late 2030’s to 2040’s.

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Hydropower also has high upfront capital costs and is not economically competitive with other options.

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Next up is solar, a resource that is being built more and more throughout North America.

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Solar costs, which have already dropped considerably over the last couple decades, are projected to decline out into the future as well, and there are no associated fuel costs.

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Additionally, utility scale solar is generally low maintenance and new solar installations can be strategically located near transmission or load centres.

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Solar is also scalable, meaning that amounts added to the system can be well matched to low growth.

18:03
You don't have to build solar in large chunks, but solar is not included in the 10 year development plan because it provides 0 accredited winter capacity in Manitoba, which is what our system needs.

18:15
Solar's energy production profile is poorly matched with Manitoba demand, as shown in this figure.

18:21
The blue line indicates Manitoba Hydro's hourly demand profile for the winter, while the orange bars show the generation profile of solar.

18:30
As you can see, demand peaks in the morning around 8:00 AM and in the evening towards 6:00 PM when it's dark and there's no solar generation occurring.

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Solar also produces much more energy in the summer than the winter.

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Conversely, Manitobans use more energy in the winter than in the summer.

18:49
In many other regions in North America, the opposite is true and solar is a better fit.

18:56
Now we'll look at nuclear small modular reactors or SMRs.

18:58
SMRs could potentially provide reliable base loaded power for our system.

19:06
However, SMRs are not considered feasible for a 10-year development plan because they cannot feasibly be in service in Manitoba within the next 10 years.

19:16
There are currently no operational examples in Canada and uncertainty around regulatory requirements and technology maturity also translates into assumed long lead times for SMRs. SMRs also have a high upfront capital cost and are not economically competitive with other options.

19:36
Utility-scale long duration battery storage is also not a feasible option for our 10-year development plans.

19:43
The long duration storage option referred to here assumes seasonal storage, which reflects the needs of our system.

19:51
This requires a duration of 100 hours or more as compared to short term storage which generally assumes 10 hours or less.

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Not only is this resource option not considered feasible in the near term.

20:03
It was also not directly included in our modelling as there's still a lot of uncertainty around this technology and other long duration energy storage options.

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Right now, this is more of a concept than a resource option.

20:16
The potential advantages of long duration battery storage include that it's a dispatchable source of capacity with high modularity.

20:23
This means it could be built in smaller sizes, which allows it to be cited strategically within our system.

20:30
It's dispatchability also makes it useful for helping to integrate variable resources like wind into the system.

20:37
However, as mentioned, long duration battery storage currently isn't considered a feasible resource for the potential development plans. With present day technology it's a very high-cost capacity option, with costs increasing with duration.

20:52
And more importantly, other emerging storage technologies could be more appropriate for seasonal energy storage for our system, for example, thermal and compressed air energy storage systems.

21:03
Lastly, batteries also have shorter asset lives than other available resource options.

21:10
Finally, we have alternatively fueled turbines and technologies.

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This category includes a number of different combustion turbine types, including biomass fueled steam turbines, biomass fueled steam turbines with carbon capture, natural gas fueled combustion turbines with carbon capture, biodiesel fueled combustion turbines, and hydrogen fueled combustion turbines.

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Because all of these options are turbines and operate on fuel, they all have the advantage of providing dispatchable capacity and some of these options can provide dispatchable capacity without operating very much or by burning very much fuel.

21:47
However, these turbine options are not feasible for our 10-year development plans, for most of these options that's primarily because of the limitations and uncertainty around their fuel supplies.

21:59
While alternative fuels are starting to become available, it is not expected that within the next 10 years they will be dependably available in sufficient volumes in Manitoba to meet the reliability needs of our electricity system.

22:14
While we could potentially start to use these fuels over the next 10 years.

22:18
Their use would need to be backed up by a reliable fuel like natural gas.

22:23
It's possible we can use them, but we can't yet assume we can rely on them 100% of the time.

22:30

Additionally, these resource options either have technology or fuel supply components that are considered emerging.

22:37
For example, 100% hydrogen fuel turbines are not currently commercially available in the market for purchase.

22:44
However in the future this technology is anticipated to be available.

22:50
Combustion turbine vendors have communicated that first of their kind fully hydrogen ready turbines capable of operating on a 100% hydrogen are likely to appear in the early 2030's. Once both standard combustion turbine technology becomes fully hydrogen-ready, and a reliable hydrogen fuel supply is established.

23:12
It is likely that with additional investment, partially hydrogen ready turbines can be converted to fully hydrogen ready combustion turbines. For evaluation purposes, we currently estimate that this could happen as early as 2035.

23:28
As another example, while both biomass turbines and industrial carbon capture exist, the combination of these technologies is still in the demonstration stage of technological development.

23:41
I will now pass it over to Andrea to talk about the resources that are available to 2035.

23:49
Hello.

23:49
My name is Andrea Ruth and I am the Capacity Expansion Planning Technical Lead in the Energy Resource Planning department at Manitoba Hydro.

23:58
So now we're going to move on from discussing what we haven't included to get into a little bit more detail on the resource options that are the most promising for our 10-year development plans out to 2035.

24:12
As already introduced, the six feasible resource options that we've confirmed for our 10 year development plans are efficiency Manitoba's base plan, additional energy efficiency programs, demand response and curtailable rates programs, wind enhancements to existing hydropower facilities, short duration batteries and combustion turbines supplied by our central gas system.

24:39
These resource options have a few things in common.

24:42
They can be implemented within the 10 year development plan time frame.

24:46
They are able to reliably meet our energy and capacity needs, and they are proven technologies that have reliable fuel sources available in the near term.

24:57
You'll note that most of these options are also dispatchable, with wind being the only option characterized as intermittent.

25:04
This is not surprising as the key need for our system as load grows will be dispatchable capacity.

25:13
So the first feasible resource option we'll look at is the Efficiency Manitoba based plan.

25:19
Projected energy savings are based on Efficiency Manitoba's 2025 to 2028 analysis, extended out to 2050.

25:29
The Efficiency Manitoba Act requires Efficiency Manitoba to achieve both electrical and natural gas energy savings targets. So, some of the advantages of this resource option include that it can support economic development through the involvement of local businesses and the creation of jobs in Manitoba.

25:49
The programs included in the base plan can be comparatively low cost and can also be quicker to put into service than some of the other utility scale infrastructure options.

26:01
And many of the programs and technologies in the plan are also mature and so have the benefit of less uncertainty around cost, performance and availability than emerging technologies.

26:13
On the other hand, there are some limitations associated with the base plan.

26:18
Realizing the capacity and energy savings assumed in the plan means relying on customer commitment and program uptake, and this introduces a new source of uncertainty around the achievability of the assumed adoption rates and program savings.

26:34
This is also a resource with limited market potential.

26:38
Tying to back to what we heard during engagement, we know that Manitobans want to be involved in how we meet future demand.

26:46
Specifically, we heard that residential customers are interested in tracking and managing their own energy use and that there is increasing interest in energy storage and heat pumps, and that community energy goals are including a focus on self generation opportunities such as energy storage and energy efficiency upgrades.

27:08
This next category of feasible resources includes additional energy efficiency above and beyond what is included in Efficiency Manitoba's base plan, as well as demand response and curtailable rates programs.

27:22
Efficiency Manitoba's plan mostly focuses on energy savings, with capacity savings typically being a side benefit.

27:30
So there are opportunities via demand response to achieve additional capacity savings, which helps address a key need for our system.

27:40
Beyond capacity focused programs, some of the additional energy efficiency programming that's considered includes home insulation, home and building heating technologies, heat pumps and custom energy solutions for industrial applications.

27:55
These programs can be cost effective ways to add supply compared to other resource options and they can also have shorter implementation time frames.

28:05
These options may be helpful in meeting our near term demands that can occur before other resource options are available.

28:13
There is also a high potential for broader benefits to Manitoba's economy, including potential for economic reconciliation.

28:21
On the limitation side, some potential additional energy efficiency programs are untested and we are

relying on market potential studies to inform our assumptions, including defining limitations on their market potential.

28:35
Just like Efficiency Manitoba's base plan, these programs depend on voluntary customer participation, which also creates uncertainty around the achievability of the program savings.

28:48
Finally, there is an added uncertainty related to launching new programming along with the potential for delays in realizing any anticipated program savings.

29:01
Now we'll take a closer look at ground source heat pumps, which show potential but still have significant challenges to overcome before large scale installations are considered feasible.

29:12
To date, Manitoba Hydro has been working with Efficiency Manitoba and a third party consultant to get a better understanding of both large scale and individual ground source heat pump installations.

29:26
Preliminary findings are telling us that large scale district installations are not feasible or economic in the near term.

29:34
However, they may be competitive in the long term when compared to higher cost resources with longer lead times.

29:42
Manitoba Hydro is continuing to study district ground source heat pump systems and is looking into potential small scale pilot projects, including through existing energy efficiency programs.

29:54
This work is in line with the feedback that we have gathered, which tells us that there is interest in both individual and district installation options.

30:04
We are exploring how we can support district installations while also evaluating ground source heat pumps alongside other resource options in our planning.

30:15
The next feasible resource option that we'll talk about is wind.

30:19
Wind has several advantages.

30:21
It's a lower cost energy resource and it has no fuel costs.

30:26
Wind also has a relatively short construction timeline with good potential for scaling, and it can be cited strategically within the system.

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And there are partnership opportunities that could support economic reconciliation with Indigenous nations.

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You can find more information on this by clicking on the provided link which gives details on the call for power issued by Manitoba Hydro for up to 600 megawatts of majority owned Indigenous wind as announced in Manitoba's Affordable Energy Plan.

30:57
An important limitation of wind is that most of the capacity installed will not result in accredited capacity, something that we expect to be short of in the next 5 to 10 years.

31:09
New wind in our system is accredited anywhere from zero to 20%, with the first new additions at 20%, then moving towards 0% as we add more wind.

31:20
It's also important to note that wind availability can be affected by both cold weather and wildlife mitigation requirements.

31:28
While wind can be cited strategically, locations in Manitoba which are less optimal when considering existing transmission infrastructure will be more costly and take longer to build.

31:40
Also, some locations may need to be avoided due to wildlife concerns.

31:45
Connecting back to the feedback we've heard, we know that there is a high level of interest in developing wind energy.

31:54
Next, we have utility scale short term battery storage.

31:58
Advantages associated with short term batteries include that they provide dispatchable capacity, that they're highly modular making them scalable so that the amount added to the system can be

matched to our needs and they can be cited strategically, and they're helpful for integrating variable resources like wind into our system.

32:18
However, batteries are a high cost source of capacity that come with a shorter asset life than other feasible resource options.

32:27
They also have a finite ability to reduce our peak demand, which is based on Manitoba's hourly demand profile and the ability to charge and discharge the battery daily during a multi-day peak event, such as a winter cold snap.

32:41
We assume that the maximum amount of short term batteries that can effectively be connected to our system is around 350 megawatts.

32:50
Beyond that, longer term storage options, which are typically more costly, would be required.

32:56
Batteries also reduce the system's accredited energy due to inefficiencies during charging and discharging.

33:03
Batteries use up energy on an annual basis.

33:06
This is similar to how hydrogen combustion turbines would function.

33:10
Both technologies are net consumers of electricity.

33:14
While batteries are helpful for meeting peak demand when the energy is available to be shifted, they are often much less helpful during times of energy scarcity, like during a drought or an extended winter cold snap.

33:28
Now we'll focus on enhancements to existing hydropower facilities.

33:32
Advantages of these types of projects include that some of these projects can be cost effective.

33:38
It can make financial sense to enhance what we already have.

33:42
That hydropower itself is a very mature technology that we're comfortable and familiar with at Manitoba Hydro.

33:48
That enhancement projects add valuable accredited winter capacity to our existing system.

33:55
And because enhancement projects reuse existing sites, there is no new footprint which keeps incremental environmental impacts quite small.

34:05
Limitations associated with enhancement projects include that they take time to implement and in some cases they would not be in service to meet capacity needs in 2030.

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In undertaking these projects, we also often have to take existing units offline and need to plan for that reduction in our overall system capacity.

34:25
There can also be no gain in dependable energy from these projects.

34:29
Similar to batteries, they're often capacity only.

34:33
Another key limitation of this resource is that we have a limited number of potential enhancement projects available.

34:39
There's a limited amount of megawatts that can be effectively added to our system through enhancements.

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Linking back to what we've heard, feedback has indicated that it's important for us to focus on replacing our aging infrastructure while we build to accommodate future growth and development.

34:57
Finally, we have natural gas fuel combustion turbines, which are also capable of operating on biomethane, biodiesel and even some hydrogen.

35:08
One of the most important advantages of natural gas combustion turbines is that they can be in service and relied upon to meet capacity needs by 2030.

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These combustion turbines are already commercially available, they are scalable to match load growth and they are a relatively low cost source of dispatchable capacity.

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They provide flexibility for the system to respond to peaks in demand.

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From the fuel perspective, there is an established and reliable supply of natural gas.

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We haven't made any decisions around fuel supply yet, but we assume that the turbines will be able to transition to alternative fuel supplies as they become readily available in the future.

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From our analysis, we know that combustion turbines added to our system are expected to be used minimally on average, functioning primarily as a backstop resource in the system, such as during times of drought, extreme weather, or during other system contingencies.

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So while running CTs with natural gas will produce some GHG emissions, this is mitigated by how little the units are expected to run on average.

36:21
Manitoba Hydro will be able to leverage the dispatchable capacity benefits of combustion turbines in the system while still complying with federal clean electricity regulations and achieving provincial net zero grid targets.

36:36
But as noted, GHG emissions are still produced when the combustion turbines are running using natural gas, and this can be considered a limitation for this resource option.

36:47
This could be fully mitigated by using biomethane instead, but a reliable supply of this fuel is not yet available in Manitoba.

36:56
Operating costs for these combustion turbines can also be high compared to other generating resources in the Manitoba hydro system, but the expected low usage of these units on average will help to minimize this cost.

37:12
Take a moment to focus on fuel supply options a little bit more.

37:16
Our modelling results consistently include the addition of combustion turbines fueled by natural gas.

37:23
This is a direct result of the mature nature of combustion turbines and natural gas fuel supplies, which means they are available, reliable and cost effective when we need them in 2030, while other resource options remain limited.

37:39
Modeling results have also shown that natural gas fueled combustion turbines remain an economic choice for adding and maintaining dispatchable capacity beyond 2035, including in a net zero grid future.

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Once alternative fuels become more readily available, such as hydrogen, we assume that combustion turbines in our system will be able to run on them with some additional operating costs or additional investments.

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This includes investment both at generating stations and along fuel supply chains.

38:12
However, it is uncertain when natural gas would no longer be needed in at the very least a backup roll.

38:20
Further studies are required to investigate the use of alternative fuels.

38:27
Manitoba Hydro is already taking steps to protect the feasibility of the resource options we just reviewed.

38:33
We have issued a call for power for up to 600 megawatts of majority Indigenous owned wind in southern Manitoba.

38:41
This could take the form of one or more power purchase agreements.

38:45
The expression of interest closed on July 11th and a request for proposals will be issued soon.

38:50
Once issued, you'll be able to find more information on this by clicking on the provided link for MERX.

38:56
We're also taking preparatory steps for combustion turbines.

39:00
These actions will allow us to secure a spot in the turbine manufacturing queue and let us start working on preliminary studies that'll get us ready to potentially implement combustion turbines by 2030.

39:13
We are also actively exploring both offsets and alternative fuels as potential options to net out emissions for future and existing combustion turbines.

39:24
And we are also continuing to work closely with Efficiency Manitoba to design and implement programming for the coming months and years.

39:32
Finally, we are actively pursuing refurbishments at Point du Bois, our oldest operational hydropower station.

39:39
This enhancement project includes 8 new generating units and will increase the station's capacity by 52 megawatts and average annual energy supply by 380 GW hours.

39:52
I'll now pass it over to Lindsay Hunter to talk a little more about our second key finding related to narrowing our focus.

40:01
The second key finding in our work is the need to establish a build out target.

40:08
Having a build out target establishes the minimum amount of resources needed to provide us the flexibility to best serve future needs.

40:16
The build out target will help narrow the range of uncertainty in the analysis.

40:20
While we are narrowing the range of uncertainty, it helps provide focus to the key risks and opportunities that need to be considered in the development plan.

40:29
By narrowing the range of uncertainty, we also minimize the risk of both underbuilding and overbuilding for any potential future.

40:36
Looking at this risk, we know that the risk of underbuilding is far greater than overbuilding.

40:42
It is much easier for us to slow down any development, but is very hard to speed up development.

40:49
The range of uncertainty that has been explored to date in the 2025 IRP is shown on this chart that shows the load projections we have been studying through the 2025 IRP.

41:01
This broad range includes the base load projection one shown as the red line, the medium load projection shown as the yellow line, and the high load projection shown as the dark blue line.

41:14
We also added the load sensitivity, which is shown as the dashed light blue line.

41:20
Looking at Manitoba's future energy needs, this is a really broad range in only 10 years. By 2035, there is approximately 2000 megawatts difference between the red load projection one line and the blue dashed load sensitivity line.

41:38
As an illustrative example, 2000 megawatts is equivalent to the size of about 3 Keeyasks.

41:46
Establishing a build out target will help to narrow this range of uncertainty as we move towards recommending a development plan.

41:54
We can take first steps now though.

41:56
On this chart we've also plotted the 2024 electric load forecast, which is the dashed green line above load projection one.

42:05
As the 2024 electric load forecast is used in the most recent annual planning at Manitoba Hydro and is the most recently approved load forecast, we are setting this as our minimum build out target.

42:19
What we are still working on is what will be the build out target above the 2024 electric load forecast.

42:28
We first consider the short term to 2029, there are insufficient policy instruments in place that would result in a load projection above the 2024 electric load forecast.

42:39
The build out target in this time frame will be equivalent to the 2024 electric load forecast.

42:45
If we look further into the near term between 2030 and 2035, the build out target will help us to balance risks and opportunities such as aging infrastructure, including risks to supply load uncertainty, which could result in higher or lower load growth from things like decarbonization and economic development opportunities and implementation risks.

43:09
Unlike in the past where we built large scale resources ahead of load growth, we will be building much more incrementally to match the load growth.

43:18
This means that it is easier for us to slow down than it is to speed up.

43:23
When taken together, we know that the build out target will be the 2024 electric load forecast plus a risk margin.

43:31
I will now pass the presentation along to Lindsay Melvin who will walk us through our next steps.

43:38
I'd now like to spend a few moments on next steps.

43:45
Our teams are working hard to move forward with the knowledge gained from our work to date to formulate and evaluate and assess potential development plans.

43:55
Now this step will enable us to determine a short list of plans that can then move forward in our next step, which will be the completion of financial and risk analysis.

44:05
And once we have the financial and risk analysis completed on this short list of development plans, we will then be in a position to develop a draft recommendation on a development plan.

44:16
And we will also develop our draft road map including the draft recommended and alternative development plans.

44:22
And all of this will be presented in round two engagement.

44:28
To give you a bit of a glimpse of what you can expect in round two engagement.

44:32
The following is a quick overview of each of the components you will see in the 2025 IRPs Draft Road map.

44:40
The road map consists of four components, recommended and alternative development plans, learnings, near term actions and signposts.

44:51
The recommended development plan will be a 10 year development plan indicating the specific and future investments needed to meet future energy needs.

45:00
The plan indicates the type, amount and sequencing of resources.

45:06
It does not indicate the specific location or project delivery method for a resource.

45:11
This will be determined through other processes.

45:14
It is also common practice to put forward one or two alternative development plans to show the other development options that were considered but not recommended.

45:23
This helps us understand what our next best solution could be and also what trade-offs exist between the development plans.

45:31
These are the plans that would most likely be limited, either fully or partially if something happens such that the recommended plan was no longer a viable option.

45:41
The next component in our road map is key learnings.

45:44
These represent the fundamental takeaways from the entire 2025 IRP development process, including our analysis out to 2050.

45:53
Learnings could come from engagement and research or modeling and analysis and evaluations.

45:59
The near-term actions outline the actions that Manitoba Hydro will take over the next five years.

46:04
These actions include implementing the recommended development plan and also continuing to prepare for the future.

46:12
The signposts are key indicators that we will monitor to tell us something about the timing, pace and magnitude or type of changes happening in the evolving energy landscape.

46:23
Signposts could include policy or market and technology and customer trends, and they're typically monitored especially between IRPs.

46:32
The signposts in their monitoring are used to determine if a near term action needs to be accelerated or even cancelled based on changes in the energy landscape.

46:43
So overall, this draft road map will be presented as draft for discussion and feedback when we come back together for round two engagement.

46:53
This concludes the information session presentation.

46:56
Thank you for taking the time to listen to this recording.

46:59
For more information about the 2025 Integrated Resource Plan, you can visit the link on the screen at hydro.mb.ca/future.

47:07
If you have any further questions or want to reach the team, you can e-mail us at IRP@hydro.mb.ca.

47:15
Thank you again and have a great day.