Appendix 1 – Participant Questions

We received questions from participants before, during and after the deliberative dialogue sessions. Our responses are below. Please note: the energy and electricity industries are dynamic, and technologies evolve quickly. Responses are based on what we know today. Have a question about the future power system in Saskatchewan? Email us! **PublicConsultation@saskpower.com**

Question	Response from SaskPower
Can someone explain how carbon is captured out of the air?	The Boundary Dam Unit 3 (BD3) carbon capture and storage (CCS) plant doesn't capture CO_2 from the air. The BD3 CCS plant captures CO_2 from the mixture of gases that is produced by burning coal to produce electricity – preventing it from going into the air in the first place. For more information on how the CCS process works, please refer to the Boundary Dam Carbon Capture Project (saskpower.com). Direct air capture is a different concept that captures CO_2 directly from the atmosphere. You can read more about it at this International Energy Agency website (IEA).
There was mention that solar energy is important, can someone explain why the program was scrapped back in 2019? (not sure if I have the date correct). How is SaskPower planning on encouraging or reinstating a solar program?	The Net Metering Program was never cancelled and is still up and running. In 2019, the program reached its capacity so we hit pause on accepting new applications. Within a few months the program started accepting applications again with a new price. The price offered to customers for excess generation sent to the grid was reduced from the retail rate to 7.5¢ per kWh. This price aligns to the approximate average price SaskPower pays for electricity. For more information about the program, visit www.saskpower.com/netmetering.
I am deathly afraid of nuclear power and I could get you a list of other Saskatchewan citizens who have the same fear. Like many things it is not 100% accident free, why pursue something with this level of dangerous consequences?	Nuclear power from small modular reactors (SMRs) has the potential to provide reliable baseload power without producing any greenhouse gas emissions. This means it could play an important role in achieving a net-zero power grid in Saskatchewan and is why SaskPower is looking at this option. SaskPower is committed to the highest levels of safety in all of our operations, and we bring this same commitment to our work on the potential development of nuclear power. As we evaluate nuclear power from SMRs we're working closely with Canada's three nuclear power utilities, Bruce Power, New Brunswick Power and Ontario Power Generation, to learn and understand their best practices for the safe development and operation of nuclear power. Canada also has a strong, globally-respected, and highly-effectively nuclear regulator – the Canadian Nuclear Safety Commission (CNSC) -- and has a long history of safely and effectively managing used nuclear fuel and other waste streams

	that result from the generation of nuclear power. The CNSC's role is to regulate nuclear projects to protect the health and safety of Canadians and the environment. They must also ensure national security and that we are implementing the international obligations to which Canada has agreed. SaskPower will need the CNSC's approval to proceed at multiple stages of the developing of SMRs. Learn more about the planning and development phase of SMRs in Saskatchewan, visit SMRs – Planning and Development Phase (saskpower.com).
What can SaskPower do to support research at either the university level (there are two universities in Sask.) or create their own research branch.	We work closely with Saskatchewan's post-secondary institutions to support research and development that aligns with our corporate priorities. Here are some recent examples: • U of S – Moose Research Cumberland House area (Year 2 of 5) - $30,000 • U of R – $690,000 – Chair in Artificial Intelligence • U of R - $120,000 – Chair in Cultural Heritage • U of S - $400,000 – Chair in Engineering – Electric Power and Renewable Energy Education and Research
What is SaskPower doing to train citizens of Sask in potential high skilled trades in this sector. There needs to be entry level positions that citizens with limited educations, but initiative could start at. These jobs need to be in the north and in smaller communities.	SaskPower facilitates a formal apprenticeship program that targets various skilled trades. These programs vary as a result of workforce planning and people-resource requirements at facilities across the province of Saskatchewan. Opportunities in many remote or northern locations to work within SaskPower facilities also come from procurement contracts and temporary labour. Labourer opportunities provide entry-level positions within the organization (or with a contractor but provide access and knowledge to our facilities) and an employee can pursue further education and advance through the organization once additional qualifications and skills are obtained and demonstrated on the job. SaskPower is an active partner with the Northern Labour Market Committee in working with community groups and educational institutions on the labour market pool and opportunities that we can leverage. Beyond direct employment, SaskPower does partner with several secondary and post-secondary schools in the form of educational funding, sponsorships and scholarships, with the intent to support our upcoming talent pipeline and future workforce needs. An example of this partnership is the Powerline Technician Prep Course currently facilitated through Northlands College, an in-design PLT Prep Course with SIIT and summer camp sponsorships with Saskatchewan Polytechnic for technology and trades.

What's stopping SaskPower from breaking out the cost of raw power when billing customers and when will this happen?	For residential, small farm and small commercial customers, SaskPower recovers the costs of providing electrical service through a basic monthly charge and an energy charge. For larger customers on a demand meter, their bills will include a basic monthly charge, an energy charge, and a demand charge. The cost of generation (or "raw power") is included in both the energy charge and demand charge. This is consistent with the billing practice followed by virtually all electric utilities that provide generation, transmission, and distribution / billing services (known as vertically integrated utilities). Separating generation costs from other costs is normally only seen in jurisdictions that have broken up the vertically integrated utility into separate entities (for example – Alberta and Ontario). Go here for more information about power supply rates.
What is SaskPower doing to facilitate, and clearly identify the value of ancillary services that could be provided in the near future using battery storage at load?	SaskPower is reviewing the allocation of costs between the fixed and variable elements of customer power bills. SaskPower is in the process of developing a Grid Modernization roadmap that considers how load-sited battery storage, as well as other distributed energy resources, could be used to facilitate ancillary services.
When will SaskPower offer customers "generation choice" for renewable only power supply?	We're talking internally about how more customers can participate in renewable power and contribute to GHG emissions reduction goals together. We don't have any milestone dates at this time.
How does adding renewables to our energy mix affect our cost of generating electricity? Per kilo watt hour?	New renewable energy projects added approximately $2.00 per megawatt hour (MWh) to the cost of SaskPower's overall energy mix in fiscal year 2019-20.
How long til end of life of our existing coal fired power plants? Particularly Shand?	The Shand Power Station was originally designed to operate until 2042, however, federal regulations require all conventional coal units to be phased out by the end of 2029. Poplar River Units 1 and 2 must also retire by Dec. 31, 2029. Boundary Dam Units 4 and 5 will reach their retirement dates on Dec. 31, 2021 and Dec. 31, 2024 respectively. Boundary Dam Unit 6 reaches its retirement date on Dec. 31, 2027

Is there an ongoing environmental impact assessment on operating wind projects?	The province of Saskatchewan has developed *Wildlife Siting Guidelines for Saskatchewan Wind Energy Projects* (here) and has another set of guidelines that complement the siting guidelines called *Adaptive Management Guidelines for Saskatchewan Wind Energy Projects* (here). These guidelines help to ensure that the location selected will minimize impacts to the environment when compared to other locations. New wind energy projects must also implement any regulatory approval conditions, monitoring requirements and adaptive management requirements. Existing siting guidelines and work with producers also helps to ensure the facility is built in an area less likely to disrupt migratory paths of birds and bats. Lifecycle considerations are also important when considering projects. There's lots of literature on lifecycle greenhouse gas emissions from different electricity generation methods. From this perspective, wind is one of the lower emitting generation sources (others include solar, hydro, nuclear). When the facility reaches the end of its life, producers must meet requirements in Saskatchewan, along with landfill bylaws and landowner lease agreements with respect to decommissioning and remediation. There's also potential salvage value left in the towers and blades and recycling turbine blades is another emerging option.
Do you have a cost breakdown of differing electrical generating sources? What does coal, natural gas, solar, wind, hydro cost to operate?	There are a number of ways to break down the cost of various power sources and the cost to operate each different power source depends on a number of factors. Ultimately, we need to balance the cost of each of these sources into our mix to ensure the result supports our goal of providing reliable, cost-effective, sustainable power to our customers and the communities we serve.
On a scale of 1 to 10 where 1 is "very little" and 10 is "a lot" how much political pressure have you received to include SMRs into the basket of power sources given the expense to build a prototype, the timeframe for them to be up and running and the overall cost compared to renewables?	SaskPower has evaluated the potential for nuclear power since the early 1970s. Each study (available on saskpower.com) concluded that if there should ever be a price on carbon, nuclear power might be a feasible option for Saskatchewan. Considering the state of federal regulations today, and our need to significantly reduce greenhouse gas emissions while providing reliable, cost-effective power, we're now proceeding with the first year of a multi-year planning and development phase that would inform a decision to construct our first SMR in 2029. There are several key requirements for the successful deployment of this technology in Saskatchewan, including: • The same SMR design is deployed in multiple Canadian jurisdictions. • Federal risk sharing in the development and demonstration of zero emissions SMR technology.

	• Successful first-of-a-kind deployment in Ontario. • Competitive price for power compared to zero-emissions baseload alternatives available to SaskPower in the early 2030s.
What are SaskPower's plans to upgrade aging infrastructure within the Northern Administrative District (NAD), specifically lines and poles that are off the right of way of primary road corridors?	We don't have a plan readily available to share but our planning teams in this area will reach out to the Northern Administrative District representatives to have a fulsome discussion about the status of maintenance work in the area.
If there was an opportunity to make electricity from a source that is completely carbon negative, would SaskPower come on board? If a business can make electricity from a carbon negative source, could they get a premium price or would SaskPower want to regulate that price. If a carbon negative source is proven to work, what long term contracts could be possible? If a carbon negative electricity producing source can be placed anywhere in the province, close to present needs with less line loss, could micro generators be of benefit?	There are several factors to consider in the power planning process so we'd need much more information before we're able to answer these questions. You can learn more about our future supply planning here: Our Power Future (saskpower.com)
Is coal generators equipped with CCS technology along with CO_2 being sequestered into the oil field a path to net zero emissions?	Coal units retrofit with carbon capture and storage (CCS) capture a significant portion of the CO_2 that is produced from burning coal to generate electricity, but CCS doesn't capture it all. That means some CO_2 is still emitted into the atmosphere. Achieving net-zero greenhouse gas emissions would require carbon credits to offset the CO_2 emissions that aren't captured. Another factor to consider is if the demand to buy CO_2 from SaskPower for enhanced oil recovery will increase or decrease in the coming years. SaskPower has assessed the viability of the CCS business case for further deployment on SaskPower's coal fleet and has determined that cost and technology risk are very high in comparison to other

	baseload generation options at this time. We continue to monitor market conditions for changes in favour of CCS.
Batteries. Are there any thoughts of other technologies besides lithium ion? I'm thinking pumped air or liquid air.	Yes, our supply planners monitor all forms of electricity storage. You can learn more here: Electricity Storage (saskpower.com)
Nuclear. For many people they think that is a terrible idea. I have been doing a bit of research and wonder if SaskPower and the SMR technology that are looking at will be considering liquid salt using the theorem concept.	SaskPower has studied the feasibility of a range of small modular reactor technologies as part of our evaluation of nuclear power. Our current shortlisted technologies include one reactor that uses molten salt as a coolant, but the fuel is uranium based. We have assessed thorium fueled reactors as well - these designs are not as mature as some others that are being considered in Canada. Saskatchewan is home to the richest uranium deposits in the world, and the second largest uranium reserves. Using Saskatchewan uranium as the fuel source is a strong consideration as we evaluate the technologies.
Will SP promote rebates to residential investments in solar as this province had in 2019? Alternatively provide free connecting (equipment like two-way metering and the labour cost). The province is a laggard in incentives on solar, the net metering is ok, but only just ok. The individual residents is taking quite a big financial risk in investing in a solar, in my case 25000kwh per year would mean an investment of $50-60k for a solar system to replace it.	The provincial rebate program for solar installations has been discontinued. SaskPower is on track to reduce GHG emissions by at least 50 per cent from 2005 levels by 2030, and solar power is one of the ways that we will meet that commitment. We plan to add 60 MW of solar to the grid in the coming years. However, most of the renewable generation that will help us reach our 2030 goal will be from large, utility-scale projects, because they are simply the most efficient and cost-effective way to add renewable generation to our province's electrical grid, which helps us keep rates as low as possible.
What proof do you have that you can store high level radioactive waste for 500,000 years safely regardless of the amount?	SaskPower is committed to the highest levels of safety and sustainability in all of our operations, and we bring this same commitment to our work on the potential development of nuclear power. Canada has a strong, globally-respected and highly-effectively nuclear regulator – the Canadian Nuclear Safety Commission (CNSC) and a long history of safely and effectively managing used nuclear fuel and other waste streams that result from the generation of nuclear power. And, the Nuclear Waste Management Organization (NWMO) is also making good progress on the development of a deep geological repository (DGR) for the safe and sustainable management of

	Canada's high level nuclear waste. For more questions about nuclear waste, please reach out to: • Nuclear Waste Management Organization • Canadian Nuclear Safety Commission
What budget would Saskatchewan have to have to build SMRs that SaskParty dreams of?	The planning work to inform and enable a future decision whether to construct an SMR in Saskatchewan will be undertaken over the next seven years. Part of this work will assess the economic impacts of SMRs, at which time a formal budget would be determined. Please note that one of the key requirements for SMR deployment in Saskatchewan is the competitive price for power compared to zero-emissions baseload alternatives available to SaskPower in the early 2030s.
Comparing investments; have you compared the costs of REAL RENEWABLES LIKE: SOLAR, WIND, GEOTHERMAL, OR EVEN CONSERVATION, to the massive cost of nuclear SMRs? I want to see proof of economic comparisons, especially since there has not been one SMR ever built and used.	We consider the cost and impact to power rates in the planning considerations used to assess all power sources, including nuclear power from small modular reactors (SMRs). We'll continue to assess cost along with other planning considerations over time as we learn more. One of the key requirements for SMR deployment in Saskatchewan is the competitive price for power compared to zero-emissions baseload alternatives available to SaskPower in the early 2030s. We don't see SMRs and renewables in competition. Saskatchewan will need more clean energy from all available sources as we make the transition from fossil fuel over the next few decades and as we facilitate the decarbonization of the Saskatchewan economy. In combination with expanded regional transmission capacity, SMR deployment in Saskatchewan has the potential to support expanded deployment of intermittent renewable energy from wind and solar in our province not only for domestic consumption but also for export. Over the next decade, while we advance with planning for potential deployment of SMRs, SaskPower will be adding a lot more renewable generation from hydro, wind, solar and geothermal sources to meet the growing demand for clean power in our province.
How much influence does Brad Wall have on decisions related to SMRs considering he is on the board of a company wanting to produce them, and	Any project, regardless of generation type, that is over 25 MW and/or has a value in excess of $20 million, has to undergo several stages of governance approvals. For projects at this threshold, the project needs to be approved by the SaskPower Executive, the SaskPower Board of Directors, The Crown Investment Corporation Board and the Provincial Cabinet.

he would drag net taxpayer dollars?	
How is SaskPower planning to evaluate distributed energy resource proposals at locations which are on the edge of the grid? For example, consider communities at the end of a long, radial distribution feeder which might currently leave residents vulnerable to lengthy power outages. Is there an opportunity for distributed generation to be considered in piloting microgrid solutions which could improve reliability, reduce cost in the long run, and at the same time provide economic development opportunities for the region?	SaskPower hosted a number of distributed energy pilot projects between 2002 and 2007. These included a 120 kilowatt (kW) hospital cogeneration project, 60 kW flare gas project, 120 kW hog manure bio-digester project and a 1.2 kW solar photovoltaic (PV) display at the Regina Science Centre. These technologies have grown in capacity since. There is future potential to consider distributed energy for a microgrid pilot.
Does SaskPower have plans to consider the societal and economic benefits of projects in Indigenous communities in addition to the traditional cost of service or rate base models that are typically used in project evaluations? Specifically, is consideration being given to considering ESG (Environmental, Social, Governance) benefits in the decision-making process.	SaskPower considers factors like cost, environment, Indigenous knowledge, land use, social and technical when siting its projects. Learn more about these considerations here. We're currently seeking input on what other planning considerations we should incorporate as we look to the future power system. So we thank you for sharing your suggestion. We will consider including societal and economic benefits of projects in Indigenous communities, as well as considering ESG benefits in the decision-making process.
With the push towards clean energy and with the emergence of several new renewable energy sources; hydrogen, geothermal, biomass and other clean sources etc. what is SaskPower's strategy for incorporating the surplus into the grid beyond what they are currently doing?	Understanding how much electricity the province will need, as a whole and regionally, is an important planning consideration and area of thorough study and analysis for our system planners. New power sources are incorporated into the system in a way that ensures the safety of the grid while supporting our goals to reduce greenhouse gas emissions and keep rates manageable for customers.

How many renewable projects does SaskPower have capacity for?	We must consider many factors when adding generation to our system. Only so much generation can be added before upgrades are required for the grid. In addition, renewable projects also need to be balanced as an intermittent power source with our baseload requirements. SaskPower's system planners are continually evaluating the power requirements and how to best add generation to the supply mix. As such, there isn't a simple answer to how many renewable projects there are capacity for. Learn more here: Our Power Future (saskpower.com)
What response can TED (Trade and Export Development) give to potential renewable energy investors? Currently, potential investors meet a bottleneck at the SaskPower level albeit SK having the raw material required for renewable energy production.	We'll reach out to TED directly to ensure we are supporting their work with renewable energy investors as they explore potential projects.
AESO is forecasting 1.3 TW DER resources at 2030 what is the SPC forecast?	SaskPower is currently developing a Distributed Energy Resource (DER) strategy so at this time we don't forecast for DER resources.
Other jurisdictions view less than 5% DER penetration as "incalculable" from a cost of service perspective in differentiation cross subsidy between participants and non-participants. What is SPC's view?	We'll be considering this as we develop our Distributed Energy Resources strategy.
How does SPC define DER (i.e. vs AESO)?	We're currently developing a Distributed Energy Resources strategy so more information on this will be available soon. We're considering how to involve stakeholders in this stage.
How is SPC working with Universities or others on "digital twin" modelling?	We aren't currently working with universities on this subject, but we'd welcome the opportunity if it presents itself.
What specifically is SaskPower doing to develop, study, implement micro-grids?	SaskPower is in the very early stages of exploring the potential for microgrids as part of our grid modernization and distributed generation strategies.
How, specifically is SaskPower looking to accommodate two-way energy flow in its' distribution system?	This is part of SaskPower's grid modernization project. You can find more information on our website: Transforming the Power Grid (saskpower.com)

During operation which baseload electricity generator is idled down due to power supplied by renewable sources? How does that process affect per unit cost?	When intermittent renewable generation, such as wind or solar, increases, dispatchable generation (also referred to as "baseload") such as hydro and natural gas is reduced. Typically, these baseload generators have an optimal level of operation to maximize their efficiency. Keeping these generators operating at that level is the most cost-effective way to operate them. When this level needs to be adjusted to accommodate or 'back-up' wind and solar, it reduces the efficiency of the baseload generators, which in turn increases the per unit cost of generation from those sources.
I read that as much as 60% of Saskatchewan's power needs can be addressed with geothermal alone. To what extent is the present infrastructure geothermal ready? Can abandoned oil wells be utilized as part of the geothermal infrastructure grid? Is SaskPower looking at developing anymore geothermal sites besides the one currently in development? If so, are they looking at partnerships or going to go it alone?	Geothermal power production is just beginning in Canada. Currently there are no power generation geothermal facilities in Canada. The Deep Earth Energy Production (DEEP) project near Estevan, anticipated to be operational in 2023 will be the first geothermal electricity project in Canada. While southern Saskatchewan may have access to warm sedimentary basins, geothermal potential for power production must be investigated on a site-specific basis. DEEP started investigation in 2014 and plans to finish construction in 2023. As with all other power sources, upon successful implementation of the first project, SaskPower will be able to assess further geothermal potential. According to the article Can Abandoned Oil Wells Be Used To Generate Geothermal Power? Published by Oilprice.com some are exploring the potential to use abandoned oil wells for geothermal uses. It's likely these wells are better suited to heating applications than power generation. It's unlikely the wells would have the heat gradients sufficient for electrical production, compared to the much deeper geothermal wells. The integrity of old wells would also have to be considered.
How does SPC regard "off bill benefits" such as resilience, grid balance, frequency?	Grid resilience and balancing are critical planning considerations for SaskPower and assessed thoroughly as part of the system and grid planning processes. A diverse mix of power generation sources provides combined benefits to the system that are hard to put a value on.
The SAFIRE project team is working on Fusion, Plasma, Magnetic, Particle Physics and Chemistry, and more. SAFIRE a USA/Canadian/International collaboration.	We understand SAFIRE is a research project being advanced by a company called Aureon Energy. They're trying to raise capital to build plasma reactors with the promise of generating emissions-free electricity by converting hydrogen into heat. The heat is used to boil water and generate electricity.

If there is waste from the SMR's, SAFIRE would be able to develop waste disposal for the nuclear waste, so it doesn't have to be stored for centuries. If the SMR's are green, it would be much better for the environment. Would SaskPower like an introduction to SAFIRE?	SaskPower is not the right group to engage with Aureon/SAFIRE because we don't allocate capital to pure research and development projects.
In our group, when I opposed the opinion of another participant that participant disappeared from our group (but stayed on the call) and was replaced by someone with even stronger opinions but the same perspective. Just wondering why.	This wasn't an intentional replacement. There were a few instances where breakout group members were shifted through the sessions to balance the size of the breakout groups, but participants were chosen at random for each group.
I heard our facilitator say that one person in our group had attended multiple sessions. Does that mean that their opinions get recorded every time and therefore have more weight?	The feedback of participants was recorded in each session. We didn't consider this as giving specific opinions more weight, rather as an opportunity for those participants to hear multiple perspectives from other participants.
There was a participant from Ontario attending, and they indicated that they were just observing. I was okay to have them just listen in, but then their opinion was solicited by our facilitator. I understand from a SaskPower employee perspective how they might be curious about that opinion, but to have that eat up time during a SK public consultation does not seem fair.	These sessions did not purposely exclude attendees out of province from participating. Our facilitators encouraged everyone to participate in order to have fulsome group discussions. We will consider our audience for future events to ensure stakeholders have an opportunity for meaningful engagement.
I repeatedly hear SaskPower focus on: renewables, geothermal, hydrogen, biomass, clean energy imports, and small modular reactors. I do not hear SaskPower talk about BECCS	SaskPower does consider all options looking towards a zero-emissions power future. We have considered CCS on biomass, but the challenge moving forward with this option is cost. Our current CCS project is designed to capture CO_2 from lignite coal. The technology can't be easily retrofitted to capture CO_2 from

(aka BiCRS). This is a missed opportunity… as it is one of the only generation options that can produce electricity with negative emissions. The basic premise of the argument is that solar, wind, hydro, and nuclear all have some lifecycle emissions associated with their generation. Therefore, these emissions will need to be offset to reach net zero for our aggregate generation. Why not offset with a generation technology like BECCS?	biomass. As with all options, SaskPower will continue to monitor power generation supply developments.

Appendix 2 – Participant Suggested Resources

We've compiled a list of resources provided by participants before, during and after the deliberative dialogue sessions.

Title	Authored By	Link
Renewable Regina: Putting Equity Into Action	Dr. Emily Eaton	https://www.uregina.ca/arts/assets/docs/pdf/renewable-regina-report-sept-2020-final.pdf
Apocalypse Never: Why Environmental Alarmism Hurts Us All	Michael Shellenberger	Amazon: https://www.amazon.ca/Apocalypse-Never-Environmental-Alarmism-Hurts/dp/0063001691
Global Warming of 1.5 degrees C	IPCC	https://www.ipcc.ch/sr15/
A Good War: Mobilizing Canada for the Climate Emergency	Seth Klein	Amazon: https://www.amazon.ca/Good-War-Mobilizing-Climate-Emergency/dp/1770415459
Net Zero by 2050	IEA	https://www.iea.org/reports/net-zero-by-2050
Building the Low Carbon Economy: Exploring Opportunities and Challenges for Saskatchewan	Saskatchewan Chamber of Commerce	https://saskchamber.com/isl/uploads/2021/03/Building-the-Low-Carbon-Economy-Exploring-Opportunities-and-Challenges-for-Saskatchewan.pdf
17 Sustainable Development Goals	United Nations	https://sdgs.un.org/goals
Sustainability: Climate Change Adaptation	Ian Judd-Henry, M.SC., P.GEO and David Sauchyn, PHD., P.GEO	https://www.apegs.ca/Portal/Pages/Professional-Edge Issue 192 May/June 2021 "91st Annual Meeting and Professional Development Conference" page 33.
Universal Declaration of Rights of Mother Earth	World People's Conference on Climate Change and the Rights of Mother Earth	https://www.therightsofnature.org/wp-content/uploads/FINAL-UNIVERSAL-DECLARATION-OF-THE-RIGHTS-OF-MOTHER-EARTH-APRIL-22-2010.pdf
Saskatchewan's Growth Plan	Government of Saskatchewan	https://www.saskatchewan.ca/government/budget-planning-and-reporting/plan-for-growth

An Inconvenient Truth: The Crisis of Global Warming	Al Gore	Amazon: https://www.amazon.ca/Inconvenient-Truth-Crisis-Global-Warming/dp/0670062723
China is Building a Thorium Molten Salt Reactor – Here's Why it Matters	Anton Petrov	https://www.youtube.com/watch?v=1EFfxMx6WJs
BioMass Carbon Removal and Storage (BiCRS) Roadmap	David Sandalow et al.	https://www.icef.go.jp/pdf/2020/roadmap/roadmap.pdf?0128

Appendix 3 – Participant Comments and Feedback

What are the key trends or events that are impacting consumer and industry expectations and values around electricity?
CNH sustainability very interested. Carbon footprint targets to have x% of GHG by dates and net zero by a date. Manufacturer and want to be as responsible as they can.
Costs are important and need to remain competitive. Reliability is critical as well.
Germany coal transition – international stance on going green and 1 emission. Not viewed the same globally. Not all aligned. Net importer of energy vs us being a net exporter. Big differences were infrastructure – government put a ton of money into communities affected. Here in Canada seems like government levels fighting and pointing fingers while Germany is working together on it. Not going nuke. They are being selective and seem more unified.
Reliability, no outages, no glitches.
Efficiency - from a cost perspective.
Cost matters – it has an impact on industry.
Reliability is key for business and individuals.
Accessible, reliable, affordable power matters to the economy.
The federal government movement towards renewables and reducing GHGs.
Recent federal court case on carbon tax – whether we like it or not.
In SK, the government has been slower to move that way – no choice at this point.
From Nature SK perspective, not involved in electricity directly – but have been involved in site selection, consideration of bird areas.
Different sources of renewables that are coming into play, i.e. hydrogen. Curious as to how SaskPower is going to deal with this, and current grid limitations.
Companies are becoming creative in producing electricity and adding value – how much of that can we have in SK.
Sustainability – how much can we add beside wind and solar and gas.
Climate concern, need to reduce GHG emissions, increasing power of corps. in influencing policy, consideration of how much SK wants to be self-sufficient or become part of a regional electricity service; trend to EVs will influence demand.
Push for renewables and net zero. Legislation will be pushing things quickly.
Desire to accelerate leaving coal as generating option, appreciate needing to be responsive to demand as these plants. But burning coal can't make sense in the future. People will support an accelerated plan for retiring coal firing capability.
Safe and stable baseload power source, recognize a wide variety of options needed, conventional coal is not as palatable, next generation of coal with CCS may help avoid stranding assets before their time?
Change of government last year-have seen greater focus on GHG targets in business-at same time-still want low cost power to facilities-it's a balancing act-still want low cost and reliable power for Mosaic.
Our customers are demanding more clean energy objectives-as a reseller we buy from SP and resell.
Significant changes since Dec. with expectations both provincially and federally.
If SaskPower won't meet expectations and demand on grid-customer will do themselves-invest in solar, geothermal, etc.
Unifor has invested interested in future of power solutions-union jobs for people transitioning from one fuel to the next fuel option. Unions want to be part of the discussions.
Shift is happening and people want to get away from fossil fuels.

We need to look after our people and not leave people behind.
Exciting times - we should be on forefront and not lag behind, like we were and still do-with oil.
Need to pay attention to trends in other jurisdictions, and emission targets so SK doesn't get left behind.
Electric vehicles are becoming more popular.
Really big push for ESG measures, and globalization from who the customers are. Key players from around the province, they went from local and are now managed internationally. Even competitiveness is on a global platform.
We have to target large emitters because we will not be able to go after every residential customer.
Not only industrial users, but residential are looking for clean energy.
Renewable forms of energy are more competitive with other forms but the challenge is how to integrate them into the existing system
How do we find the right way to mix intermittent sources with what we currently have?
Demand for gas and diesel has peaked and will start to drop off as electric vehicles become more popular.
Utilize as much of Saskatchewan knowledge as we make this transition.
Price is more important than the power is generated in Saskatchewan.
Appetite for industry to become generators.
We are in rural SK, ensuring adequate infrastructure is here and maintained, so rural SK has opportunity to attract and retain industry, similar to broadband issues.
Re: pollution pricing, no longer free to pollute, as emissions increase, border tariffs likely coming, if we don't reduce GHG it will be detrimental to our future, see electrification coming, and that future is already here.
Key trend, net zero emissions here, national ambition, becoming global, means a balance of emissions and reductions, won't be actual net zero, will require CO2 withdrawal. It is not enough just to reduce emissions but need to set up industrial and other process to withdraw CO2 from atmosphere.
Climate change - reducing our emissions, getting off coal, our values as a province.
Renewable sources of energy, cost to deliver to the terminal point, predictable energy sources, positive trend is a renewable source of energy that is cheaper than traditional energy sources.
Reliability, safety, utilizing the existing infrastructure as much as possible to ensure the future of energy, reducing the footprint, find the right way to mix the intermittent resources with what we already have.
Transportation industry – demand for gasoline & diesel has peaked and electric vehicles will put a big demand on power grid, they may also be a significant storage.
Finding the balance with utilities.
It is not important to me that power is generated in Sask, it is more important that the costs are lower and emissions lower.
We cannot seem to find a happy medium with climate, we have a hard winter, then drought, and climate change issues.
Protecting the planet and protecting your livelihood, the things you are growing.
We are in a climate emergency, this is not just a trend, it is impacting everyone and everything. Everything we do has to be understood that this is our reality and for some reason SaskPower and SK are willing to ignore this. I realize SK has already signed on to a pact to promote nuclear as clean, but it is not clean. We won't see change for 20 yrs., it is a pipedream, the nuclear industry is in trouble, they will start spending their money for PR.
Nuclear industry is using climate change as an argument to proceed with nuclear.

Three Ds of distribution – decarbonized, decentralized, digitized that are happening for energy service in many jurisdictions. Decolonized energy sovereignty and where the First Nations want to go. Key trend here. Safe reliable cost effective that is the challenge and opportunity.
Goal with City is to become 100% renewable by 2050 we strive to be net zero emissions to source net zero energy. 2050 targets are trend to influence this. Reduce, improve switch and get rid of unnecessary energy. Switch to non conventional energy source.
Care about environment and have a reliable energy source. Key trends. I want a lower carbon footprint.
Over arching trend is climate change. One trend to mention is increasing emphasis that the banking and insurance community puts on responsible development of companies i.e. coffee shop or large oil sands producer and more emphasis on greening energy. What is source of electricity in order to receive investment for investments from banks and insurance companies and indirectly related trend and more important for companies to look at where electricity is coming from. Bills have gone up and what do I get for my money and I would pay more if that is helping the environment. Important to look at sources of energy.
Key trend is federal funding for communities for energy transition in business to support for economics. Public policy in municipal or provincial. Creates space and opportunity for renewables and scale of renewables. Zero emission vehicles or battery.
Sells diesel back-up generators – Importance of having power in order to run a business. If the power is down, you're out of business. Sales of standby generators are through the roof because of how important having power is. Having a reliable strong grid is very important.
Global effort to tackle climate change. Electricity sector is low hanging fruit to target emissions reductions. Grid intensity on Saskatchewan adds fuel to the climate fire. Opportunities for local or self-sufficient power options – energy independence and grid defection.
What could be done about an east west grid? We should be looking outside the province and working with Manitoba Hydro. Tough spot – meeting environmental targets while also protecting the economy.
Increase of cost including carbon tax, ignored costs previously impacting all customers now. Externalities of carbon pollution that we are starting to price.
Health care costs related to exhaust/emissions, needs to factor into the future due to chronic exposure, multimillion-dollar expense to the provincial health care expenses.
Energy sovereignty, independence and resilience, customers looking at their role in distributed energy and be a part of the emission reduction and helping with climate changes.
Want to be prepared for the future and generate own electricity.
Electricity generation control? Trust issue will SaskPower really do what they say for emissions reduction, not typically, need to prove commitment from SaskPower.
Many like to control their own generation, net metering/billing. With batteries and energy storage, this will only increase. Reliability.
Opportunity for microgrid, trend in other jurisdictions.
Cost is big reason, especially at lower income levels.
Sustainability responsible to control/care of footprint.
SE SK perspective – impacts of historical behaviours, getting smarter and understand responsibility and accountability required by the power industry.
Transition away from carbon economy.
Key opportunity for baseload power and individual and organization to participate in how.

Out of SK – ON – highest elec, idea that cost to get off carbon at any cost was why Kathleen Wynne no longer premier, reliability, in North lots of outages, line losses, flying in diesel, answers are different if rural or urban.
Location – agree, lots of work up North, biggest concern is reliability.
European – EU went hard green little appetite for pay anything at any cost to get off carbon.
Issues around air quality that is heated by gas and would this lead to more electrification.
Reliability of the system with higher demand system needs to be more robust.
Interest rates and debt that SaskPower is taking on.
Stranded asset risk as industry changes and new types of generation coming on.
Opportunity for SaskPower and Sask. To do more than just mine uranium and use it for power and drive other industries in Sask. Economic impacts if SaskPower chooses SMRs it could be positive for the economy.
Ontario vs. Saskatchewan. Saskatchewan has higher electricity costs even when in Ontario his home was heated with electricity.
Cost of transition will be high for ratepayers.
New technologies are not wanted by SaskPower as it takes away income from SaskPower. Its going to happen and will happen quickly and lead to lose of revenue
More sustainable sources of energy. Customers interested in lowering their carbon footprint. Noticeable change in interest.
Large push by corporate consumers to find non-polluting. Divergence between costs and managing the intermittency. Seem to be stuck trying to find solutions (large scale vs small scale). Storage is expensive. Impact on rate base and there is no clear answer.
Push for behind the fence depending on the regulatory situation which often seems to be a roadblock. Distribution scale renewables are picking up steam. Our best cost solution is DC transmission from a large scale Arizona solar.
Political drivers, the “bar is getting higher”. Pressure from investors. 24/7 operations, 95% potash leaves Canada.
Climate change and expecting clean electricity is what jumps to mind.
What’s jumping to my mind is that there is a renewed interest in Nuclear interest as an option but finding a way to incorporate that into SK where the grid isn’t big enough to support large nuclear. So thinking about a way to incorporate small nuclear, possible in remote locations.
Economics driving decisions – Regina pays more than any other residents in Canada. Cost drivers are important.
Key element – ensuring that there is the opportunity for baseload power and to ensure there is opportunity for org. and people to participate in generation options in Sask.
Ontario – highest electricity costs – limit for the consumers to participate. Two realities, suburban is reliability is always there. In northern communities, reliability is not there – diesel, etc. ideas are segmented into where you live.
Location is important – concern is reliability in the north – First Nation communities.
Europe went green, and now there is no appetite for it – or support due to cost, carbon tax – people don’t like it.
Human caused climate collapse, need to mitigate effects on climate
Carbon neutral goal should be pushed to 2040.
Large scale solar is growing.
Lithium is growing industry in SK – with lower emissions.
Balance should be developed – manage back-up and peaking demand when renewables are not available.

Consider imports from Manitoba Hydro to support renewables.
Consider storage.
SMR are not going to be available soon enough.
Renewables are good, but not sure of feasibility. Conditions are questionable for solar in SK. How does the hours available of the sun weigh factor with the intensity.
Trend/value – COVID has helped cooperate differently and coordinate across the nation – I hope we can share challenges with other provinces and work together – efficiency in power search.
Seeing the whole world trying to shift off fossil fuels.
Capitalists looking as to where it needs to go to stop climate change damage.
Disappointed as resident of SK in watching SaskPower inch along – could have done this in the 1980s – when I got involved in the environmental movement.
Got a great report about conservation measures but NDP shelved that. Sask Party is pushing solutions that are useless…not in time.
Key trends – energy conservation vs. power generation – but for power gen, hydro we have tapped out, we can use for storage – look to the future. SMRs are not even possible before 2030 and will cost billions.
Service company – help ppl become self-sufficient.
I love the planet.
Energy industry – in SE SK – getting rid of emissions – net zero – SE SK has the answer with CCS.
Being ignored now.
We have geothermal too.
Full circle – it takes a lot to get energy to our homes.
Climate change is vv scary, we need to take action.
We needed to do it yesterday.
Someways, we are fortunate because solar price has plummeted
Rooftop and land mount and wind – hydro exists, but also run of river hydro and being brought in from MB – an interesting part of the option.
Great advances in batt storage.
Energy efficiency is so vital – for the rest of us – make sure we change the building codes – many houses do not need any surplus heat.
The houses being built are lots – regs have only changed a bit – the difference in cost to build properly is not that much.
I am optimistic we can do it and I see SaskPower has a role to play and I hope the government would wake up – that they killed the solar plan is astounding – not looking at options that could happen right now. We don't have to wait 20 years.
SaskPower can play a role in EE, one of the cheapest sources of conservation. Agree the ability to generate power not from centralized plants but diff sources – renewable – but SaskPower can facilitate the generation and bring it to the area where it is not avail so anyone can purchase renewables, even if they cannot put panels on their roof. Access to purchase renewables.
All around the world, developed countries, they are using renewables solar wind, and we have been extremely slow to move in this direction. Change is hard but it is based on the value of love, community and we are all connected, so we should change for betterment. Need of diverse basket of renewable solar and wind and changes in personal habits.
I am actually alarmed SaskPower's plan is so weak. It sounds that SASKPOWER doesn't understand the situations, Scotland did 90% output in 10 years. Ambition is weak to solar and wind farm. Why so lethargic? Why so slow? European countries are reconfiguring their grid for 100% renewable – is there need to be trained by other leaders to get the knowledge. Extremely concerned about the

future vision. I am really surprised because the province has so abundant solar that it should form 50%. International Energy Commissions report needs to be looked at. A long way to go to look at the emergency situation.
Key elements about climate crisis. SaskPower is a big emitter. Need to get rid of coal and natural gas as a transition side. One of the trends in rural SK – reducing power consumption through energy efficiency and conservation. Dozen solar arrays around Sherbrooke region, people are producing power with the benefits of. SaskPower is running counter to these aspirations.
On the point of conservation, replacement of energy sources with renewables. We should look at reduction or reduce for efficient system. A part of that maybe distributed planning. Another point is distributed and centralized system with a strong crown corp. and well paid union is a good way to go – but in future look at small units. Mandate of SaskPower sounds contradictory – so we want to sell more power and on the other side reduce the use of power. This is contradictory. Recent report by SK Chamber of Commerce.
I am encouraged by this. Its public service it should stay this way. Just like Canada Post, need a leadership to make these changes happen. I'm hesitant about privatization. I want to see a bolder vision from SaskPower with respect to SMR.
I am all for renewable energy – we need to understand we won't gain everything without costing anything. How many acres will have to be covered to power a 1000hp motor. Five furnaces, 8000 amps in three phase power supply. A mile underground in the mine and depending on failing wind supply for power. Carbon is a problem right now the only solution is nuclear. We need reliant power. SaskPower has been doing a great job. All for renewables, rebate on power but we have to make sure enough sustainable reliable power to supply industries and make money. Recovering an acre of land for photovoltaic cell instead of animals, farms, etc.
Concerned about centralization, SK behind other jurisdictions, try to get more solar energy production makes sense for SK, Wascana solar coop, solar not getting enough attention.
Lots of interest in solar, what about storage? Trends with storage? People more aware of climate emergency than a few years ago, IPCC report helped, renewables have become cheap, SaskPower crazy to consider expensive SMRs, storage enormous issue, where are minerals for batteries sourced rom, need to look at other options, can we do pump storage, Scotland experiments, other options besides Tesla, need storage for electric cars. Reason to keep consumption low need serious work on demand side. Caverns in SK key, geology for compressed air, should be investigated, distributed grid, long lines – potential for storage on ends of lines, reliability increase. Energy storage topic is broad, not just batteries, reservoir hydro, green hydrogen, gravity options, as batteries drop in price short term larger role, but longer-term solutions could be different. EV fleet storage – Europe, Nissan delivery vans, frequency management. Lots of vehicle to grid in Europe, slower in NA, transitioning away from CHAdeMO, support for combined charging system (CCS) still coming, electric school buses. Couple years to get technology pieces in a row. Additional wear and tear on batteries covered by Nissan in Europe. Right now, solar is looked at around world as solution, concerned about impact of rare minerals. Not everyone can have electric car, variety of solutions, but SP could still increase their solar, AB committed to 5000MW, SaskPower 60 MW, look at what makes sense for end users. Change to net metering unfortunate – was attainable for residential consumers. Wind? Microgrids – can increase management, communities can manage their own production and consumption, taking pressure of SaskPower, should be more options for small scale mini windmills on houses, large generators need maintenance. Range of solutions needed.
IEA scenario to zero by 2050 – necessary to get there by 2040. If SaskPower wants to be on the global trend, they need to be there by 2040 to support the province getting there by 2050
There's an increasing number of agencies that say acting on the climate is the future.

We want to make sure our kids have air and clean water and a way to grow and eat food. If we cook the planet, we cook ourselves. Should have acted earlier, but the only option is action now.
If we can distribute generation more widely will create more flexibility – reference to transmission line loss.
Is there work being done to do more geothermal? Is there other places that have geothermal opportunity?
Small scale nukes are completely different than big – big are uneconomic and unsafe. We know the cando tech is safe but have to deal with the spent fuel. No one believes we can keep something secure for 60,000 years – we can't plan that far.
Interested in nukes and seeing how that gets put together. Have to be a little worried based on past history but seems to be able to move forward.
Nuclear is a big waste of time and money.
We have already made a big mistake to say we want to work with nuclear. They won't be ready in time. If we are putting time into that, we aren't working on what works and they are more affordable. ON's investment in nuclear resulted in very expensive nuclear 15 years ago. And there's no way to deal with the waste.
Net metering and getting local electricity and sharing – Saskatoon Light and Power, should have SaskPower facilitating that group having their own wind power because it is inexpensive and no pollution.
I think it is great to build transmission from MB with the help of the feds and importing clean hydro. We can share our wind and solar and they can share their hydro
Increase home and building conservation – building standards. Facilitate higher standards through incentives.
Seattle energy issues – the utility there made money through reducing home heating consumption (SaskEnergy or maybe the province should be on energy conservation)
Intrigued by CCS, but don't know if it will be effective. Pay the University to track and see if it is effective.
Solar didn't make residential economic sense for one participant.
Nuclear reactors – new ones (thorium reactors use up all the waste) don't have waste. It may not be for the short term, but it needs to be in SaskPower's long term. To run all the homes and EVs, we are going to need a lot more power. It is a power that is sustainable. We can put SMRs at mine sites or areas that need powers we don't have to have a heavy infrastructure with the transmission lines.
We have talked about district heating, net metering, straw bale housing, innovation through our rural communities
Just to capture a few other trends: - Cost of electric vehicles dropping and upfront cost is expected to equal conventional by 2027; - Electricity planning is increasingly broader; discussion of macro-grids to allow reliable backup of variable renewables; and - Carbon pricing will drive economics of low-carbon alternatives.
Key trends I can think is that – consumers are more aware of the impact of the environment and people care. People are concerned about the planet and the future of the kids. I think that is huge. Not just consumers, but companies and governments.
I would reinforce that comment – consumers and industry having concerns of long-term sustainability – climate change is real. I am hugely interested in alternative sources of energy. From an industry perspective reliable back-up is important and same for residential but don't want to see that outweigh the planet.

Key trend – greenhouse gasses are not going down. Climate change is a real threat. We need to urgently move to reducing GHG emissions. Its impacting our perceptions on how energy should be generated. Coal power and concerned about more investments in more natural gas as it still leads to more GHG.
Trends of reduced costs for renewable generation make it an economically sound solution and environmentally sound solution.
I think that we can import more hydro electricity power vs the other back up options.
Echo everything – also feels that, SaskPower is a bit behind the eight ball. Things moving rapidly with renewables – a lot of other places are further along than us, so we are playing catch up. This is so important and we need to be doing more.
One thing I would add – I have at least 6 power outages in 3-4 months – tells me that reliability of the system is in question and the need to get away from the single source generation model – more diversified model and interconnection model with other provinces across borders. Not get in situation like Texas where because they are independent, a lot more problems arose to get support from other states.
Key trends in today's society is green environment for our children. We need to put that along with sustaining electricity for our residential – no power outages. In PA they are out of power because of fires. We need to sustain it and not just depend on one system.
Climate change is huge, but the other expectation is that the prices won't go up too much – that the prices be affordable. Reliability and to keep up with new technologies – to keep up with other first world countries – SK is always behind and we are always trying to catch up.
Invested in SaskPower's solar panels previously – disappointed that net metering program was shut down. Was good way to help with GHG emissions.
Concerned about climate change and that SK is a bit behind in transitioning. Interested in solar – but missed net metering program.
Focus should be on renewables and established all over the province to distribute economic opportunity.
SMR's are too far out, will not help with 2030 goals.
Natural gas, including flaring in oil fields – has emissions associated.
Canada and SK should consider extreme weather conditions and changes to climate and weather patterns. Electricity market will be affected – all aspects, including transmission and distribution.
Look at what other countries are doing to manage this transition and GHG emissions/pollution.
Extreme weather is predicted and starting to happen – is a concern. Reliability needs to be a focus as we move forward.
Keep an eye on price point and value for our money. Cost of electricity affects agriculture, small business. Cost to consumers needs to be managed.
Every household uses more electricity today, compared to previous years. Electric vehicles. Electrical usage will increase as we move forward.
PA – 10,000 households. Lots of money spent per household on electricity, fuel, natural gas. Should consider renewable resources local and keep it within the economy to help. SaskPower should encourage communities to invest in power production.
Saskatoon and Swift Current have their own power companies and perception is that they can provide more flexible options for their communities as compared to SaskPower. SaskPower should step up.
Roof top on many apartments is there. Net metering should be a good method of helping with this issue.
LED lights or helping residents use power efficiently is important.

Net metering, in all countries using renewable, in SK extremely slow, understand it is difficult to change, we have to change also, loving earth, we are all connected, includes money into government from SaskPower.
Quite alarmed that SaskPower plan is so weak, it sounds to me as though they are not aware that we are in an emergency, unsure why only 40-50% by 2030, Scotland did 90% in similar time, feels SASKPOWER plan is weak, solar and wind can be built in a few years don't understand why so lethargic on those, wondering do our grid managers need to learn from other international leaders in this area so they have the knowledge and skills to do this. Concerned on SASKPOWER vision for PV, really surprised in prov with exceptional free sources of sunlight, commitment to solar has to be at least 50% by ?? Look at IEA report released today. Need to take bolder leadership. Thanks for the opportunity to participate, understand not easy, but.
One of the key trends is people's awareness of the climate and understanding that we need to do something and SaskPower is where we start need to get rid of coal and natural gas, significant carbon footprint, one of trends I see in rural SK reducing power through energy efficiency, conservation. RM of Shellbrook see at least a dozen solar arrays, a lot of us got in when program was still incentivized by a grant.
On the point of conservation, we have to have a strong emphasis on renewables, we should put reduction efficiency before simply replace all the kWh we are using now, part of that could be distributive planning. In the past centralized system for SaskPower with strong corp. and unions has been the way to go in future plan for more distributed systems not totally under wing of SASKPOWER. Mandate of SaskPower is contradictory, mandate to sell as much as possible, and on other to reduce energy use, not sure what answer is but one result is what SaskPower invests in DSM is lower than other provinces, pointed out by SK chamber of commerce.
Encouraged by this, being that it is a public corp. people have a say, think it should stay that way, we need to see some real leadership, because public service we have opportunity to get it right. Don't have to look to far to see good leadership, would like to see bolder vision, caution on SMRs.
All for renewable energy but realize you don't gain something without costing something we have industries in this prov, don't know how many acres of land would have to be covered to power a ??, are you going to be a mile underground in a potash plant and rely on solar to get you up in a skiff (elevator). We need reliable standby power, there is much more, we have miles of transmission, think SASKPOWER has been doing an excellent job, all for renewables, PV with rebate, but need to make sure have enough sustainable power to grow our industry we have to make money in this province as well. If cover land with PV what are we going to grow on that land?
What is the growth in consumption year over year? Has that been 'normal' growth?
Discussions with Manitoba about a Western Power Grid have been ongoing for many years – lots of hydro capacity in Manitoba available and should be a consideration for SaskPower.
Would like to see a good study to build a 500kV DC line from Gillam to North of Saskatoon and then on to Alberta – estimates $4B project cost ($1.6B for SaskPower)
Could also consider nuclear to supplement this 500kV line.
Moving toward renewable energy and moving away from fossil fuels, specifically coal. Consumers are seeking cleaner energy sources for future generations.
Federal and provincial governments pursuing 'questionable' SMR options – being driven by outside interests and nuclear industry. It's dirty and not safe. There are safe options available. Mining industry is having an interest on decision making. Doesn't make sense if you have cheap forms of renewables like wind, solar, geothermal and batteries. Can meet a lot of our needs with these options and energy efficiency.

SMR as an alternative. Technology has changed a lot and is a much more viable option. Makes sense to utilize local assets (uranium). Ontario relies on nuclear.
Renewables matter. People are opposed to doing hydro in Saskatchewan which doesn't make sense, but are okay with buying from Manitoba.
Need federal support.
Concern that there is political pressure to go SMR route. There are cleaner, less expensive sources.
Cousin has a wind turbine on their farm that provides enough power to do farm and grain drying.
Don't jump on the SMR bandwagon.
Moving towards renewables. SaskPower needs to know 50% below 2005 is a pretty low goal. Transition to renewable is more urgent than what SaskPower is looking at.
What happens with the waste from the SMRs?
SaskPower needs to include Indigenous stakeholders in the decision making because they will be the ones impacted.
Cancellation of net metering program disappointing. Live in small town would like to see electrification of agricultural implements (clean) also concerned about a just transition to renewables so people in the coal industry aren't out of work.
Accelerated site closure – reclamation of abandoned oil wells. Repurpose them to clean energy / solar / geothermal? Green transition always on the cusp of conversations. Ensure space is made for Indigenous folks to lead on some of these clean energy projects. We have the same priorities.
Emergence of solar and wind – SK has a lot of potential for these, we have uranium mining here and we have geothermal pilot project and lots of expertise in oil and gas which could be used for drilling.
What strikes me is the constant discussion around economics. But how much is it costing us not to do it? Look at next generations. In China they made a huge shift out of coal into electric. They suffered air pollution problems – we don't recognize our impacts because we are sparsely populated but our footprint is huge.
CCS was an expensive boondoggle that just pushed more oil out of ground. Now with SMR talk it's like SaskPower is trying to sabotage renewable energy. We need a whole new system not just patching up the current system for the benefit of vested interests of the past.
Need greater consideration of cradle to grave of carbon footprint. Change is important but how much energy and new infrastructure is needed and what is the footprint of that change.
Need reliable source of generation, need to address future energy needs, electrification and shift in culture, concern with climate change requires future visioning and planning.
Need to watch power stability and need to keep it at a reasonable cost. Double edge sword – need to address climate change but still be able to live in the province.
Trends: higher expectations for clean energy, net zero, communities want to participate in generation and economic reconciliations. Big opportunity to educate people on how the system works.
Trends: electrification of transport, microgrids, battery storage, customers looking for reliability when the grid is down (recent PA situation) inclusion of renewables and importance of baseload – Europe has done this well.
Don't know what trends are going one, need to consider the hazards of new energy sources and how that could impact water, need to consider reconciliation and continue with public engagement.
Look at this from a communication perspective and see gaps – where people are being left behind, because they can't access information to participate in engagement. These people being manipulated by those preferring a delay mindset.
Keep moving forward toward net zero with broad involvement of the province. Climate change is forcing this shift.
Afford even with rebates, hearing about SMRs not the way to go.

Starting to shift to renewables in the world, make solar panels cost effectively, some cannot afford even with rebates, hearing about SMRs not the way to go.
Key trend significant tension between those that support renewable and leaders in prov who want to continue fossil addictions.
One of the trends is seeing how everywhere around the world is being impacted.
Need to change the way we create power if we are going to meet our targets, and we need to change in order not to harm future generations with current methods or untested technology.
Been investigating the impact of uranium in 5 areas of the globe. Does not want SK to consider untested technology, not safe way to store, the study out of Germany about the harm that uranium has on children.
Feel like we need a base load like nuclear to balance renewables when they aren't reliable.
I think it's important to think about the trends we are seeing beyond Canada because this is the market and three that are important –1) integration of electricity systems including the use back to the generation systems. Battery store, DER, electrification of transportation – this will change how power needs to be accessed and how it needs to flow, impacted integration 2) cost effectiveness of energy efficiency, more cost effective than any other method – need to incorporate more efficient use of the resource, and demand controls (building automation) we can't ignore, or we won't be ready for the disruption that it coming in only a few years.
"1.Integration of utility and private facilities (considering industrial and building energy management and energy efficiency), onsite renewable energy, electrification of transportation and integration of the related battery systems into the grid. 2. This needs to be technology and a business model discussion - making sure the system recognizes the value of distributed resources and pays consumers for the carbon emission reductions and energy they supply to the integrated system."
Thought solar rebate should be brought back in. Switch back and forth on nuclear, we only have a small window and the negative impact of environments outweigh the risks of nuclear
I don't think that the solar rebates were the biggest issue the deterrent is that the credit of solar was cut in half.
Now just tech that SaskPower needs to consider but market models. Instead of rebates, we need to create sustainable market mechanisms, the rebates/credits need to reflect the cost of deferring generation and the cost of emission reductions.
Need to reward people for their green generation contributions.
Customers who do not produce power may have increased costs – overproduced power that I am sending to the grid is only valued at half it's worth and this math doesn't add up for me.
What's happening in Canada and in the greater market of technologies for consumer products; and also delay from our governments looking at looking at global warming issues, with the expectation to moving from GHG to lower carbon by 2030. These will be major consumer impacts, plus any other power increase from customers.
Want to consult with nuclear industry, I liken it to government and the slave trade. You are inviting the slave masters to the consultation. That's what the nuclear industry is. We need to get away from consultation in that perspective.
Impact that electric vehicles will have. As they become more popular there will be a massive need to power them.
People are looking for solutions for sustainability and not further damage to the environment. Reduce emissions to survive into the future. Focus is turning towards renewable energy. Technology is cheaper and can meet base load requirements, without the need for natural gas or nuclear to be added into the mix. Lots of cities and countries are going in that direction.

Teach youth every year and think energy is one thing that is generational and up and coming generation is very much interested in 100% renewable – want it done quickly; noting IEAs report talking about no need for oil and gas development. Moving away quickly from fossil fuels.
Increasingly people are interested in social justice concerns – making public again the utilities so that they serve other policies beyond on profit. Focus on other people like low-income with reasonable utility bills, which focusing on other things like distributive generation and modernizing grid.
Energy efficiency – deep retrofits, utilities see their role differently - like deep energy retrofits or some roles that utilities haven't seen themselves in.
Don't want to see the development of SMR – unproved, expensive and too far off the timeline.
Finally getting into moving away from traditional energy and believe in sustainable communities and companies. SaskPower needs to diversify – take many different approaches to power.
As a SK resident power should be public, but grid is separate and could be treated as such. Want to put own power onto grid. Was invested in a passive house in Regina, started in Europe – not just homes, hospitals, schools – 40,000. Classifications – three.
New steps in Europe energy generation, renewable energy generation on site, in Canada is net zero ready, that's fluff, to say net zero just means you have the ability to generate if you so choose, if aren't focused on minimize energy - that's the passive theory.
To get to passive need 17 solar panels, to get to premium would need to get 120 kW would add 50 panels and looking at the rebate to offset the cost.
Agree SaskPower should stay public. Would like to see more local production, rather than large production in one region. Has too much trouble with staffing, while at home little initiatives provide energy at the source. Good to have grid as backup but like to be responsible for energy resources if possible.
Purchasing less and consuming less. All kinds of theories and knowledge and possibilities, but don't have a place to go to learn about the whole picture. What the impacts and implications are with wind/solar and why even bother with that. SaskPower has turned us a bit skeptical and looking for an authority that we can trust.
I don't understand why all the appliances in house need lights and use power. We have lived in a passive solar house for 35 years. Climate change has changed the weather patterns and we don't get the same amount of sun. Had to reduce windows initially, but don't get the same sun these days. If we have done this for 35 years, why hasn't the construction industry changed to reflect how we can reduce consumption.
Don't approve going large scale, make small projects that can connect to the grid. So many things that could be done to increase our energy without great big mega projects without costing a ton of money.
Global warming is pushing a lot of people to wanting green power and new technologies involving the fluctuation of power production and backup.
There is a need to investigate storage and hydro.
One thing that is behind a lot of the greening is the assumption that greener power production equates to private, one of the deep concerns I have is the efficiency of power production.
SaskPower has been slow to green our energy. The reality is SaskPower could do this more efficiently, buying solar panels, wind turbines, even infrastructure. If you privatize the infrastructure is only designed for a fix period of time. Public can let towers stand for 200 years rather than 30. We must focus on the reasons why we have a public power company aside from transmission. How do you stop a corporation from adding to the grid? Can't have a big pool of people for everything. How do we compete with Manitoba if we are private? SaskPower is too slow on this which created pressure. There are efficiencies for large scale power production.

The big thing is that as people are trying to do their own part and purchase electric vehicles you are plugging into a dirty grid unless you are self producing. Need sustainability, the amount of power that is necessary for the vehicles, storage, and clean energy. Natural gas is not sustainable. Not a long-term approach. It is temporary.
Net metering with solar panels is a concern. Concerned about maintaining feasibility for transmission of self-producers as additional residents install solar. Not everyone has the ability to install solar.
Our solar panel project is on an inside corner in Regina, people come and chat. They want to be part of the solution but don't have access points with SaskPower or common knowledge about solar. Was a former Mayor, and is interested to see what the municipalities are doing. Lumsden put in solar panels, Winnipeg did geothermal. Frustration with public, and when projects get slammed (net metering, producers). There are a lot of people who want to engage part of the solution and are not finding public policy to help them do it.
Global warming, green energy, planning perspective. In NS only planning is Wind Turbines, here it is a foot note. It will be interesting to see how we plan around the trends, wind, solar.
Are there things local government can do to come up with policies to encourage and promote renewable and alternate energy? There is more the province can do to bring things to the forefront. From the RM level, more programs for us to be able to promote. There is the possibility of wind, alternate energy nuclear, etc. for longer term and diversifies economy.
Need reliable source of generation, need to address future energy needs, electrification and shift in culture, concern with climate change requires future visioning and planning.
Corporate renewables PPAs (power purchase agreements).
Second PPA in AB, we're seeing more and more of those to mitigate scope two emissions.
Retiring coal earlier than what people were forecasting earlier, we now have less coal than what we were planning for.
You set a plan or goal by 2030 but then the feds kick in and the coal producers claim it's not economic to operate and then boom they retire earlier, and we've got the most expensive power yet.
If SaskPower decides to retire coal early, with gas or whatever – that up-front capital cost impacts rates.
Being able to manage your own carbon liability, a lot of people would like to do self-generation
There may be opportunities for facilitates to specifically support this
Nuclear industry is using climate change as an argument to proceed with nuclear.

What is changing that we need to keep an eye on? What should SaskPower be paying attention to that will impact planning for our power needs?
Power consumption keeps going up.
Messaging – people don't understand how their power works or why the lights come on. It feels like we're being seen through a negative lens.
Look at procurement options to be broad enough to capture some peripheral opportunities.
Lessons learned from COVID, community of how we work and play going forward When looking at our options, not looking in isolation. Not just SK perspective for sustainable for power source, expand our horizons including Manitoba Hydro. Use capital to expand Manitoba Hydro interties, partnerships to build on renewables. Share opportunities with Manitoba Hydro. Challenge will be transmission not just generation. Will be interesting.
SaskPower should revisit net-metering decision-huge misstep on SaskPower behalf.
Not just focus on large scale installation (which is what SaskPower currently does).
How can people implement smaller scale innovation and embrace renewable energy.

Should be concerned with stranded assets
I think we have to pay attention to things such as what happened in Texas, similar in Canada, not a lot of interconnection, as we see more climate and weather events, important to have interconnection.
It would be beneficial to make it easier for industry and consumers to sell back to the grid, if we can produce our own power it should be easier to sell it back.
I am concerned that we have an energy system based on fossil fuels, oil for transportation and gas for heating, we need to move away from these. We need to find sustainable electrical supply, providing for offsetting the fossil fuels.
We went from buffalo chips to oil, and we don't seem to have a good vision for the future.
We use electricity now, and we need to change how we generate it. We will have a huge demand for electricity, electric cars and heating homes with electricity, so we need to figure this out.
There is no solution at local level, the advantage of being a late adopter is that we can look and view what is available, it is out there we just need to adopt it?
What do we need in SK? We need to do it quickly and together, but there seems to be a disconnect.
Generating electricity from oil flares is from 20 yrs ago, we need the ultimate goal of no greenhouse gases.
Going from oil to green production, there is a real disconnect here, we need to do this in 10 yrs. We need to get started tomorrow.
Old news is no good.
We have the ability in Sask to maximize the benefits to our community, we can create our own battery storage, we can create our own solar panels. We could do the whole province for $11/week per person.
We need to maximize the situation. We need to build and install them locally, we need to get the benefits locally, and we get the economics and jobs in SK locally.
Always been against nuclear reactors. I don't think we have the political willpower or even the motivation of the people of the province, to get to less than two degree heating of the province, but I think we will need to go to the SMR model even though I was against it before. I think it is going to be necessary.
One of the urgent things SaskPower needs to look at is a decentralized grid. The ability to add in battery storage.
Does SaskPower have the ability to thwart the agreements the province?
Traditional model of service this is changing. The host in capacity in the grid and accommodate generation and needs to be incorporated into Transmission and Distribution. Design a grid to host. Pattern of generation is changing. Residential solar, heat and power, heat pumps – generation at the point of consumption is changing for all utilities.
Independent power generation (IPG) which comes from renewables, bigger challenge from base mode electricity. Easy for us to generate solar but when sun and wind don't shine and blow we need a baseload. How are we going to balance the baseload that we need to provide with IPG and is not 100% reliable.
Economics are changing – carbon tax and will reach tipping point when conventional energy is expensive. We need to look at off set market that didn't exist in the past.
We can be a fast follower and lean best practice and what is taking place in the world.
Battery storage – living in Regina. Needs to be a solution for renewable energy or we are going to light candles at night, how are we going to do this?
Hydrogen storage is a long-term clean energy storage we have the geology to support. Hydrogen hub. Tech support for clean energy and storage.

Electrification is happening and we can move to renewables and cleaner sources of generation. Technology is changing and will lead to increase in power demand.
Customers can participate and contribute to fulfilling their energy needs.
Rates are not defined to allow for customers to participate – need to evolve so that we can accommodate what customers need – even if it's just poles and wires. What is the role of the utility and are we structured from a rates perspective to accommodate?
No assurance from customers that any of their generation will be available or online, which puts pressure on utilities to be able to serve customers.
Cost of power – as we pursue new generation options, recognized the difference between taxing one aspect of energy production and then supplementing another, not apples to apples comparison on cost. Positive incentives to manage emissions such as carbon capture,
Reliance on natural gas, challenges with pipelines/access and supply.
Need to have a portfolio of generation including historical and renewables.
EV growth will only drive up demand/load on the system with GM and Tesla forecasts, draw upon system. Need a combined approach with respects legacy and new renewable options.
EV planned for next decade, the power grid needs to change over next 15 years (more so than past 100 years) as fuel. Creates new opportunity for new jobs and diversification of the grid with more than one-two types of fuel sources. Estevan is the solar power capital of Canada.
EV impact will increase need for Electricity and electrification of buildings (transition from NG) such as BC.
Point to changing expectations and federal policy, work with SK government, made in SK policy that supports more of SK innovation, not rely on other jurisdictions like MB, things that central Canada feel are important.
Price elasticity, wind and solar in ON we only use portion of, because electricity fixed price rate-based mechanisms ramp up.
Work with clients help manage their energy consumption, how our grid is changing behind other provinces getting renewables online, interested in seeing how we will change billing structures, plan for renewables coming online, and smart grid in future.
In ON smart grid kicked our peak out, for distribution, increased dist. rate, became its own destructive cycle, it worked but added lots of intermittent and reduced baseload, so we don't use the renewables we've payed for, and gen has dropped off, so if less demand = higher fixed costs, heavily capital intensive.
Others interested – does that lead into others looking at microgrid, and self gen and how that impacts SaskPower business.
Consumers who got off the grid, got off, so running kilometers of transmission, subsidize costs across less people.
Question they get all the time can we do this on our own without SaskPower?
Feel that is a good question, avoid grid defection, balance generation owned by SaskPower with industrial etc that can be cost effective as transition into new xxx costs and needs
In the UK nothing on the grid running today will not be running by 2050 Would industrial customers (potash mines) look at micro SMRs as an option
Already high operating costs, carbon leakage becomes and issue. Need reliability and cost effectiveness.
Carbon tax is driving change. Monitor what is happening in Europe. Keep an eye on transmission.
Storage is critical. Decision is likely distributive vs centralized.

For me, the increased electrification of everything – vehicles, heating, moving to a more green system and weening yourself off fossil fuels. The technologies available to decentralize networks. Using more wind, solar, battery.
With the increased load on the system trying to reduce the peaks and the demands in power loads.
Thinking along the lines of air quality in BC that is heated by gas and whether or not we will see a push to electric heating because of that.
They system needs to be more robust. Reliability is what it comes down to,
The interest rates and intense debt that SaskPower has taken on with 80% of debt
Stranded asset risk with changing industry and new types of generation coming online including implementation of new batteries.
Nuclear - it's happening in the country, it's happening in the world. There is an opportunity for SK to do more than just mine uranium. We can implement a new economy and small reactors, manufacture components, spend fuel. A lot of possible economic and social impacts. If SaskPower chose a nuclear option, we could see a very positive impact on the province as a whole.
Costs – just my own personal experience. I moved from Ontario which is powered 70% nuclear to SK which is 70% fossil fuels and my costs went up significantly. And I had electric heat in Ontario and gas heating in Sask.
To add to that – the cost of the transition is going to be of concern. Again, stranded asserts, new technology, new facilities are going to be cost significant for the consumers to pay for that.
The one thing to from an outsider perspective to SaskPower – new technologies are not always wanted from SaskPower and I understand that because it takes away income from SaskPower which I understand, but it's going to happen so to not accept it, it is going to happen and it could happen in a snap versus a slow transition. Just an outsider perspective.
In terms of the planning – at a conference I was at in the UK, when they look out to 2060, nothing on their grid will be operating on their grid. I don't know that timeframe is for SaskPower.
Changing expectations, federal policy, working with Sask government to make sure there is a made in Sask policy to support Sask base innovation, or relying on other jurisdictions.
Price elasticity is very real in Ontario – Saskatchewan needs to keep our eye on this- so that we don't end up the same.
Interest in how we are going to change our billing structures, to incorporate smart grids, solar, etc.
Smart grids in Ontario had the opposite effect – self destructive cycle – 33000 MW of hydro and nuclear, time shifted – they don't use the power they generate. Generation has dropped off 20%. Rate base ratches up cost – given the fixed based system.
Toronto has an awful problem – self destructive – an example of what not to do.
Microgrids and self-generation impacts SaskPower's business.
Can we do this on our own? – lots of questions for this – people are talking about doing it themselves.
Need more positive opportunities to balance generation that's cost effective, given new infrastructure – maybe opportunity between lots of entities.
Timeframe is important to understand. What technologies are available now or what is the fastest way to reach out goals.
Need to ensure we are looking out for those affected by the removal of fossil fuels – coal industry.
Need to consider other industries – oil and gas is going to be needed going further as well and need to consider decarbonizing those industries.
Possibly moving other industries towards to electricity.
Stay in touch with what is healthy for now and seven generations and beyond.

Province is in debt, talking about expensive SMRs, take that money and mandate provincial building codes. The model was built on more and more production, change the model – change all the streetlights to LEDs. The trend is to conserve.
Resent SaskPower talking about projections – we need more power. We need electricity, not more power. If we lower use, we will need less.
Natural gas prices – they were built in the short term, but they will cost in the long term.
EE – regulation is far behind. Access MB Hydro.
One thing that we should keep an eye on is the future of energy storage – how that might affect the power system in the future – what that means in regards to relying on renewable energy and draw on it as needed.
Another thing is looking at the downside of energy options – not just about if they are emitting GHGs but also if they have other negative impacts (i.e. SMRs).
Cost is critical – know that is always going to be a battle.
SaskPower can't do this in a vacuum – need to work with other provinces and the feds. This technology is not likely to be home grown but come nationally – most of the world going the same path as we are trying to go and being driven federally – the answer coming from SK is likely low – needs to be a collaborative initiative – be federally driven as that is where the money is. Can't take it on our own shoulders.
Waste management & recycling – place for SaskPower to improve. In my community just across the river is a hydro station – they go through a lot of oil – how do they dispose of it? Know in the past they buried it in the ground (30 years ago when the environment wasn't important and now it is important).
The amount of people we are bringing in (population growth), types of industries we are willing to attract to SK, resources available, and the future of – worried about using SMRs and the waste from that – how are we going to manage that in a safe way if that was an option.
What is changing – more and more consumer goods will be powered by electricity, even in SK in 10 years if more drive EV that will raise need for electricity, we need to be more eff, see trend to heat pumps that require electricity, there is a need for the household producer, could put panels on my garage and would likely put battery in since not good rate from SaskPower, SaskPower needs to plan for this.
We are all in this together, if we keep that in mind, if we don't it will be tough.
Rural infrastructure needs focus. We've done all we can with what's there.
Further work needed around life cycle of projects. When are various parties to be involved, what are the entry points? Indigenous people have serious concerns about carbon footprint, but there are economic benefits of projects as well. First Nations often consulted but not included as participants in projects. Need meaningful opportunities for First Nations to own projects.
Also opportunities for partnerships could go a long way for First Nations participation.
Surprised when I moved here that I was not allowed to run a line to my neighbor's property if I put in a generator. Efficiency needs to be talked about.
Mobility needs to be talked about too. Why are we looking for something clunky and heavy and permanent going forward? Should be more flexible.
Infrastructure costs play a role. SaskPower has to look at long term costs of what options we choose going forward. Concern – new infrastructure is expensive; capital could be a driver of a long-term plan. If there is so much new to be built and we want to be flexible how do we keep rates low?
Keep your eye on what is happening in the world right now, 2030 sounds good, but is 2030 a realistic goal, would like to see 2025 or something, we have to be realistic. Look at impacts to Indigenous, rural, mother earth, etc.

Attitudes towards the urgency of switching to renewables and away from fossil fuels is growing, think there is a movement towards it. Engagement like this where young people can participate to help find solutions urgently in the next 10 years.
Take COVID and how it is changing the workforce, SaskPower has to take note of Evraz and similar industries might have to shut down, how will we plan ahead to forecast future energy needs.
Should improve electrical ties between SK and MB, clean source of power.
Working on the inside have a hard time separating working with SaskPower to being a customer, if SaskPower were to get out more public info as far as SMRs. The public could use some clarification, hearing about SMRs, we won't have coal after a certain amount of time, etc. need public clarification sooner than later.
Planning consideration, SaskPower plans for change in energy system, environmental impacts, community impacts, one thing that can fit in is the sustainable development goals from the UN, all interconnect, can look to those for a global.
Check on declaration for the rights to Mother Earth drafted in S. America. No small SMRs.
Renewable energy need to watch the impact they themselves have on the environment. Don't get something for nothing.
13 out of 20 most expensive natural disasters happened on the prairies. Prairies are going to be impacted hard by climate change. APEGS Journal https://www.apegs.ca/Portal/Pages/Professional-Edge Issue 192 Page 33.
Homes are going larger, at grassroots getting lots of power surges. Has SASKPOWER every looked at using UN sustainable policy as the global platform for decision making?
Start looking at retrofitting and building better.
There are many residential users who want to engage with more sustainability, solar panels, and other technology. Municipal buildings in the province and their square footage could use solar panels for municipal support. Consumers need consistency in programs and incentives. The government has four year mandates, this process requires long term planning.
System as a whole and find a sustainable grid connection for residential and commercial customers. The first-time people are connecting to the grid, ongoing costs to SaskPower, to keep backup power Find a sustainable model that people can do themselves.
Can only make power inefficiently; we need a big bank located where you need it, or you can put a solar panel on everyone's house. If SaskPower doesn't support, it's a problem. Inefficient system is a huge risk.

Do you have any additional values or planning considerations you'd like to share with SaskPower?
Competitiveness between Saskatchewan and other jurisdictions is key to business and economy.
Estevan is transitioning. Husband works at coal mine. SaskPower needs to keep CCS in mind, versatility, we could be world leaders. We are the energy city, all forms of energy possible.
Battery tech to be a back up for renewables.
Opposed to nuclear.
Renewable is great.
Net metering is great.
Not enough people know the benefits of net metering and the government rebate taken away makes things tougher.
Appreciate that SaskPower is doing this meeting.
Concerned about a shift to renewable, how can we be more interconnected with other provinces?

See planning perspective what utility plan is 2030-2050 what is the utility to do with SMR, nuclear and scale of generation you are looking to put into grid. What does SaskPower see that looking like and how to integrate these plans to municipal plan.
Value perspective, we are not leaving people behind. Ensure we are lifting people up to transition to renewables.
Mother of two kids – planning and pull in our youth to these discussions. Distribution of what we know and believe in for climate change. Teens leave lights on and pull in future generation into this planning and show them what they can do and everyday behavior of effective use of energy. Would be cool for SaskPower to do.
Good for environment and sustainable. Clean storage.
We need to look at energy from net energy perspective and not net cost. Truth and reconciliation, Identify net benefit back to communities vs. chase the cheapest.
Hope that SaskPower doesn't jump on a bandwagon because it's what everyone else is doing. Instead just do what's best for Saskatchewan. Are wind and solar really effective solutions or are we being pressured by the rest of the world to implement 'free' power from these sources?
Address the environment, but we need to make sure we are competitive. Power needs to be reliable.
Off-grid and back-up systems are inefficient. Some people want to live in the bush and be energy independent and have control with no one telling them what to do.
Some can produce power as a byproduct based on what their business process is. Are there opportunities bigger than SaskPower?
10% refund had no real impact on power use, maybe something different could have been done.
Trust – City of Saskatoon has spent lots of time having conversations about emissions and renewables. Feedback is that SaskPower doesn't share its plans for what they are doing or how the grid is becoming more renewable. SaskPower doesn't say enough about it, so City Councils think they have to make their own plans. Being open and transparent about our plans would earn trust for what SaskPower is doing.
Energy Resellers (SL&P) can be a partner and support the transition and are interested and willing to support SaskPower.
Applying an equity lens, not just for elite.
Should not ignore nuclear, with rich source of Uranium.
ON – working with Northern communities, the utility response in past islands, then huge transmission lines, forgot distributed gen, if small gen and long transmission cost is too great/MWh, so need to keep in mind distributed generation will always beat long transmission for small generation.
Some of the infrastructure that is cost prohibitive, goes back to point with federal government you can see money in federal to green, SK has one of bigger opportunities to use, just make sure SK has a voice at the table.
Don't do an Ontario, we have high tariff contracts.
Standby rate for distribution is high rural impacts are dramatic.
Not really a SaskPower issue, using gas as most logical choice for power generation as bridging fuel, where there are opportunities for synergy, where it can reduce costs for SK in general, with TransGas, work as a crown based approach not isolation.
More distributed energy system involving customers more.
Change in net metering program was not agreed with and SaskPower should not have done that. SaskPower should be encouraging this.
More transparent on the real cost of power (time of use etc.) so that there are more accurate costs of what things actually cost. Power pricing "trued up".

SaskPower should consider the Economic implications beyond just electricity and to think about non-electrical implications and benefits for Saskatchewan.
Great to have clear start to finish cost for customers. Feels customers only see part of the costs. Life cycle costs.
Choice of generation choice would be a dream. Customers could choose where they get their energy from (wind, nuclear etc.). Customers could choose to pay more if they wanted their power from somewhere else.
Levelized cost of energy (LCOE) for wind should include the backup cost for wind so that it is a true representation of the cost.
Cost of the infrastructure will be significant, and customers should understand how costs will impact the rate base and how this will impact operations in the short term.
SaskPower should look at how we treat demand charges and how this will impact people with electric vehicles and how SaskPower will increase infrastructure to support this.
Carbon value is going to exceed the price of energy. Previous projects that may not have been cost-effective are now becoming economical.
Toughest thing is identifying the benefit of providing additional capacity and reliability on the system for customers. ie: economic benefit.
Benefit to communities for community owned generation.
North vs South impact? Health and mental impact of a four day outage on northern folks. Businesses fail to operate effectively.
I would really like to see a more distributed energy system involving customers more whether it be rooftop solar etc. I was opposed to the change in Net Metering program. I think SaskPower should be more involved in getting customers involved.
SaskPower should be more transparent and trued up to the real cost of power. Time of use, all of those aspects so that there are cost aspects built in so that in the long run, SaskPower is not hung out to dry so that in the transition if something happens such as increases in consumption etc. there isn't an instant directed changes be it political or otherwise where all of a sudden, they change the way things are charged out, that as people enter into the shift of where power is used, they have an understanding of the risks and all of a sudden if someone electrifies their home completely, if SaskPower changes the way they charge out, it can really hurt the industry and the capex that consumers are putting on.
SaskPower to consider the economic implications of the province beyond making electricity. Even for potential imports etc. Think about the non-electrical implications of all of the options.
It would be great if we had a clear start to finish cost to the customer of various options. We are all intelligent people here and we would like to know the facts. But sometimes we only get part of the story. We would like to know the full lifecycle costs.
The choice of generation would be a dream wherein a residential customer whether they want to be wind or solar or nuclear, they can choose that. Obviously, there is a risk to SaskPower there. But it's almost like a self-tax on the customer.
If information is put out on LCOE, then backup costs are also included so that it's not just the standalone cost of the turbine, but also the cost of backup gas.
Cost of the infrastructure over the short term is going to be significant and if customers can understand how the infrastructure changes are going to impact the rate a base and for how long. That engagement with the customers is of value so that we can look at the cost of our operations in the short term.
Dealing with demand loads and demand charges – I think that is something that SaskPower will have to look at more closely looking forward. For under 50 KW, there is no demand charge, but for

electrified vehicles and electrification of trucking, that will be very high demand loads. I'm just not sure what SaskPower has in its plan to beef up the infrastructure to handle those demands.
Just thinking about a big potash mine, if I could build something that meets my heat needs and my electricity needs and then go off grid. That technology is something to watch (cogeneration) as it reduces their emissions.
Sask has a bigger opportunity to utilize federal funds for large infrastructure – make sure that SaskPower has a voice at the table to be able to utilize these funds.
Don't do what Ontario did- high tariff contracts. Rural impacts are dramatic - $250/month standby for a cottage up north in the winter - Ontario.
Using gas may be the most logical choice as a bridging fuel – one thing to highlight is that there may be synergies through TransGas and SaskEnergy – look at a whole crown approach – not separate discussions.
We are in comfortable situation in SK, but actions to affect others around the world. Emissions per capita would be a metric to consider – provincial goal or law.
Global warming and awareness of are at the forefront.
Greater appreciation generally we are not the lone users of this planet.
There is a balance – hydro is great but impacts habitat.
Is that more and more consumer will be powered by electricity and we have to understand in SK in ten years people will drive electric car – so we need to be efficient, but we will require more power. A need for household producer – so SaskPower needs to look at it. As we move forward, SaskPower has to plan for it – where people can produce their power.
If we keep an eye for the valuation for the power demand in the future, it will help in evaluating various options, someone agreed.
We are all in this together – so we need to work together to get it done and if we don't it will be tough really tough.
Years ago, at university - infrastructure planning and economics group, discussed huge deferred maintenance price tag. That will impact future planning. Rate review commission: lots of politics involved. SaskPower needs to consider the cost of all the alternatives/scenarios and the impact on rates.
Currently SaskPower is a builder of widgets by producing electricity – I would like SaskPower to move into the energy service industry vs being the ones supplying the power – but a service industry where we could provide ways that people save energy and look at supporting the more efficient ways of using energy vs. just selling electricity. Switching out inefficient equipment, motors, etc. or encouraging energy conservation through insulation, passive solar, etc.
Office tower in Montreal – designed as net zero energy consumption – done purposefully.
Education for the consumers.
Messaging – SaskPower and government joined at the hip (started sharing and then got cut off – shared in the chat) "SaskPower & the gov't are joined at the hip. I find it inconsistent that the gov't would introduce an EV road tax in the last budget. What are we telling the rest of Canada/the world? The Gov't & SaskPower have to get on the same page with regards to climate control"
PA – 5-10%. SaskPower sells energy to PA. community gets 5% of profits from this. More energy used, means more profits to community – deters effective energy management.
Small nuclear reactors have leakage factor which means even a small tiny leak will be a catastrophe. Worried about nuclear industry lying to public about safety and risk. Similar to tobacco companies earlier.
If carbon emissions are really a concern, nuclear is only viable option for energy production.

Release of radioactive materials could affect our economy significantly. SMR's still produce waste and no way of dealing with this waste currently. Cost of dealing with waste. Ten yrs to design might be too long.
Research in power sector is critical.
Look at energy efficiencies on existing systems.
If we can become more efficient with existing systems, it would help a lot.
We install systems that can bring peak demand relief – mentions U of R block heater technology.
Block Heaters for cars – 1.4 million cars (180MW).
More concern around fair and just transition from equity and ecological perspective.
Manufacturers are already looking at climate change and what they can do to help – i.e. electric cars. I would like to see more done for consumption reduction. Lights on appliances could be removed.
There is nothing clean from the mining of radioactive material or the emissions of nuclear generation.
I am a strong proponent of nuclear, I see few downsides with many upsides, but that's just my opinion. Have good idea of how much industrial customers need for energy. They need baseload power.
Monopolize or utilizing hydro power from Manitoba – could build a hydro grid between BC and Manitoba which could back up the grid.
Key interest, impact and huge issues on climate change, fossil fuels will run out. how will we plan in the future? Next decade to ensure sustainable power so it's available everywhere you live in SK. All of sudden we are isolated (like during COVID)- can't access family and friends if don't have power or internet. Impact on emergencies, on mental health that we have seen from this pandemic. WE need to have clean and affordable power. To do it in a way, impact directly involved with fossil fuel don't base the brunt of impacts. Everyone needs to worry about it. Should do things cooperatively. First Nation issues, power can go out three to five days in communities. Ice storms a few weeks ago in eastern area where we all had panic attacks when power was off for five to ten hours and wasn't in middle of winter- which is nothing compared to northern communities. Want infrastructure safe and consistent regardless of where you live. Don't penalize remote areas vs. urban area. Electricity is a fundamental right because if we don't have it impacts are huge for homes, health and business. Protection for individuals and environment as we move forward throughout
A media event that is occurring, key trends, opposed to nuclear power. Ionizing radiation is around, which is not healthy for living things, fetuses and humans etc. Nuclear power is a fantasy, because nuclear failed 20 years ago. SMR's being falsely advertised as clean and green and emissions free. How can we claim that? They will be expensive. 70 years of industry, never on time delivery or inexpensively. Particularly invasion of media, heavily invested by industry is a current trend effecting electrical industry.
Agree, key trends media (social, global supply chains) people cherry picking examples from all over the world. Changing demographics of SK, population increasing – key trend impacting customers. Also, what's changing to keep an eye on – media views and demographic.
Won't be one solution, need diverse power grid. Transmission lines and connection and inter ties – need a diverse portfolio of energy. Additional values- life cycle analysis of some things. Fossil fuels and need decommission, and abandon wells life cycle was not considered – cradle to grave analysis of supply chain of building a windmill needs to be done- what happens when decommissioning? Of wind?
Life cycle analysis being very import- tail mining in north not dealt with. Have to think of self-sufficiency – I knew I was lucky because of blizzard, last road so last road to open up. Look at self-sufficiency. We want people to want to live in rural areas, then people protect rural places. Canada in

1950 fought people in far north to indicated that Canada owned the north, so if we aren't there we aren't there to have it.
I believe self-sustainability especially for rural is very important. Family of farmers, oil and coal workers on acreages loose power for days not hours like in urban. Self-sustainable is best option.
When first power grid, we have changed a lot from 1920's to 2020's for 100 years we haven't changed basic concept of grid. Accept for some people to recently input to the grid although it wasn't developed enough. We should have an adaptable grid to add solar to it. The winds in Southern SK should be good for something. We should investigate the power we could get it from it.
Lack of power for canola crushing plant- implication beyond company- also for farmers who buy goods in their area- impacted when large industrial scale in those areas. Richardson in Yorkton planning expansion – in terms of local economy – not just Yorkton – a large scale area. How does SaskPower work with large industry, knowing provincial customers and residential customers, how does an industrial customer work with them- key accounts works with large customers to build into planning, trying to stay ahead for the need of power.
Seen railways built, additional lines to support an industrial customer – so it's good to hear it would be similar for power.
Have personal connection to lack of net metering incentives – building passive home.
Interested in City of Regina's 100% renewable by 2050 - Equity focused report - https://www.policyalternatives.ca/publications/reports/renewable-regina.
Want to see SaskPower remain a crown corporation and remain accountable to the public.
Solar is an untapped resource to me. Need to diversify, not make old technology less bad.
Problem for SaskPower is the business model. What you are doing in your house isn't make a dent in the problem. Make big consumers pay more and make them responsible to produce some of their own power. Can't just buy unlimited power. No amount of wind/solar can provide big industrial customer unlimited power.

Scenario 1: What are the pros or benefits if SaskPower was to pursue this Scenario?
People want to see solar and wind. Pretty clear. Society wants this so it will be there. Is society willing to pay the costs for this. Power bills will be higher.
Reliable, baseload power.
Leverage extensive natural gas pipeline infrastructure.
Opportunity to place gas generation nearer to load centres.
Can be done quickly than other options.
Reliability factor, customers expect high reliability which natural gas provides.
The companies they work with, challenges are what role does SaskPower play and what role does the customer play? On top of the basic needs of the customers, when looking at renewable technologies, a challenge is reliability and cost. Feedback from industrial sector, it is a fine line. They want SaskPower to expand renewables, but there is a cost to do business, and it is a fine line. Need to set the needle at the appropriate level to make it work for both SaskPower and customers.
Now that wind and solar, the costs are going down quickly. Expanding wind/solar is a pro. Con is expanding natural gas, due to stranded asset. Expanding renewable is win/win.
This scenario is the easiest thing for SaskPower to do because they have experience, in context of committing to net-zero, then natural gas doesn't fit, unless built to switch to biogas or hydrogen fuel, so only works if you begin with that end in mind.
There are ways you can get to net-zero even with ng, you can recover the emissions if you have the right technology. Do agree you need to consider emissions, but for now it is still the cleanest source of

baseload and we can't go off natural gas right now. CCS is an option, then there wouldn't be emissions.
If you apply CCS to natural gas, but as I understand that is not how SaskPower is going, it is coal to gas transition, under carbon pricing scenario federal government is bringing in it will lead to stranded assets and it is a wrong direction.
Do agree with this is a short-term solution, if want to get to net-zero, this is the wrong direction if want to achieve those goals.
Understanding the technology doesn't exist right now to capture CO2 from natural gas 100%, but if keep investing in natural gas those solutions may be developed. For now it is the best because believe in self-sufficiency don't believe we should rely on imports. We might not have the infrastructure 100% but we have the basics of it agree natural gas not a long-term solution but best for short term. It is not clear cut one way or the other.
Industry isn't subject to same carbon tax as SaskPower so they have an edge over SaskPower. More renewable natural gas the better. Create hydrogen with natural gas and that is a growing trend. Hydrolysis is not an option for SaskPower. Instant dispatch with natural gas so good in the mix with renewables.
Familiarity and dealing with something we know – less risk, we know what we're doing.
Leverage local supplies of natural gas in the province and a network for distribution.
Wind and solar are also becoming known technologies.
'Business as usual' builds on current expertise.
Sounds like the cheapest option.
Pro – this works to a point, works to a point of your system, problem in ON, peak is 16 often it is 11, but can't turn nuclear down, we have the concentration of renewables, you should get to 10-15% and that's it for renewables, something to regulate, if you have a lot of base load you can't dial that back, BEW is expensive, so don't overdo this.
Similar comment as before, when we are looking at expansion of renewables, cautionary tale of overbuilding, we like gas flexibility to avoid issues of ON with nuclear power, but juxtaposing to Scenario 2, this one is preferred it is closer to what we have already done, natural gas already in province, knowledge base that SaskPower already has, possibilities for cogen is a key consideration, there needs to be more known espicially as SK works on provincial regulationss, and what that means if industry can play a role with non-taxed generation through CHP. Interesting opportunity that needs to be explored. There is a discussion about carbon capture in Scenario 2, opportunity may be traditional or through fed funding direct air capture, knows needs research but this option may become more palatable.
Continue expansion of large wind and solar to reduce GHGs.
Use natural gas for back up; build more renewables to match.
Continue to rely on power generated in the province and use mature technologies that SaskPower has experience with.
Almost no new imported power beyond what is currently contracted.
Current cost to operate may change.
Regulations on emissions limits, carbon pricing, natural gas prices.
What seems to be missing is utility sized storage (compressed air, and other existing technologies) which will displace some reliance on natural gas.
This seems to address the reliability issue.
"Reduced exposure" to carbon tax.
Improved grid system control with this approach versus relying on external parties.

This works to a point in terms of our dispatch portfolio – Ontario had issues because they couldn't turn the nuclear down. Need system stability, need to regulate the imbalances – batteries, etc.
Europe did the same thing – credits, etc. completely killed the market for credits – advice is not to overbuild your system.
Expansion of renewables – cautionary tale of overbuilding – like flexibility of natural gas to avoid issues of Ontario. This option is preferred over option 2 because we have experience with this, have knowledge base already. Possibilities for cogeneration needs to be more known as the provincial government works through the carbon regulations – need to know how industry can play a role? Interesting opportunity to determine what can be explored – need to know what the opportunities are though.
Carbon capture – there is a lot to be done. Option may become more palatable as more work is done.
Like the expanded gas role, match well with wind and solar, technology SaskPower is familiar with and is cheap. Don't invest too much – it will be dead ended. Need to work on other things – storage, etc. Advantage – once capacity is there you have it for backup whether you use it or not.
Pro – the cost of wind has gone down to be the cheapest option and solar is trending that way. It's good to advantage of low-cost renewables.
Improve the scenario – need natural gas back up. GE are not building generators that can run on natural gas os hydrogen. I should have added hydrogen as another trend to watch. Hydrogen is zero emissions in those units. If we have to build natural gas turbines, we need to make sure we can also do it with hydrogen too. We can store hydrogen in the salt caverns that we store natural gas.
Worth looking at wind and solar, we should make the wind turbines here in Canada.
Energy Conversation should be part of the mix – could make a big difference to make our targets in 2050.
Pro – you need a back-up and it's good to hear that you're trying to work with all the provinces to share power.
Hydrogen – proton development happening in SK. Has merit.
Energy storage – some of the ideas like compressed air or liquid air have merit.
It has been very windy in the province lately.
Need to start retrofitting our buildings so they are protected from power outages. More insulation and energy efficient components.
We need something we can depend on – natural gas.
Renewables focuses on energy independence and not having to rely on outside Saskatchewan.
Look to Costa Rica (100% renewables) – so we know it's possible.
Does not go far enough, our target is will not get us to net zero by 2050. Larger wind and solar are needed.
With wind and solar, are there any concerns with all the space they would take up? Are there locations that may cause issues with environment, Indigenous lands etc.? Chaplin example – migratory birds.
We do have uranium mines, but nobody has a waste location. There is no solution. Regarding the plans, they all do not go far enough. We need to go carbon negative. With wind we could go carbon negative. Instead of backing up with natural gas, we should use pumped hydro storage it is the cheapest.
I don't love this scenario, but it is better than scenario 2. Reliance on building new natural gas that we know is not a long-term solution because it does not get us to net zero is problematic. Good opportunities for wind and solar. Need to produce it where the demand is. Floating PV arrays on the irrigation canal at Lake Diefenbaker, also floating solar panels on LD. The waste management solution is known – reprocess. SMRs with thorium would be lower waste.

Why do we even worry about the carbon tax if we are going to net zero? It's a red herring now.
Emphasis on renewable.
Promotes people to self-produce.
Solar is escaping carbon tax.
Keeps things in Saskatchewan.
Using natural gas cleaner than coal.
Moving in the right direction.
The expansion of wind and solar.
Idea that SaskPower is prioritizing the control of what SaskPower is producing.
There are risks if we depend on Manitoba.
Like the expansion of wind & solar, natural gas emissions won't get us to net zero, methane leaks are not often considered in natural gas emissions. I question the accuracy of the emission numbers being used.
Like wind and solar, concerned about natural gas regulations as they may change and the risks associated with it. Natural gas may be easier now, but does it capture the new design of building codes in the future with renewable options. In this scenario, what does heavily rely on mean? What percentage?
Like expansion of large wind and solar, in ON, they have already started, it isn't new. They are still testing the pros and cons but I am more about using what will be more helpful for us in the future (wind/solar) I don't think we'll ever get away from natural gas entirely but we are trying to figure out new ways, I know that currently we have a lot of pollutants, as long as we are looking for cleaner solutions and learn from places ahead of us, like Europe we are on the right track.
Underlying all of these scenarios, is that we always assume that we can only have a small renewable generation because we need all this back up.
We should ask Europe as they have good ideas in this, I will send these details.
It is great that we increase wind and solar, but in all the scenarios, it is always undercut by needing all the back up generation sources.
Natural gas has GHG emissions are damaging, Europe does not seem to have the problems with wind. Setting up wind farms should not be an issue, not sure why SaskPower thinks this is a problem.

Scenario 1: What are the cons and drawbacks if SaskPower was to pursue this Scenario?
Struggle with how wind and solar fit for base power. He gets that we are building CCGT plants in Moose Jaw and Swift Current but subject to carbon tax.
Still a fossil fuel. Supply issues, potentially. Carbon tax issues with natural gas.
All your eggs in one basket – natural gas.
Risky supply and demand pricing issues – at the mercy of market prices.
It isn't a very good long-term solution.
What about carbon tax costs – like coal?
Job losses.
Relying on natural gas without CCS doesn't get us to net zero by 2050.
Wind and solar are intermittent without large-scale storage, consider mechanical storage outside of the box to advance solutions.
No upside to expanding production using natural gas/fossil fuels, why spend capital in older tech?
Natural gas isn't emissions free. Good alternative with cogen since it is considered emissions free. Won't be much NG free. These smaller options may not be large enough to address all baseload needs.

Doesn't at all factor in some CSG. More realistic to include some CSG.
What do we do with the solar panels and wind blades once they are decommissioned in 10 years? 20 years? 30 years?
What happens in 2050? Maybe just pushes the emissions issue further down the road, so what are the longer-term timelines and what would this scenario lead to?
Scenario one doesn't push SaskPower out of its comfort zone. To really progress you need to move beyond your comfort zone.
Curious about baseload gen in scenario 1, big risk on this scenario, need to keep natural gas generation to a reasonable amount. It's a matter of when natural gas becomes more expensive or if more expensive than other means, will have to plan for that flexibility.
Another issue that we are seeing in ON solar panels have a reduction with time in capacity, no consideration given to end of life, same with BES losses in and out, and they reduce with time, what do we do with them at end of life. When you bake that in it is not so green anymore. Dispatch planning is a B-, every option is a B- option, no silver bullet options.
That is a reasonable comment, you hear a lot about batteries, if do ramp up a lot on solar, what does that mean at end of life, needs more public education on what that implication is especially what that potential utilization of batteries. See Yukon purchase $20 million BES that will support city for less than an hour if power structure fails.
Large scale renewable projects will result in significant transmission investment.
Doesn't consider alternative natural gas use, are we competing for a finite product (which has industrial and generation uses such as "blue natural gas")
This does not support the "built in Sask approach" given most gas comes out of province.
Solar is not a great renewable other than the "on season". Solar is not well suited to Sask.
Hard to understand the net generation mix which makes it hard to see the impact of carbon pricing on the overall situation.
Long term power contracts make it hard to navigate rapidly changing environmental regulations.
Short/medium term cost impacts required to build infrastructure.
Risk is keeping natural gas pricing to a reasonable amount – when natural gas becomes more expensive than other means, we'll need to plan to be flexible to move with that.
Ontario – solar panels and batteries – have reduction with time in capacity. No consideration to end of life with technology – what to do with the batteries and solar panels after eight to ten years, when you bake it in, it's not green anymore – lifecycle and end of life isn't considered – dispatched portfolio is a b minus option, every option is a b minus option, no silver bullet. Solar developers don't talk about end of life.
Need to talk about the prices are for decommission of solar and batteries – maybe need more education to the public – need to know the cost of infrastructure relative to the life of the generation.
Emissions are still present, unless we consider CCS.
Renewable natural gas is likely not large enough to replace baseload generation, but still a good option.
Natural gas is going to be next target after coal – through the carbon tax. Industry is not subject to the same carbon tax and should be considered by SaskPower.
This scenario doesn't factor customer generation into the mix.
Natural gas least favourite, natural gas would run its course. If we are thinking we start off with natural gas then switch to renewable, like hydrogen, maybe makes since, but net zero 2050, or better yet 2035, will end up with stranded assets. Carbon tax could/will likely increase. Wary of anything that is non-renewable, stranded assets. Don't want SK building VCRs when rest of world has Netflix. If fossil gas plants can be adapted to green hydrogen, maybe, but would be wary about building any

more than planned. 1.5-degree target – they will be stranded assets. Cannot rely on natural gas long term. Not just buy hydro from Manitoba but trade with them. Sell them our renewable power. Look at storage options first. Don't just jump straight into gas because we know it.
Con – Wind and solar isn't sustainable without a back-up but NG is still burning fuels – need to be more creative there. I like scenario 2, but it wants CCS so we're going back. We aren't seeing heat generation options like geothermal.
Con – planners have thought in jurisdictional silos but the nature of being owned by provincial government and that's a barrier. To get to deep reductions, it is often high voltage transmission that are bigger than weather systems. Connection to supply back and forth.
Con – it will not meet the timelines. The timelines should be zero by 2040, which is quickly. Building more natural gas without hydrogen isn't sensible.
No imports are a mistake. MB has wonderful hydro. I don't know if it is worth building other big expensive transmission lines. We should see if the ones to MB need to be even bigger than we are planning now.
Wind and solar (in the north), we can have six weeks of no sun in the fall. We depend on the grid, can't be off grid very easily.
If we are investing in CCS, we haven't done anything right yet. We are not pushing to find the other alternatives hard enough.
Wind farms and solar panels are being built. Natural gas back up to keep it reliable. On that scale, how much do we really save in GHG emissions.
Need to understand what the emissions level are with each option.
Should be better options out there than natural gas. Cannot avoid GHG emissions.
How do we maintain wind turbines at the end of their life? What happens to them? I'm concerned about big problems 10 years from now with the waste from the wind turbines. Right now, they're just burying them. Is there a plan in place?
Disposal of wind turbines and solar panels is an issue. Need to be made of recyclable materials.
Lots of siting issues in Saskatchewan for environmental issues.
Don't like natural gas as a backup source.
Can't get to net zero without converting natural gas emissions to hydrogen.
Not sure natural gas can gear up and down based on need.
Limit to amount of wind/solar you can add to the system without strong interconnections with neighbors, we need to increase capacity to transport, buy and sell – we should be using Lake Winnipeg.
Imported power is a double-edged sword – also us to export if needed but if power independence is important because is grid is going down in another province their priority will be them! Also, expensive.
Like expansion of large wind and solar – but land availability for renewables is limited. How can SaskPower manage a panel on everyone's hold? Texas showed us that we need to have interconnected grids so that we can survive the storms associated with climate change.
Idea that SaskPower is prioritizing the control of what SaskPower is producing.
There are risks if we depend on Manitoba.
Question reliance on mature technologies.
Should not rely on these, look at new technologies.
There isn't a major disadvantage.
Continued use of matured technology.
Underlying all of these scenarios, is that we always assume that we can only have a small renewable generation because we need all this back up.

We should ask Europe as they have good ideas in this, I will send these details.
It is great that we increase wind and solar, but in all the scenarios, it is always undercut by needing all the backup generation sources.
Natural gas has GHG emissions are damaging, Europe does not seem to have the problems with wind. Setting up wind farms should not be an issue, not sure why SaskPower thinks this is a problem.

Scenario 1: What trends, expectations or needs would this Scenario effectively respond to?
Cost is important and needs to be balanced with ESG, cost and reliability. Storage is key for wind and solar.
Difficult to talk about this in a silo – it is multi-faceted. ESG, cost, reliability, timing.
Value of transmission. Sask is an island. Not very well connected to the rest of the world. T is an insurance policy when something like Texas happens. Stay an island and your future choices are constrained.
Customer end power reduction is a good compliment as well. Less demand = less supply. Don't have to generate, transmit, distribute, etc. Megawatts.
We produce natural gas safer and more efficiently than anywhere else, so we should continue to do so.
De-centralized grid is an important factor.
Opportunities for blue and green natural gas.
Global implications – we're choosing more expensive wind and solar while China chooses cheap reliable coal power – what are we trying to prove?
Other ways to store beside battery, eg. Attached to hydro like Lake Diefenbaker, allows dam to release less water, then at night release of hydro power. Store the electrical potential. Ties to Manitoba Hydro would provide similar opportunity. Sell excess and allow Manitoba Hydro to store.
Wind and solar with natural gas backup is a transitional, need to look to future for baseload.
Safety and reliability of SMR is amazing already.
When we talk about wind/solar and needing backup, I feel there are other options than natural gas to back up renewables.
City's biggest obstacle to meeting their ESG goal is the amount of natural gas they use.
Seems like a short-term focus, but at what cost to the environment longer term.
Need consideration of renewable gas and hydrogen going forward.
Less of a change" for SaskPower.
Consideration of hydrogen and natural gas should be considered in the future.
Scenarios should not be mutually exclusive. Consider CCS on natural gas.
SaskPower should consider partnering up more with industry – co-generation at a smaller scale. Especially if simple cycle gas cycles are being considered. Based load steam required in industry and could be used to help backstop renewables.
Municipal waste (bio) should be explored as an energy generation option.
Consider using renewable energy to produce hydrogen.
Renewable natural gas is more dispatchable to match with conventional renewables.
No single solution, good to make sure all options are on the table.
Electrification of the economy. More interconnected electrical system. Trouble with the discussion because doesn't break things down by region within the province. Need to look at regional approach. Microgrid concept. Why are we limiting ourselves to 60 MW solar? We should do more. We should introduce incentives for individuals to do solar. Why were people penalized for buying in too quickly? Need a smart grid to accept renewable energy.

Lots of research going on into battery storage. These should be followed closer. Not sure of what the cost is of batteries compared to natural gas.
Should allow public to invest in renewables which helps with cost and shares economic opportunity.
New wind technologies have lower profile and better for jurisdictions like PA, where wind is not as prevalent. Lower wind speeds.
Natural gas carbon tax is detrimental to Saskatchewan.
Look into ways to reduce waste and extend the life of renewable energy infrastructure.
Energy efficiency should be a more important factor.
Reality is we need to reduce emissions, so we need to find the right mix because we are running out of time to reduce climate change
Technology is always improving – daughter has solar panels and supplies 95% of her own energy.
Efficiencies of renewables have to increase.
Are we using the carbon tax money correctly? It shouldn't be given back to people it should be used to reduce emissions.

Scenario 1: What other input or feedback would you provide for SaskPower to consider about this Scenario?
This policy is being driven by liberal government and is against coal plants, CCS clearly works, next one would be half the price of Boundary Unit #3. Why would this not be embraced? Doesn't want wind or solar in his backyard, not reliable, shorter life, and he sees cost issues long-term.
Geothermal – DEEP at Torquay. Refused to invest since analysis is that cost would double power rates. Scary numberss for what has been invested for 5MW of power.
Have we ever considered CCS for trash incinerators – like in Norway.
Likes this option because it provides benefits of both – renewables and reliable baseload.
Disappointed with this option because it doesn't include geothermal.
Disappointed because it doesn't include CCS infrastructure in Estevan – a lot of it is about jobs.
Keep the community of Estevan alive.
Solar end of life recycling or waste considerations of equipment. Needs to be factored into decisions. Lesser issue compared to Nuclear waste.
Have been talking about the government recently about Texas blackouts. Companies are trying to achieve competing priorities. Businesses do need reliable energy, but those same companies have ESG targets that are quite aggressive. Import is a pro and con; can be green, cheaper, but can we rely on it, jobs in SK. Carbon costs and the cost of pollution have created an urgency on cost and reliability.
How is the general public acceptance on Wind projects? Not in my backyard.
Relative cost. One thing to utilize MH when short, versus to rely on them.
You have to begin with the end in mind, although it was suggested not clear cut, it is not clear cut from economic perspective, but the physics of the atmosphere is undeniable, it is very clear we must limit our emissions, cannot continue with coal, ng, or oil, has to end. Have to find a way to draw down CO2 in atmosphere, and electrical system has a lot to do with that. This scenario does not support drawing down CO2. What is missing in these scenarios is BECCS. Do not see any future for fossil fuel energy, that will go through contraction in next few years.
I support Scenario 1, for reliable short term energy that is where we need to go, we can't go to wind and solar tomorrow, it is not reliable, there are challenges with the technology hope that we find better solutions but at the moment I don't see anything other than scenario 2.
Scenario 2 is missing something, bioenergy with CCS and storage, any region has to look at its natural advantages. Based on biomass as your fuel using CCS, the last thing is to shut down coal plants, add

CCS to all, at the same time you transition to biomass and then have negative emissions. By 2030 could have an electricity sector with 30% from coal converted to biomass, 40% natural gas, rest renewable, 3.5 t/yr from converted plants, entire grid removes 7million t/yr in this case. This has got to happen, need to pull out emissions, biomass from expanded forestry sector, expanded ag, …, this would be a national process, the abatement cost from 1t is about $90. Carbon pricing is going to go over $90, the economics work when you consider carbon tax. Know the Fed gov wants to look at this and hope that SK and SaskPower as well.
Partner with industry to provide baseload continuity as we add renewable. Usually large scale and not small-scale even though there are lots out there. Pivot to industry and look to partner with those already using lots of gas and producing lots of steam.
As municipality, lots of biogas from landfill and wants SaskPower to look at this as well.
Does the wind and solar last? Are these really long-term solutions?
Let's not do it just because everyone else is – let's be sure about it.
Has SaskPower done the analysis to determine if wind and solar are truly good value solutions?
It would be nice to see cost-sharing benefits and other benefits of leveraging industrial customers.
Impacts on first nations given the linear nature of transmission projects.
This scenario is just the easy way out. SaskPower has 60 major customers. Worried about grid defection. Economic model is in flux. SaskPower could rethink role, become electricity transporter rather than generator. Report day or two ago about power shortages in US, Montana, Wyoming. Grid reliability. We could export. Build on our capacity to export renewables. Climate change, hydro may decrease. Relying on importing hydro may be less of an option. We have immense wind and solar resource; MB has immense hydro resource – natural marriage. What about demand side management for efficiency? We could do so much more to reduce the load, especially from large customers, where does that come into SASKPOWER thinking? Manitoba Hydro has aggressive D side management program because they can charge more to export than to sell to internal customers. Interesting point for hydro, climate change, hydro will transfer from baseload to more of a load following option.
About option 2 – I think it is a mistake to have CCS on another. Pembina says it is very expensive. CCS from the atmosphere looks promising but experimental. I wouldn't retrofit another coal plant. Already proved it isn't economical.
SK has followed the lead in the US. Trends to watch. High voltage connections. When we see developments in the states, that is a key on what we should look at. Our markets are small with replacing these assets, so we will see the winners and losers emerge in this tech race.
If you're making choice, make sure they're flexible – natural gas and hydrogen or natural gas with CCS.
I like the idea of a number of storage solutions – needs more attention from SaskPower. Compressed air, pumping water behind Diefenbaker.
There's a company that is looking at lithium – won't be using a pit and shipped instead in a sealed container and putting it in an oil and gas hole. Stripping it out through water.
This scenario eliminates batteries. We as human beings need to look more into what we can do to recycle solar panels, etc.
Reliance on imports is dangerous is terms of reliability. SK based generation should be prioritized. But using hydro imports to bridge the gap may be a good option.
Hydro involved building dams which also has a negative effect on the environment. Need to make sure existing hydro is fully utilized.
Cost of electricity is very critical. Reliability is very important.

Efficiencies of the type of generation – coal is 94% efficient, hydro is 90% efficient in Manitoba, Saskatchewan hydro is 50%, wind is 30%, solar 15%, nuclear 95%. Is the energy from renewables going to be working when we need it?
Carbon tax money should be exclusively used for reducing emissions in Saskatchewan.
Why not increase the imports? They're clean, why aren't we sharing this resource within our own country, Manitoba Hydro is exporting to the states, I would think you guys should be looking at that.
Is this economical?
Look at the alternatives, instead of building new gas.
Only made in Canada (only made in Saskatchewan) but you're just increasing the boundary.
Why were geothermal and conservation not included in these scenarios? I want to see these in the mix because these will help us meet the goal of GHG reduction. It is not thorough to not be included. They would give us different configurations with things like having to use natural gas, or relying on the more mature generation.
Very important to me that we hit the net zero and move away from fossil fuels.
If these renewables were added into the mix, it would detract from needing to use natural gas as back up.

Scenario 2: What are the pros or benefits if SaskPower was to pursue this Scenario?
Wind and solar I like; like the idea of high voltage power lines – renewables work better with a larger grid; CCS – there was conversation in the chat about it - could coal be converted to biomass (algae) – like the idea of exports and imports – makes a better grid overall.
We have the technology already for CCS, to makes sense to develop more; maybe you can have mini ones. Not sure how imports work. Solar is a really good idea – what happens to the other new techs that are coming
Continued expansion of wind and solar is crucial; imports are a good option if we can think in terms of a regional grid.
This is better than number one in terms of GHGs.
Want CCS in Estevan. We are big oil and gas. Can maintain coal with CCS-natural gas possible.
We have one of best records in world for oil and gas technology. They tie hand and hand.
Concerned with relying on other provinces for power.
The more we import the more jobs and capacity we lose – huge economic impacts.
A lot of solar just went up across the border in U.S. Not many aware of it.
Lack of communication-how will it work?
Lots of power lost in transmission with imports.
Wind, solar exists – quick to ramp up, not cheap but it is economical and cleaner grid.
Is building new transmission lines timely enough?
Reduces emissions.
All steps forward but not sufficient by themselves.
Wind and solar intermittency can be mitigated by utility sized energy storage.
Likes imports.
Lots of demand potentially for CO2.
Transmission infrastructure is a better long-term investment than spending money on coal facilities.
Wind and solar are steps forward but CCS is too expensive and shouldn't be pursued.
If there is more CCS the costs will come down due to economies of scale.
More CCS projects will be less expensive than the first one – future ones will be cheaper than the first.
Important to keep jobs in Saskatchewan.

Artificial boundaries (borders) don't allow us to partner with other provinces to achieve all of the benefits we could.
Initially good, but takes up farmland and is expensive to implement.
Intermittency could be mitigated at utility level storage.
Could we generate getting load responsive to availability, to integrate wind & solar.
In favour of green energy imported from MB and will allow Manitoba Hydro to develop at a lower cost than SaskPower.
CCS the economics are marginal, but having the capacity there would be good and lots of demand if the price is right
Transmission spend is better than investing in gas plants we need to turn off.
Important to provide good paying jobs in SK, and those technology jobs are good for SK.
Solar was really fast to implement; in the short term it may be easier to set up solar. Not sure about wind and the environmental and soil issues and not able to quickly implement wind.
To save the grid and balance the grid more efficiently we need distributed generation rather than having wires everywhere. We need to use intermittent wind & solar, it is always sunny and windy somewhere in Sask. We should not have to have the natural gas plant running for back up.
Changing from centralized to distributed, this will provide us what we need.
From City's perspective this relies more on renewables than the Scenario 1.
Getting hydro and clean energy from other jurisdictions. It starts to limit who we would interconnect with. We are competing with other jurisdictions for price we would pay a premium.
Build a regional electricity grid – important in the short term to import hydroelectricity. Manitoba and Alberta is important for wind and solar. If wind doesn't blow here it might blow in other provinces. Ability with regional grid to better balanced wind and solar and share between provinces and northern part of US. Not only for hydro but potential to better enable that extension wind and solar. Advantage.
Cost of transmission vs building generation? How much import now? CCS cannot keep up with emissions from other technology in Norway for example.
If concern over cost of transmission lines, no talk of geothermal yet maybe as backup. Lithium for back-up. Creates a new industry as well. Similar to Helium report that came out last week.
One participant asked next participant of rooftop since he is in industry. He replied that challenges with monitor and deal with so many solar installs.
Time to decentralize generation.
CCS can continue to leverage and not decommission early.
Converted CSS is stable unit and reliable.
Sell and build revenue from CCS.
Hydro make sense and is worth the investment.
Import cleaner power from Manitoba. They have lots of hydro, clean energy.
HVDC line is an amazing opportunity especially because of Federal interest.
Support intermittent power with hydro from Manitoba.
Transmission is quick responding.
Costs of Network of CO2 pipelines could be shared if there is common infrastructure.
I like the idea of being able to import cleaner power from Manitoba specifically. They have so much hydro. I think it is a really good clean energy to use. Of course there are other negatives to that as well with price and partnerships etc.
I have heard that large, pong power lines can be risky in the winter. There was a pretty big event in QC brining power down from Montreal during an ice storm. So that is something to consider. It's okay

to be dependent on others for power but there is always a risk that priorities will change or borders will shut.
My question to SaskPower would be – with CCS – the industry that I work in is with natural gas and diesel powered engines and I just look at how things have changed since the mid-1980s to where it is today and the emission levels that these engines now produce is just substantially less than what they used to be. The engine running in the worst area of Southern California will actually clean the air when it is running, compared to what it is.
Because we have these existing coal-fired generation facilities, how can they not clean the air - coming out of these facilities? Whatever we are going to do is costly. Is it realistically proven technologies with solar and wind? We have something there already (coal facilities) – can we upfit it to make our environment better and keep jobs in SK?
One of the great opportunities with continuing coal and developing CCS, around the world (China and India) there is a lot of dependence on coal and as a developed nation, there is a lot of opportunity to export to countries that may not have the opportunity to phase out coal for very good reasons. It may be frowned upon by the people that say we can't have coal at all, but it will put SK in a position to provide and develop export expertise and show this is a scenario worth looking at for other countries.
Well I fully agree with the comments that have been made thus far. Further, the advancement of technology that these advancements can be applied to other nations. When you look around the world and see power is generated with the incineration of garbage. It could really help and utilize the most abundant energy resource. It gets used around the world very heavily, in some jurisdictions. It is using what we already have which is a legacy base – low cost, stable which there are certain benefits there.
I would just say that I agree with the comments that have been made so far too. In favour of CCS and remaining leaders on that front. It also leaves a lot of jobs in the province as well.
Unsure of costs of high voltage power lines. SaskPower: Suggested it is $1M per km and used for imported hydro.
Currently 2% hydro coming into SK?? (maybe 4-5%) Unsure of amounts of imports. SaskPower: Manitoba Hydro has a wealth of low cost hydro that is available.
CCS emissions are not fully understood. Cost for emissions reductions and power output associated with CCS do not seem worthwhile.
Renewables are much, much less expensive. Backed with hydro imports seems good, but not CCS.
Use multiple sources/diversity.
Concerns about battery disposal/EVs…our creation of reliable power.
I like wind/solar/hydro…exists, don't disrupt the habitat any more.
Don't understand CCS – coal is going by the wayside – gone by 2030 – don't support retrofit.
In favour of adding wind and solar – to lower emissions.
But not constant baseload power – 100% 24/7.
You can fire down CCS when wind and solar is rocking and rolling.
This Feb – every Feb – not very nice weather in SK – and remember Texas, they rely on natural gas and they had wind storm that came through – natural gas got cut – maybe a week out of the year – there is always a big pile of coal at the power stations and it prob kept us alive in Feb.
CCS – takes away emissions – that is the goal – the most important thing, I didn't realize until I became a councilor – how important it is that it attracts out of oil wells so we don't have to drill as many wells. BDPS cooling reservoir – big mouth bass are in there and the fish will die.
To back up #1, it is ridiculous to think about CCS if you are closing coal by 2030.
CCS – it was 100% emissions, now 90%, well it is great because it pumps more oil, it is an extension of fossil fuel industry. Use the carbon to bring up more oil.

CCS – you burn more coal – it is not as efficient.
A terrible scenario focused on the past, SaskPower is looking at being the power generator. Germany had 5 companies, now they have 1000s of power producers.
Not a bunch to add, much has been said.
If we could take advantage of MB surplus that would be helpful.
Problems with CCS – look beyond coal.
Ensure wind and solar is more than a little bit – seriously using it.
Make sure we are doing efficiency – that is key.
New storage is being developed.
Government is spending lots on SMRs, we need to research storage.
In the discussion of emissions…look at what is happening in Ag…the way it is being done is a major contributor to CO2 emissions. Changes could be made
Both scenarios - include fossil fuels. Homegrown power – use biomass – Could replace natural gas and CCS and provide thermal energy Not in support of 1 or 2.
When it comes to expansion of wind and solar and export. Hydro power from Manitoba and north eastern BC – there is high cost. All options will cost – all scenario have high capital cost. Con – we are not producing the power, loss of jobs but might not be the case there might be different jobs. In Europe, they don't know where the power is coming from – all the time power is running through different lines.
Pros – moving towards sustainable energy concern is using our existing system for baseload, baseload doesn't need to rely on our existing system. Maybe it's a political system. There are concern with natural gas and import but no one talks about wind and solar. Customer generation was right at the bottom of the list.
Imports are really necessary for our future. We don't know how we can be energy self-reliant. All sources have their problems. He has been to Manitoba and know how systems working. Fed people can find 1 billion dollar for this important thing. In Europe, the borders are not to be all and end all.
Moosomin – comparing costs to MB – prices are about half price as SK – so yes there are high capital costs for power importation – but if we can buy the cheap power, long term there could be savings.
Federal support would help too.
Export opportunities – if we have the lines they would go both ways.
Wind and solar make sense to SK – lots of wind and sun.
When it comes to expansion of wind and solar, looks primarily like hydro power from MB and NE BC, we would mostly be dealing with green renewable energy, yes there is a high cost, but see high cost in every scenario. Main con is we are not producing the power, may have an impact on jobs in SaskPower but expect will be more jobs, and EU has transmission lines connecting, cannot be an isolated company, it would be one of the core components to one of scenarios I would support.
Pros moving towards sustainable, concern that baseload is still existing infrastructure, both put wind and solar and understand they are not reliable but feel baseload doesn't have to come from our existing infrastructure. A little concern that equates to either importing or ng and not enough on sustainable. Rank issue with last looks like lowest rank.
Cannot draw a border around SK and be energy independent, importing from MB means a billion dollars, this has to be one of our important things, in EU.
Seems like a much better option. Not ideal but at least not backwards.
Don't like the reliance on other jurisdictions for power. High capital cost long lead time applies to SMRs. Jury is still out on CCS effectiveness so not in favor that one. Do not want to see reliance on United States. (MB is better, but we would still be second in line – not their priority).

Problem in Texas because of lack of interconnection. Interconnections are good, but we should do microgrids for local reliability. As far as CCS, it would be good if we chemically combined it to basal salt and made bricks, but pumping it underground it leaks out and kills cows.
Have existing facilities been looked at to see if they are suitable for CCS? (Yes, but no decisions made).
I like hydro but we haven't been ethical in how we have rolled out hydro – environment, communities, Indigenous rights. Not sad to not be importing from Manitoba Hydro. It seems like SaskPower is in a bubble, but we need a whole life approach shift. In the meantime, we are clearing land, there are issues with deforestation. We need to do this in a more holistic way. Maybe more ethical partnerships need to grow out of this.
We should be building interconnections and microgrids regardless of what else we are doing.
I agree with microgrids, but interconnections should just be for emergencies, we should produce our own power. Maybe we could use the interconnections to sell our excess power, (i.e. solar).
Would like to see a program to encourage heat pump use, energy conservation. Heat pumps work down to about -20 degrees.
Change the name of imports – call it regional collaboration.
Question what is driving the expected growth in.
Not sure why this says high costs, long lead time when all options required this.
SMR's will not be ready by 2030.
Benefits in being self-sufficient – should also consider natural gas in gas we need it.
Importation from a neighbouring province, contract would have to be drafted creatively to align with demand.
I do public engagement research and people don't like the word imports.
Idea of trading between partners is great and worth investing in now.
We are going to have to use CCS to combat climate change globally.
People need to understand that nothing is free – and wind/solar has the entire life cycle costs – wind mills in pincher creek look terrible, no birds or bats over there. and to create they need to be mined, etc.
Change the name of imports – call it regional collaboration.
Benefits of CCS if more jobs.

Scenario 2: What are the cons and drawbacks if SaskPower was to pursue this Scenario?
Does not include all new tech.
Transmission lines are expensive to be built.
CCS is expensive to build – think there are better ways to use money. (Although we have the tech here, so should we be using it more in a copy and paste type of way?)
CCS tech developed here – it is strange we cannot use it – odd that it is so expensive even if we developed the tech.
Hydro power should be cheaper to produce – therefore a good source.
Missing energy efficiency.
Missing energy storage – beyond batteries.
Land use for power lines – has to be well chosen for enviro/species in the area.
Seems to ignore small residential solar – EVs – electricity use is going up a lot – residential solar allows so you don't have to increase substation sizes/transmission lines – therefore could save costs – and if you add a battery you can create a virtual power plant – allows more reliability.
Is building new transmission lines timely enough?

CCS is considered unproven, not worth the expense.
Do we know enough about CCS to put all eggs in one basket. Same as SMR's-must proceed carefully with new technology.
We need a plan with diverse options.
We can't rely on neighbours-look at what happened in Texas-pros and cons to having imports.
Great to see GPPS in development.
Are there any conversations about integrating CCS to GPPS?
Can we sell CO2.
Feds not supporting with tax credits.
Possible opportunity for sequestration hub in province?
Wind and solar take up lots of crop land.
Wind and solar have reliability issues (wind and solar aren't always there).
Imports relying on others and relying on them could be challenging.
CCS requires an end of use customer.
Expensive to implement, uses lots of farmland.
Wind and solar stability may be a con as the sun is not always shining and the wind is not always blowing.
Connecting with grid may be a challenge.
Relying on imports may be a challenge (participant compared this to Canada not making vaccines, and now we don't have our own vaccines made in Canada and we have to rely on others).
These are all steps forward, but not sufficient, we need more.
Underlying all of these scenarios, is that we always assume that we can only have a small renewable generation because we need all this back up.
We should ask Europe as they have good ideas in this, I will send these details.
It is great that we increase wind and solar, but in all the scenarios, it is always undercut by needing all the backup generation sources.
SK electricity is an energy island and we can see what happened in Texas. Very little connects with other provinces and that is a risk. Need to integrate into other jurisdiction to de-risk.
Continued reliance on coal even with CCS. Not sure if we should keep following this direction.
CCS is not limited to coal fired plants. Could happen with YARA, Federated Coop and EVRAZ. Can store another way. Carbon capture use should be part of this as well but to other business an industry and allow them to decarbonize.
Being in the solar industry, downsides are amount of land space it takes up and takes arable land away for food production. Benefits with hydro but concerns about fact that they are in control of pricing and supply. Not in control of your own density. China emissions are more than the rest of the world. CCS has value on a world scale.
Criticism of CCS is use of coal and emissions. Hats off for doing so but was an experiment that wasn't the right way to move forward since very expensive power. Compared to utility scale solar much more cost-effective.
Giving control over sustainability to import.
Long power lines can be risky in the winter. Reference ice storm in Quebec.
Risk being reliant on other groups for power. What happens if things change and we can't get power, borders close.
CCS is very expensive.
Reliance on one big intertie could be a risk.
Cost of CCS is high and question about its ability to capture CO2.

Current CCS project is not economic.
Should capture CO2 not reuse it for other purposes. However, this would lose the revenue.
Carbon capture is not a response to climate change as it doesn't achieve any emission reduction goals.
Money spent on CCS would be better spent elsewhere.
HVDC lines are not cheap.
If US gets hungry for clean energy can we guarantee that we could get the power we need or will the price go up?
CCS is very expensive. I'm interested to know why CCS is paired in this scenario with an interconnection to MB. The cost of CCS with the coal fired units… is the money that was spent on CCS just for one burner? SaskPower: Yes, just BD3 has CCS right now. So how many units would be done with this scenario? SaskPower: One CCS unit.
So this really says you are going to add more coal generation and save some of the emissions for CC unit? SaskPower: This is if we took the existing Shand power station and retrofitted it for CCS.
I think the ACDC line to MB is a great opportunity that we should pursue, especially with the federal funding interest to strengthen our power future and welcome a lot more renewables with the next wind and solar resources in Canada,
You would need a substantial amount of imports to make up for the
Sheer cost of CCS and its inability to capture all of the carbon is not efficient. Again, it is only one burner and it brings it close to natural gas but not quite. And it the capex is significant.
Carbon dioxide piping can reduce the cost of CC is there is a common trunk line involved. So there is a benefit there for the province overall if there was a shared infrastructure there. I would be concerned with the trend of CCS and what you are doing with the Carbon in the end. SaskPower's plan is dependent on getting revenue from the product and re-releasing it in the end so I'm not sure if the environmental benefit is really there.
Longer-term, yes, it is being used for EOR, but if the oil industry shuts down it can continue to go down into the ground there. It doesn't mean that you're continuing to use it.
CCS from my perspective may from the outside look like a trend to climate change, but if you look at the numbers, it is not at all responding to the solution from my understanding, on the numbers side.
Are you saying that they carbon capture don't actually solve the problem? That it may hold the carbon for a while.
No, I'm saying if you are spending $2 billion to get an emissions level to get it closer to Natural Gas emissions, you can spend that on an intertie or natural gas and then bring on more wind or solar. The operating costs of wind and solar are significantly less than other options. There's operating costs for all options. Making sure that those numbers are driving the decisions. I expect that they are to a significant degree.
This one, with MB, assuming the US gets very hungry for clean energy, is there an expectation that they will sell more to the US or to whoever pays more?
Downside noted to solar due to land space. May result in reduced agriculture opportunity.
If rely too much on MB, concerns with pricing and lack of control.
Large transmission lines – they lose about 15% of the electricity just through the transmission – broad concern.
Need to be looking beyond Alberta & Manitoba – BC has hydro, Quebec if they produce the national links. Might be short-changing ourselves by only looking at AB & MB.
Really like the first two-thirds of the scenario – but don't like the CCS piece. Don't think there will be a market for the CO2. It's expensive to do this. I think we can come up with a better scenario with different options. – 2 others agree on this.

Opportunities for consumers to generate their own power and be back-ups – the program that SaskPower had that supported people was not replaced with anything adequate so opportunities to consider in that regard.
How would the power lines make it more reliable?
Cowessess solar wind project – has a battery attached to it – so they can guarantee baseload power. I don't think the scenarios have been explored on what options there could be outside of the typical SaskPower options. An option that we need to consider. Combining it with the renewable sources.
EVs can be charged on renewables.
Less keen on CCS technology, would prefer natural gas as a backup.
I don't like what happens to the CO2 – it typically is used to extract oil. So what are we going to do the CO2 – prefer nuclear to CCS.
CCS is a 30% parasitic load this bothers me intrinsically.
Wind and solar can be overbuilt because they are cheap.
CCS also has a methane problem.
The life cycle of the facilities is high and that it might be shut down before it is paid for, or before the end of its useful life (more natural gas because they could be shut down due to carbon tax costs).
We need to be prepared for a national grid – because that is what is going to happen!
Don't like one scenario vs the other, it doesn't have to be one or the other, but all integrated and made better for the benefits of us the province and the globe.
Retrofitting another coal plant is VERY expensive but a short-term solution – needs to be used with a new systems. – Seems like throwing money at a bad solution.
This government has planned for transition for SaskPower workers working on coal and this needs to be considered and this government has ignored it.
What about the footprint on wind/solar? Don't put on bird routes and talk to people that you are going to put solar on it's not a problem.
SaskPower should stop says when the wind does blow and sun doesn't shine – this can be solved easily with battery, we could say coal is reliable but it kills you – SaskPower should stop biases the conversation.
How do you guarantee the clean portion?
Complexity of loss of power and control increases when you are interconnected to other grids.
cost, is it efficient?
Risky to tie to Manitoba imports, If a massive line is built you have to "keep it on"
How would contract works, base line power, etc.
Line losses.
CCS, happening anywhere else successfully?
Reliance on other jurisdictions, cleanliness, reliability, cost.
Is carbon permanently captured or do leaks occur.
How long will it last?
Not a lot of knowledge on CCS to comment on it.

Scenario 2: What trends, expectations or needs would this Scenario effectively respond to?
Status quo with a bit more imports to fill in the baseload.
Would address SK peoples needs to move to cleaner direction, we need stable power. Texas wasn't connected to rest of country-devastating impacts, including loss of life We want to lead but also not be isolated. If we fail, we need to be tied to reliable power CCS adds jobs.

As we move down the road, who will purchase the off gas? What happens in 40 years when no one purchases? Do we need to rely solely on oil and gas for CO2 we are sequestering? We need to look at all revenue aspects of by-products. Biomass-net removal of carbon-essentially cleaner power than solar and wind-not greener.
Trend and design to have more renewables in the mix.
Continue to large wind and solar and look at distribution - small scale geothermal and wind and solar. Need to have a mix in the scare of technology as well.
What is the scale of the capital cost of each CCS and tie line imports?
Is CCS very expensive option and does it reduce GHG as expected?
Are these scenarios created with consideration to IPCC 1.5 warming pathways? Viable to stay within standards and projected targets. We need to respect these targets from IPCC.
What is the life expectancy of the CCS unit if new?
Does CCS usage factor in carbon footprint to SaskPower or the oil/gas company using the carbon captured.
China now emits more than the world combined; can CCS tech be provided to other jurisdictions from SK?
This scenario has lots of benefit – expansion of wind and solar in reduction in GHG. Import is really important to get out of our old age mindset. With CCS, we had bad experience and we haven't learned from our experience. It will still use coal and we should try to move away from dirty fuel so it is in our way of clean sustainable energy future.
It is a general thought but foundational – life consist of living in harmony with nature we need to work in the boundary of these nature and need to change to these foundational premise. Solar and wind and getting us away from this addictive source of energy. We are drawing from the bank and this is the bank – A Good War by Seth Klein – if we are thinking 2050 then we are already doomed we need to get it done in next 10 years. We need to get on like a war time scenario where the country retrofitted itself for the crisis and we have that crisis.
There is a webinar in two (May 25th) by Seth Klein along with two other people.
Another comments about this book – site large survey about willingness to take action for climate change. SK people favoured the reduction in GHG emissions, SaskPower should take more actions and citizens will support it.
One thing is based on replacing energy productions. It doesn't talk about energy conservation and energy efficiency people need to know this is an emergent situation and we need to talk about it.
Talking about living in harmony and within natures boundary.
One question might be – for people in democracy – people being informed. How are we going to be involved. Some of the education could be done by SaskPower but we think they are subject to their political masters. How do people get educations and get informed about these technologies.
Solution – the basic idea is I and my family has to work within boundaries of what nature can give us. We need to work with it and not against it.
Our resistance is causing greater harm to the people living south of the equator and we have a responsibility towards them.
This scenario has a lot of benefit to it, the focus on expanding wind and solar is def the way to go, using imported power as a backup rather than grid system as baseload is important vs previous method. CCS is expensive and bad experiences, and is still an option that would be using coal and we know that we need to get off of that, inconsistent with demands for clean sustainable energy.
Another comment about Seth Klein's book, cites large survey across Canada on willingness to take bold action on climate change, SK respondents responded yes to bold action. People will support

Focus should be more on wind, we could use it as an export to Manitoba. Wind is less expensive that solar – see CC&S as very expensive with a short life of use MB can give us hydro generations "when the wind doesn't blow, sun doesn't shine".
Solar providers are helping the process, we are powering air conditioners, and customers are paying for it!

Scenario 2: What other input or feedback would you provide for SaskPower to consider about this Scenario?
Increased reliance on electrical infrastructure needs to be built out to support EV and imports. Will serve customers capacity to move forward with electrification.
On CCS, two extremes related to use of hydrocarbons in the future. Lack of information on how much carbon can be stored. What if oil industry usage changes in the future?
Existing CCS BD develop the next generation of CCS technology can be used to help other countries which may support our own expansion of CCS.
CCS allows us to maintain the status quo for longer. Will this be good enough to get us to sustainable targets in the future?
Stigma around importing electricity, strange mentality in SK about energy independence and not reliant on neighbouring. provides more security.
Prioritize use of renewables and then how do we fill in the gaps?
No matter where we go, it will be costly. Will cost the taxpayers of our province, so need to develop a solid plan and share with residents of SK along the way to get people on board.
Look at load response from customers to mitigate intermittent renewables. Is the knowledge from CCS exportable? Use reclaimed coal land or industrial land for solar.
Wind & solar are good, but CCS not worth pursing, too expensive.
Price will start to drop with CCS with the economies of scale, maybe prairie wide may be a more cost effective approach?
First CCS was expensive, but 10th or 20th will be cheaper due to technology advancements and learning as they go will reduce costs.
Is the capability exported from Sask? Tech, skills, & our know – how exported to other countries.
As we advance wind & solar, are there opportunities for SaskPower and partners to export those opportunities so that we recoup the investment from the taxpayer (sale of the carbon)?
If you don't have paid employees you don't have taxes. We need the people so we should keep the job in SK.
We should do things across the prairies collectively.
Win-win for everyone across the prairies.
Provincial boundaries made it tough before, it would be in our best collective interest to work with MB. It is too bad we were not able to partner with them sooner. If we look at this holistically, we should collaboratively work together with MB.
Land utilization in wind and the footprint is low, in the Estevan area there is room for solar – and we have the transmission infrastructure existing today.
Why were geothermal and conservation not included in these scenarios? I want to see these in the mix because these will help us meet the goal of GHG reduction. It is not thorough to not be included. They would give us different configurations with things like having to use natural gas, or relying on the more mature generation
Very important to me that we hit the net zero and move away from fossil fuels.

If these renewables were added into the mix, it would detract from needing to use natural gas as back up.
This is continuing to be a historical model to deliver energy and doesn't seem like it's very innovative. Things are changing and old system large scale generation and distribution on the grid is not our future.
Challenge with sustainable value for coal assets. Delivery into transmission into assets in which are old and far from where energy is consumed. Those assets need to be tied in for additional cost. Stack on legacy model of service that is where you see large cost to continue with the old mode and be open to generate energy and where the energy is consumed and emissions are produced.
Economic participation is critical. Big scale and small scale.
More clarity about what converting one more unit to CCS means.
Good at transmitting power. There's definitely a risk there for sure with having one big intertie that would be heavily relied on. MB has two HHDC lines that haven't gone down to date. They basically receive all of their power from Hudson Bay and ship it down to Winnipeg and distribute it back out there.
The only additional thing that I have mentioned this in other breakout rooms is that I would like to see the power imports re-framed as a smart regional grid opportunity so that we don't stay on an island but that we do keep connectivity with other areas, including the US not only for imports but also for exports.
For wind and solar, I'm not entirely sure why we can't include Independent power generation – not just large, but also small independent power generation as well. More thought to those two items would make this scenario more palatable to this audience and a wide range of people and would make it more successful.
It feels like each one of the scenarios to me are very limited. The success of any areas is to have a portfolio. There are a lot of good options which might dovetail off of the last comment that was made that could be considered to get to the best end results. It is not just the four scenarios, but there could be many more.
What about geothermal as a back-up.
Lithium industry can be used as a back-stop (battery storage).
What could be done to decentralize energy / generation in SK?
How much CO2 does CCS it capture?
Any sense of where this gets us on climate targets? Not sussed out yet – but hear that getting us to net zero is the most important one for you – is that the case?
There are ways to get there, if that is part of the discussion – this is the goal and here is where we have to get to.
Changing so quickly – like the IEA report today – we are going to be moving really quickly. Public opinion will get there.
They all are based on replacing existing energy sources and don't focus on energy efficiency or DSM need people to change their actions, these scenarios don't get that point across.
Work within nature's boundaries, this was my point as well, agree.
One question might be for people in a democracy it depends on people being informed. How does that happen? SaskPower can do some of that education, but they are subject government, so how do we get out that education?
The basic idea is I and my family need to work within the boundaries of what nature can give us.
Our resistance is causing greater harm to south of equator.
Wind/solar and MB integration is powerful.

Not seeing demand side and use of technology, and truly integrating demand from consumers with generation planning – this is a goal mine and SP is one of the last integrated systems. Train coal workers to work in demand resources, and this integration will take a lot of works.
What I am hearing is that SaskPower needs to get out of the box and start thinking a bit more instead of sitting inside the box.
This is a huge shift for an integrated utility and the box we build is 100 years old.
Scenario 2: Carbon capture has shown not to be efficient. Can't bank on carbon capture. Wind and solar have disadvantages because of space they occupy. Was a part of a Medical project in northern Iraq, lights along the road from airport were all solar powered 20 years ago, not that kind of power in North America, they have always tried to connect to a grid. A lot of people and companies are looking into alternatives we don't know what they all are or how they all work.
SaskPower needs to look into what all is being done in other jurisdictions and what is working.
Agreement – places burn garbage for electricity – helps with two areas (garbage issue and electricity issue). I support CCS – it does work, they do sell it, but it is expensive. There are lots of jobs but it is expensive.
Agreement – a some of the more focused waste to energy could help rural communities at the end of the line because they don't have the landfill operation it would also produce emissions. Carbon capture and storage is not an efficient process but attached to natural gas production. I agree with the distribution throughout the whole province – wind in northern forests how would that work? Look at geothermal- look at a big mix of energy is necessary for long term planning.
That's right, I shouldn't wipe off CCS – it does something – it could become a better technology and then we could use it. We are under a shot-gun though to decrease carbon emissions if we believe the scientists to get it down to zero. If that's what we have to do, Canadians can rise to the occasions so we can do it to. SaskPower I'm with you, lets see how we can do it!
AB and MB have a source for exports and imports as us and I'm worried that our imports are dependent on the same glaciers we are relied on.
For large industry, SaskPower's current regulations make it very difficult to do it yourself. We should be able to change this. We should have company structures that we need to change. I have read about large companies that donates their roof tops.
Easiest way to reduce your emissions, by importing already emission-free power.
Pro – potential for federal funding, whether the province will advocate for this?
Con – a I'd like to understand the cost differences, in particular the costs that are out of our control, the high cost options are really not desirable from our end, but I'm interested in how do we offset this?
Federal funding is just taxpayers, but if we don't get it someone else will.
There may be an appetite from the feds, when you're advocating the feds there's potential to allocate.

Scenario 3: What are the pros or benefits if SaskPower was to pursue this Scenario?
SMR – carbon free, will be more affordable once built (just the high cost to implement is negative), plus it is great that the uranium is in SK.
I like the concept of SMR, and the costing is mostly expensive because of regulatory process, but for SK we should look at SMR because it provides us with an opportunity to do more than just mine the uranium. Will open other doors and opportunities, perhaps as we transition to other existing technologies.
Gives us the opportunity to participate in a greener economy.

SMR - I think it is a win!
SMR makes sense, just like the opportunity for electrification, if there are opportunities to sell excess, seems like the way to go.
Using SK uranium is really good and for other parts of Canada also.
Easier to have more power available, it should not be so onerous to charge your vehicle.
Continuous grid you cannot transport over too long a distance because you lose a lot along the way (i.e. importing from Quebec, we will have losses).
In this province, nuclear seems to make sense to me.
Tremendous uranium supplies in Saskatchewan.
Lots of economic co-benefits.
Low carbon intensity across the board, lower carbon footprint making headway towards net zero.
SMRs would counteract the intermittency of wind and solar.
Excess power on grid from SMR could be charging for energy storage/battery, pumped hydro.
Green hydrogen production might be a by-product of SMR.
Keeping Sask sustainability, self-contained including fuel from uranium.
With use of SMR, ability to get power closer to where people leave to avoid interruption of service. Meadow Lake faces this issue, SMR may build more reliability. That technology closer to northern regions will create economic development (like SE SK traditionally). Spread out for other areas too.
GHG emission reduction benefit with SMR and reliability.
Imports need to be more than a bridge, should coordinate across western Canada. Excess capacity in MH. Longer term option not just a bridge.
CEO of AB/Montana power line project, problems – took 10 years, land issues, had to go to supreme court in both countries, economics are a challenge, wind and solar are 35% capacity, transmission line not used for 80% of time, becomes difficult for people to make work when wind not available. If building just for wind and solar transferring cost to those and then cost doesn't look very good.
If import for baseload – Then it goes under rate base, today it is $2 million/km, so the question is will you tolerate money going into one line?
Cost and timelines are concern agree, look at different mechanisms in MB with Manitoba Hydro assume that is necessary to supply SK with increase in baseload, Site C Indigenous Relations challenges, can see that happening in Manitoba Hydro as well. See more drawbacks with this scenario than others of all four scenarios. This one really gets us away from made in SK plan, one challenge with all scenarios don't see them as mutually exclusive.
My understanding SMR run at certain rate don't load follow.
Federal funding might make import projects easier.
Momentum around SMR. General public shift away from risks towards benefits.
Leverage existing transmission if sited effectively.
SMR provides good baseload.
Expansion of wind and solar too limited – why not just go ahead and build the transmission, it would make the system more reliable. This is a least favored scenario – passing the buck for waste down to next generations. Zero emissions assumption ignores the emissions from mining uranium. Would prefer to leave nuclear out(on cost or ethical basis) and leave gas out. Nuclear waste has half life of 150,000 years.
Cons – partnerships could be an issue to keep costs regulated; Sask is open space so might be some issues there too.
Con – a SMRs are of interest ; long term is the way to look but safety is a concern.
Con – the lead times are not compatible with the time lines we are facing; looks very expensive. Other solutions would do a much better job at creating SK jobs.

SMRs has a terrible history on not delivering on timelines; safety is a huge issue. No other forms are associated with terrorists. I see this as expensive and unworkable with timelines.
This scenario doesn't cut it. I don't know why SMRs are being highlighted. They're not safe. I can't imagine how long we have to store this. We can't even transport fossil fuels without leaks.
Imports, if that's what we have to be to get clean energy, then that's the new rule. If that's a safe way to get energy to SK. Then we are partners with MB. They have been talking about partnerships with MB for decades. This isn't new
I like the transmission link. Connects us to MB which give to import when we need and export. Contract design is important. We need to be able to sell surplus to them on windy days – and MB is connected to the US. Pro to connect to the US.
If you are negotiating that we are selling power back, then we have more development happening in the province – creates job in the province.
I know there is a political appetite for SMRs. Warning that goes off is that we don't see any of them being built yet – we don't know how well they work. We don't know the design that will advance. Will it be a traditional design with the same issues as the large reactors. Don't know what they're going to cost. I know there's a promise of modular so costs come down but it depends on how many are being produced – productive numbers will dictate the cost. If the cost stays high, might not be able to be competitive with other options. Cost is a big uncertainty. We don't know if we will get the economics of scale if the market it big enough. We need more info. I understand ON will build the first one – that will be the big moment to see the cost, benefit, how well it will work.
SMR type of technologies have been used in submarines and military uses for years. Are there issues with them?
SMR's are a solution to climate change and very reliable and historically very safe.
Communities and businesses in SE SK have been impacted by the shutdown of coal industry. Relying on imports from outside of our community is not good for our communities.
Wind and Solar doesn't produce greenhouse gas, but it's very expensive and you still need baseload.
Because of the time changes, peak power periods change from province to province. When the peak load drops off in Manitoba it starts to come on in Saskatchewan.
Nuclear will be the electrical source all around the world – reference a book 'Apocalypse Never'
Nuclear is a good option because it's in Saskatchewan and leverages Saskatchewan uranium.
We're not South America – it's cold! I don't see solar and wind taking over in Saskatchewan. Germany has all kinds of solar but in the winter, it is cloudy and doesn't work.
Renewables work in non-tropical climates (Iceland, Norway).
Renewables keep getting cheaper and cheaper and we should focus on that. We should focus on saving costs and not building expensive transmission lines.
Like wind/solar.
Like the import bridge idea but want to build it large enough in case there is a delay or SMR's don't happen. Should be able to take advantage of regional trade.
Connections should be built for long term.
Want lots of energy avail for the future so our quality of life stays the same, and like SMR's because they provide stable energy with out taking up a lot of land. This is happening in the world, but the question is will SK take advantage of.
I like the safest, load following SMR technologies. Prefer Nu Seal models.
Building transmission lines result in lots of line loses, which is why SMR's are beneficial.
SMRs shouldn't be discounted but should be investigated.
Solar no ill-effects.
Using Hydro for back up for wind and solar.

Long-term plan of keeping power production in the province.
Wind and solar is good.
Not scared of reactors.
Opportunity for neighbors to cooperate and determine what is best for both of us.
The ability to have super reliable baseload power (SMR) and produce it cheaply and utilize SaskPower's own uranium resources.
Lots of job growth opportunities to both mine and process uranium in Saskatchewan.
Not know cost, most viable pathway forward, the SMR technology is more mature that customers believe (other parts of the world), yet we are an oil economy. Don't understand all the trade-offs for this SMR technology. Not that scary (as an environmental engineer).
But SMRs are not old technology, and it is very different; much safer. Scalable technology. Long life cycle, effective and stable.
Sask has this raw material easily accessible. Helps to build energy independence. Consider supply chain opportunity of getting paid for mining, manufacturing (rods) and return of disposal. Close the loop cycle and make a better case for SMR (100-year plan).
Partnership with NB and ON, uranium mines in SK. Fact, 2019 uranium mining from SK resulted in generated enough to power 28 million homes in that year.

Scenario 3: What are the cons and drawbacks if SaskPower was to pursue this Scenario?
Will we be able to get support for nuke?
Maybe SaskPower isn't up to the task of selling SMRs. Not enough strong voices to counter the activists and anti-nuclear groups.
Relying on other provinces (especially Ontario) to carry this SMR piece forward – what happens if/when different politicians are elected, and Ontario drops out?
How do we manage the nuclear waste?
Is Japan investing in new SMR/nuclear technology? Those stories stay in people's minds, with billions to deal with aftermath.
This is the opposite of distributed. We need to go with the distributed system, smaller wind and smaller solar all over the place, and no wires. Rather than utility scale. Maintain the power production at the source of generation.
I find it troubling that we are willing to spend on nuclear, why would we not invest in storage tech or geothermal? We are looking at nuclear over 15 yrs and we need to consider storage. In the US they are proposing wind or solar in RFP's and then there is storage built in.
Storage needs to be added in here, in bullet #1.
My concern is with the small producers, such as us, we have a 52 panel set up in our backyard and if they are going to throw the small producers out of the scenario, this is a big concern to me.
So many cons, most have to do with the SMRs. my understanding is that SaskPower is looking at this 300 MW units, and we should say this is actually a "not so small nuclear mod reactor" because I don't think 300 mw is small!
The problems are unbelievable with SMRs. The action plan that came out and listed SK government with certain goals, intro in SMRs in Sask "in progress".
Indigenous engagement is listed as complete, it feels like we are going through the motions and the decision has already been made on SMRs.
We are already signed up twice now with the other provinces to proceed down the SMR path, can we even stop this train?

We should not be consulted after the decision is already made. It is not green. It is not clean. There is CO2 for uranium to mine it, mill, transport it out, decommission a mine, pretend to take care of the waste. Emitting CO2, it is not green.
I echo this comment, I do not agree that the decision has not already been made on SMRs.
Voice my opposition to the SMRs.
SMRs are an unknown technology that is not readily available.
Can/should we rely on Manitoba Hydro? How can we be sure?
There are negative effects of all sources of power, including hydro. Who suffers those negative impacts – Manitoba?
What are the options for Nuclear waste disposal?
Efficiency can be very efficient with more units, scale takes time, however. Why not investigate traditional nuclear reactors in Sask. where it is more efficient right away. Explained EA challenges.
SMR Tech adoption in Sask is not realistic.
Cost is an issue for SMR, what to do with solid waste disposal?
Waiting 10 years for unknown tech we know about feasibility of other renewables doesn't make sense.
Self-reliance when phasing out coal, need to import to fill that gap, can we hang on to coal for longer?
Transition to SMRs relies on acceptance of SMRs as the end game, might take more than 2030s to get that acceptance.
What is the storage strategy for SMR and spent rods, if you don't solve that you will still have that question. Waste SMRs.
No good handle on how we get rid of waste fuel.
Cost remains a large concern and wild card. Anticipated large cost impact due to potential high capital cost.
Cost of SMR decommissioning in the long term. Cost to future generations.
Moving down this path at all basically commits us to SMR and imports. How do you relinquish import contracts when needed. An SMR decision today is basically committing to a SMR technology we don't have a good handle on (costs, timelines).
CEO of AB/Montana powerline – problems – took ten years, permit in three – got taken to supreme court in two countries. Economic challenge. If a transmission line isn't being used, it becomes very hard to manage – if building a transmission line for solar and wind – puts the cost onto solar/wind – see this as only a ten year option.
$2M/km, 230kV – how are you going to manage the cost – portfolio of B plus options.
Costs and timelines are a huge concern. Current diff mechanisms happening in MB and BC is a concern. Indigenous relations challenges in MB can see that happening here. Concern with getting these built – more drawbacks to this scenario then others all four. This isn't a made in Sask plan – none of these options are mutually exclusive.
SMRs don't load follow? Dispatch issues? Issues with load following?
Transition on SMRs depends on acceptance of end game – con would be to get acceptance within a timely fashion.
Waste Storage for SMRs- very important factor – anti-nuclear.
Concerns with waste storage. SMRs high cost. Cost of renewables is far less. Stay away from SMRs. Not entirely opposed to SMRs. Some likely required globally, but not convinced we need it here or that it is economical here. Renewables cost-wise are still dropping in price, will be lower by the time SMRs in place. Hydro superpower next door – likely cheaper than nuclear.
Not crazy about the reactors (safety issues, mining is not pleasant for the planet, waste factor). Should not bank on selling surplus power as other jurisdictions may be thinking the same thing.

SMRs should not be spread out all over the place. Need to consider waste handling. Cost and timeframes are not conducive to climate change action.
Nuclear reactors are compact and efficient, but what about the waste. No solution in this world. After 100-200 yrs – the language will be changed. Waste may come up and humans destroyed.
There isn't any design that is proven yet. Even in large reactor designs. Small reactors all over the world producing plutonium is a risk for bombs and public threats.
Ontario relied too much on wind and solar. Wind and solar are inconsistent and we rely on heat that we need – it's great for a back-up and for personal use, but not for heating, livestock, etc. Wind and solar requires fossil fuels to build and transport so it's not without emissions. Not that 'green' in the long run (wind and solar). Nuclear is expensive technology, more expensive than the alternatives.
Concern SMR's won't be available soon enough to address emissions, want to draw attention to language – these are not modulars in 2030 – 300MWs are not small.
What happens when SMRs are decommissioned – cradle to grave what is the real cost?
There will be a lot of "not in my backyard" and resistance in this province.
Don't like that we haven't don't the full cradle to grave analysis of SMR's – we need safe nuclear storage.
Mass storage is what we need to make renewables work, but is the tech there?
Not a lot of knowledge, seems to be a big divide on them.
Someone else should do it first, SaskPower shouldn't trailblaze.
We are bumping our timeline to wait and see the impacts.
Wind has sound impacts.
Concerns about turning SMRs on and off, leave them on. Huge Cost Overruns for SMR. Still need enough surplus, backup, it is complicated technology. Should not be private.
Hopes MOUs don't.
Ontario residents pay for decommissioning of plants.
Concerns about SMRs as back-up.
Importing power concerns.
Nuclear may be a cleaner option but the developing technology and delay on availability does not outweigh coal with carbon capture.
Must commit early on to use it when it comes out.
Don't know functionality and feasibility.
Cost and time delay.
Not preferred option.
Struck that every one of the options talk about wind and solar and imports, encouraged that that is a common theme, but discouraged on lack of action by SaskPower on those fronts. When climate crisis was first introduced by Dr. Jim Hansen in 1988, I don't think nuclear is the best option of these, we are not addressing emissions from all of these technologies. The only option that would accommodate reducing emissions is biomass with CCS to get to negative emissions. Discouraged not to see this.
Public acceptance is going to be a big barrier for SMR, as engineer not afraid, it is just one tool in the toolbox, could be good for mines in the North to avoid transmission, and for remote communities. However, if there are changes in storage, that will support renewables. We have a lot of heavy lifting

to do to get wind and solar up to level of other jurisdictions, I just can't forgive SASKPOWER for inaction so far.
Like to refer back to German experience with nuclear transition, they are now phasing out coal as well. There is only one tax payer and if SMR comes off the table again in future bc of change of political wind… I am a military veteran so have been on nuclear subs, etc,, we do need to get SMRs smaller and modular.
Would it supply enough power to meet urban centres and far North as well. From going from wind/solar, then to imports, then to SMRs? (Courtney - High level scenario, not so much that Imports would reach the far North but in concert with SMRs, etc. would get us our supply needs.) Would our billing structure also increase if we pay to buy from MB. (Anything we buy from MB we would have to negotiate an economic rate in comparison with other options.)
SMR won't be available for 15 years might stretch to 20, Imports from MB is good, clean grid, but getting there will have to build gas as a bridge and that becomes combo of scenario 1 and 3, not sure that is good plan with stranded assets.
Issue with Scenario 3 – talking about mining and SaskPower has to work with Indigenous community – we should be cautious with nuclear just like lithium, coal , natural gas so we should look at options where we don't have to mine it over and over again.
Scenario 3 - I like to tell people got involved in a public consultation as part of nuclear reactors and it was solidly turned down. Nuclear industry is desperate to be in existence so they have changed their name from nuclear to SMR where they don't have an installed design so there needs to be education. Another problem is nuclear waste do you want to consider the cost of our grandchildren managing the nuclear waste for the longest time. so nuclear waste is encasing them in concrete. Major problem
For a long time viewed SMRs as a tool government using to distract and let Prov do nothing, because banking on mythical unicorn, it is too late, public awareness is not where it needs to be, wind and solar not reliable, to take imports from MB they are already selling to US so if we take then another region has to come up with another option for clean power. If we don't get more efficient with our supply options, get more energy efficient, more energy conscious, the no free lunch axiom will bite us.
Really echoing what has been said, SMR public perception that nuclear is bad, so need to get buy in for that, will take time, Germany is moving off nuclear but heard moving back to coal so there is back and forth between all of these energy sources. We are going to have to look at nuclear, it will be tough to change public opinion, don't think it is a bad idea but will be tough.

Scenario 3: What trends, expectations or needs would this Scenario effectively respond to?
Balance reliable cost and CSG. SMR is so far out. Coronach talks about coal facility there till 2030 so location for SMR might fit. Public acceptance.
Need to know impacts of cost, reliability, ESG, etc. to properly evaluate a scenario like this. Not enough info to weigh in on pros and cons.
Perceived fear of nuclear – we've come along way since Fukushima.
Nuclear submarines have been around for a while without issue (small nuclear technology).
Must educate the public about how safe nuclear power is – SaskPower should take the lead so that it's not political.
Huge communication element to SMRs.
Uranium supply chain crosses borders and is not something that just happens in Saskatchewan – not a pro or a con.
How do we mitigate the negative impacts of whatever we choose?

Power imports could lead to future surplus power to sell/export?
Legacy generation planned for decommission, would increase demand in future. Does this factor in load growth?
Meet emissions targets.
Phased planning is good but only if technology comes about.
SMRs are a made in SK solution given our industries, address the GHG issues, is the silver bullet if it can be done safely, but risks if you put all your eggs in that one basket.
Comes down to trust in SaskPower knowledge and to rely on other province or US to bridge us there, obviously that is not SaskPower based power. Just the imports looking 15 years down the line before building our own power again from SMRs.
Infrastructure costs looking down the line, that topic doesn't pull us away from industrial gen, opportunity for steam load.
3000 Mw load system, only need about four to five of those this reinforces the large generation system, still have issues with line losses, reliability.
Not against reactors, just depends on what bridges us there.
This does achieve full emissions reduction.
SMRs are a made in Sask solution, addresses GHG issues. If it can be done that's great. If putting all eggs in one basket, its risky – depends on the confidence in SaskPower to implement the option.
Relying on other provinces and USA for tie line. May be a concern – concerns for jobs in Sask may be an issue.
SMRs doesn't take us away from industrial.
SMRs reinforces large generation, large transmission costs.
SMRs are a good idea – depends on the bridges to get us there.
Other thing about nuclear, 300 MW not that small. They are inflexible, they are competing with renewables for the first spot on the grid, baseload. It's a non-solution for that reason, so why even consider it?
Need to keep all options on the table. Are we fully taking advantage of the space, wind, and sun in SK.
Can't compare Saskatchewan to Costa Rica because it's too different – in Saskatchewan when the power goes out, you die.
We don't need to depend on the nuclear industry to bail us out.
Uptake in Net Metering was huge – SaskPower should reconsider that because it's a way for SaskPower to not have to spend capital.
Agriculture and other large industry in Saskatchewan depends on huge amounts of electricity so we need dependable baseload – can't just focus on residential.
Scenario 3 includes SMR option, like to remind that some of us were involved in public consultation about 10 years ago and we solidly turned down nuclear option along SK river. Not what has happened is that the nuclear industry is desperate to keep alive, changed name from nuclear to small, but they don't have any designs. There is a risk of their education process being favourable to this option. Waste was not mentioned in scenario 3, do we want to be responsible to manage the waste for a number of years. Option with very major problems.

Scenario 3: What other input or feedback would you provide for SaskPower to consider about this Scenario?
Is there any SMR in construction yet. On 2028 and US 2026 but not in construction yet.
Need a very large load or not. SMRs are 250MW so they fit.

Such a push for green and there doesn't seem to be an easy or willingness for compromise.
Nuke is a Canadian issue and bigger than Saskatchewan. If it is accepted more nationally, than SK would be more likely to go that route.
The more self-sufficient we can be, the better.
People won't care about how much or little outside imports as long as their bills don't change.
With the population base in SK, we have trended up in growth & population, but now it is declining, as we plan the scenarios for SK & taxpayers, we need to be aware of the population and a decline. We need to be conscious of this, we need the ability to export or share, to bring revenue back, as we may not always be a large population base, we may really decline and this concerns me.
Maybe we should be looking to reduce our demand, rather than growth, and become more efficient, maybe we need to look for opportunities for efficiencies, but I am sure SaskPower is already looking at this.
EV, monster amount of energy would be in the EV's in dense populated areas like Regina & Saskatoon, charging stations at a house. And, rooftop solar it is a great opportunity for generation source, but we need batteries.
We need the proper charging stations around the provinces.
Coop has the charging stations right near the traditional gas stations, this is really smart.
Geo-thermal as an energy source for the home but there is no economics. Maybe the DEEP geo-thermal near Estevan is very marginal? Current technologies are not there yet.
I think Scenario 4 has the most pros. Yes, I like SMRs.
I like Scenario 4 with SMRs included.
With the cost, natural gas is not worth pursing, do not put more money into natural gas, it is obviously being deterred by federal government, paying the tax is wasteful, we should not build anymore natural gas – not economically feasible. Lets diversify and keep options open, we don't want to get caught with natural gas again.
We need to have a sustainable grid, this would be preferable to the dirtier tech such as nuclear and natural gas. We do need some kind of baseload so maybe stored hydro in SK, and solar and wind, but we are short on hydro.
Why is the hydro imports just a 'bridge' to SMRs or batteries? Why would we be reluctant to rely on another province longer term?
Western Canada could be seen as an entire western power market, why do have/need our own provincial markets?
What about customer generation? How do individuals participate in the future energy space?
Support for SMRs in province?
GHG emission reduction benefit with SMR and reliability.
Evaluate SMR against future storage options. Hard to do, but necessary.
A lot of uncertainty for a commitment today for long-term unknown risk (public stakeholders, cost, long-term environmental, will we need to switch gears in the next eight years if SMR doesn't work out, etc.).
Future uncertainty remains a large risk.
Micro-SMRs… are they an option? We may have skipped that by jumping to larger SMRs.
What about a thorium cycle rather than uranium? Half-life much more manageable than uranium. But generally speaking, nuclear doesn't work for SK.
Demand side management is potentially huge for Saskatchewan and should be looked at. Comes back to how broad a discussion the energy storage is. Hot water tanks? EV charging, heat pump, air conditioner can be energy storage. More creativity required on storage. Heat storage – time when you use electricity for heat, and when you store heat. Established technology in Europe just doesn't

seem to be looked at here. Heat is the elephant in the room – issue in MB and here – people get nervous about decarbonizing heat. Heat pumps, but in the future, we will likely be using electricity for heat. Why has geothermal not been mentioned? Housing design, housing orientation? SaskPower should do more with Construction Association, municipal governments. Not a one size fits all. Part of it would be incentives for housing side – house orientation, shelter belts, these things are needed. Solar, net metering,
With the net metering program, SaskPower showed a lot of concern about too much individual solar but did not offer up what the renewable alternative to individual solar generation would be. What is a better alternative?
CCS is costly and we don't capture all the emissions. If selling it to someone to take oil out of the ground doesn't solve much either.
Community projects are favourable, but support needed.
Solar co-op in Saskatoon and Regina are looking at community projects. New buildings do not seem to have residential solar incorporated. This should be regulated – including insulation standards for cold weather, etc. Need to be mindful of keeping new builds economic and affordable for future generations.
85% of energy used in buildings could be recovered through efficiency. The other 15% could be renewables.
Can't just go with one or two things – need to diversify. Combination wind, solar, CCS, SMRs, hydro imports.
2030 is coming up close, we need to move fast. Refers to Energy Efficiency.
Nuclear has a bad reputation, but it sounds like they're growing the tech and we should embrace the technology as a solution to keep CO2 out of the air.
We have to figure it out quick.
Cheapest solutions and energy efficiency should be the focus.
Public education about waste and using more than we need – should be advantages in doing that.
Pro- Saskatchewan supplies a third of the world's supply of uranium, you'd be using the uranium and there's more return when you process it throughout the entire supply chain.
Pro- this is low carbon, with this box checked then what's the cost? I bet people are agnostic to the type, I can be easily swayed between wind and solar for instance- the determining factor is cost.
Con- cost-benefit comes into play.
Looks like a high risk of stranded cost, for instance power lines you don't know if you have a customer to serve.
With respect to wind-solar and reliability, there are considerations that increase their reliability for example in AB Pincher creek has a lot of wind, but there's so much wind we've got an over-supply as opposed correlating in terms of where its resourced, the province would get reliability of wind more over the year if they spread them out and uncorrelated them, same for solar – system-wide rather than projects based.
Pro maybe able to find a steam customer with this as well.
Confused on the logic of this, once we build the infrastructure to obtain the hydro from MB, why would we then build SMR and not use the infrastructure for hydro with MB?
We need to move into a partnership soon with MB as I believe that Minnesota will be buying a lot of MB hydro for their huge future electrical requirements.
We need to have a sustainable grid, this would be preferable to the dirtier tech such as nuclear and natural gas. We do need some kind of baseload so maybe stored hydro in SK, and solar and wind, but we are short on hydro.

Feel nuclear is inevitable, point is when 10-30 years? If there is going to be nuclear power hope it will be under public ownership where we can focus on public safety.
If you have strong regulations with penalties in place and if it is enforced.

Scenario 4: What are the pros or benefits if SaskPower was to pursue this Scenario?
Renewables – good; customer generation – a good fit for rural areas (farmers) less useful in cities (aside from solar coops); I think SMR would be a good option for baseload; importing green hydro power should be encouraged and assume lower production costs; storage – go beyond batteries (using water as storage) but could be expensive.
Battery storage – can use it as a peaking plant – cheapest option for peaking.
Encourages innovation and in-province job creation/supports small business.
Renewables reduce GHGs.
Northern SK might benefit from smaller generation in this scenario.
Likes this. Like looking at customer self gen and utility renewables – they work well together; imported power as a bridge – like that. Batteries are going to be the solution to small scale storage, but it is worth SaskPower putting into compressed air/pumped hydro storage – these are not new techs (they are not difficult to work) and can be put into place quickly to provide large scale storage while avoiding battery issues and materials they require.
Large scale/small scale are both reflected in this scenario.
SMA members would like to be part of the solution and help with generation. Eg. Potash has contributed to GHG reduction. Participation in cogen and carbon capture. Looking for incentives given large capital investments.
Industry can pay for capital infrastructure that could benefit other customers.
Homeowners investing in solar, should leverage that investment if all customers do this.
We will need a mix of large and small investments in renewable energy. Need to invest in storage
We will have to import for cleaner energy.
If we are dreaming for what future to be. We can't take easy way out. No short cuts.
This scenario aligns with best practice.
Good to focus on rate structure for those who want to self-generate.
Customer self gen is viable or are we just doing to meet environmental regulations? Lots of emotion tied to this issue.
Self gen makes sense when economic and environmentally friendly.
Large scale projects are more efficient.
Think Scenario 4 is fantastic. Hydro imports solves the dispatchability, energy storage is the future.
Favorite scenario. Likes customer self-generation which is right in the wheelhouse at Meadow Lake. Mechanical Pulp mill likes the idea of cogeneration.
By far the favorite. Have been talking about and advocating for. Ticks all the right boxes. The devil is always in the details. There is no one silver bullet, it is a basket of options. Utilities need to provide reliable service. Need to look at solutions with the most amount of teamwork and solutions, which is this one.
Lots appealing about Scenario 4, also need to have power near where the load is. Need a system that is flexible and can grow. Far North first nations projects never seem to work out because there is too long of a distribution line, if we can create microgrids.
Customer self-generation has a lot of potential for small and large customers. Would allow larger customers to better manage their energy needs.
May help to distribute costs.

Large utility storage makes a lot of sense. Cost of storage is getting better.
Customer generation has a lot of potential for small res but also for SMB & industrial. There is an increased appetite. Should allow larger industrials to manage their energy better. If there was a signal we could send to res customers, so we could have a responsive generation supply to respond to the need, this could be better managed on the load side.
I like that this provides an opportunity for more people to contribute to reducing emissions, this may also help distribute costs. I like this option.
Improved reliability if customer generation is linked to SaskPower grid.
Good for oil & gas and mines, could be a real opportunity for industrial.
Challenge with customer generation how do together non-participants benefit. How does network benefit. Cost of benefit is high by putting distributed energy in those areas you max the benefits for everyone. Take longest routes out for all and the price goes down for all.
This is more modern innovative approach. Like the idea of using imported power as a bridge. Con - in near term only – SaskPower installing battery on Fleet St., safety concerns with that. Storage interim is safety concern. Hope we are looking at other opportunities. Pressed air and not just sticking to battery storage.
A lot of pros with this as well. Does include customer self-generation too. Large industry and co-generation options make sure this is included in this scenario. Import as a bridge and why would we see this as a bridge and not become part of a more pro regional bridge. Don't want to depend on storage that isn't proven yet. Biggest con of this scenario yet.
If we look at customer generation, speed to market, imported power isn't required as a bridge. The two are not necessary or both are not required. If we adopt self-generation we may not need import power and reduce demand and power in province is sufficient.
Pro is that things could be done quicker if small organizations develop their own power and self-generation rather than a bigger organization like SaskPower.
Through province there is a lot of interest manufacturing, farmers, etc. that are interested in this concept of self gen and the framework isn't there to allow at the scale at this point. A lot of interest and clarity and bigger scale than net metering and power generation program in MW and see what that would look like.
Opportunity with scenario to be more creative and think outside the current structure of the grid and interest in customer class to be more involved and would help address somewhat.
Customer gen certainly promotes de centralized and provides an econ incentive for other jurisdictions to get involved. If there is a number of 20MW capacity would that reduce the burden to reduce the infrastructure would that help transmission problems and reduce from our transmission system? Is that a cost benefit?
Probably best option out of the four. SES report that compressed air as energy storage. Doesn't rely on fossil fuels and needs to be the basis moving forward, enviro crisis. Unique opportunity in SK to be more proactive as we get to see impact in other places in the world. Most forward thinking and best leadership. NM was right track.
Imports cheaper than SMRs.
Pros to batteries in future.
Self-generation by the customers would make it difficult for SaskPower grid to have that consistent supply, SaskPower still needs to be there to provide back-up. Reliability still has to be there.
Large scale cogeneration as part of this option, could have potash mines with 300 MW, and small scale self-gen, culture change has to be from generator to distributor of power. See imported power as a key rather than a bridge, lots of reasons, to connect two rather small systems together, to use hydro import as a battery to back up wind and solar, increasing scale to use Lake Winnipeg.

Storage not able to get through a week of drawing down a battery or CAES, how far they can take it is part of the question.
Interesting time, Scenario 4 is best way to set us up for less reliance on transmission, set us up for technical changes as they come out, relying less on transmission is the answer.
Opportunity to remove risk.
Moves towards the Alberta model which is fair and equitable for everyone.
Likes the idea of grid modernization and distributed generation.
Accelerating grid modernization is important.
Lots of wind and solar is developed in an open market like Alberta. Why is that?
Off loading generation costs to industry.
Could benefit from other revenue sources: Could have a revenue stream for sale of CO2, pulling carbon dioxide for greenhouse use.
Multiple nodes of supply, enhances reliability.
Grass roots approach, places energy generation where it's needed.
Could foresee large push by feds for customer generation (federal incentives).
Strongly supported by industry.
These last two scenarios struck me as having a theme of being non-committal. They both have this idea of importing power for a while to bridge to a future where possibly other technologies are going to be working. And that is going to cost money to do that which is going to cost money.
Why wouldn't you continue to tough it out with gas and coal until these options come forward. Leaving it to a complicated group of individuals will be complicated.
My initial take is that Scenario 3 and 4 are about the same and if they were able to build nuclear and get the rates that that SaskPower charges right now, that would be highly profitable.
This is in-tune with what we were hunting towards before. It's almost like SaskPower could head towards the infrastructure operator/manager of the distribution lines and battery storage work and then take a step back and remove some of the risk on their plate and step back from the generation options and RFPing those. From my limited perspective again, as a potential opportunity to remove risk.
Really like the idea of grid modernization and reducing.
Understand using that bridge and once it is always there you will always have it if you need it.
Most favored scenarios – good chance at minimizing GHG emissions.
Large scale cogeneration could be part of this option as well as small scale generation. Culture change has to come – need to be more distributive? Imported power is more of a key rather than a bridge increases system reliability, use transmission line Manitoba hydro as a battery system.
Interesting time to determine how we see the future – less reliance on transmission, more flexibility to generate for ourselves, react to changes – less reliance on transmission is the way to go!
Best option out of these four. No reliance on fossil fuels. Zero emissions. Pro-active approach to climate change.
Sask. Environmental society report – SaskPower should pursue compressed air and batteries for large scale storage.
Imports are cheaper than CCS or SMR's.
Battery storage developed over time is positive. Not sure if the technology is available for demand peaks. Cost is questionable too if the assets are not used.
Thankful this is here.
The others would work but 1-3 rely on the old model/old way of thinking.
Having this scenario is a huge step forward – this is almost out of the box – allows a new way of thinking.

I am in favour of this. Elaborate on storage, it does not have to be a battery, it can be water or hydrogen.
Distributed self-gen across the province is a good option.
SKP can work as a facilitator or regulator to put all this generation together.
They all contribute to everything, the only baseload power I see is SMRs, but I am not a fan of – creating waste that does not go away. Imported power is a bridge/baseload…relying on someone else, somewhere else to bring your power…if that is the case, then SaskPower should get out of power production and into power distribution. Might save us money but we don't control power.
Solar can shine with backup storage places – the only thing that produces power is the bridge
I find this the most acceptable. Sad to see there is no discussion of geothermal or run of river hydro and the question of energy efficiency – those make this all the more possible – if we look at those pieces as well. It looks pretty good. Why? We are avoiding the atrocious option of SMRs, it relies on things we know will work – wind and solar – gives us that bridge. I hear others about battery storage, there are other ways.
Lots of storage options are coming, people realize we need better than car batteries.
Another good thing with this one – SMRs – concentration of energy vs. allowing customers and businesses to generate power – decentralized energy wealth – schools and cities could be energy independent or sell it.
Yes – this is going back to the old days – COVID has been a focus on local.
If you decentralize – if everyone had a storage unit, they'd have enough for blackouts and backup. Less fear if everyone has a backup.
Use of biomass – I see geothermal – I see it for individual…why with the resources from AG byproducts has there been no discussion of biomass?
I see it as a problem if we are burning – we are creating CO2.
Geothermal can be a DEEP product.
I like the idea of community based (coop) based energy generation and has been effective in other parts of the world and it feeds nicely to the holistic plan. Very concerned the nuclear industry haven't worked with Indigenous communities in north – feel like colonialization of these communities. So, I have real concerns about linking electricity with SMR that should be avoided. I like the idea of importing and I think its background to think that we don't have to rely on others is an old age thinking. SK has to collaborate with other provinces to meet 2005 requirements. Battery storage is a viable option – commercial enterprises in Saskatoon looking at Battery storage for their solar fields. Something favourable.
Once upon a time visited Cali – solar panels on top of their home. Corp installed and maintained the panels and people got reduction in their power bill. Opportunity for SASKPOWER to own, install and maintain a similar program. A collective will to get this done. Its not 20 years its about 10 years. With the diminishment of glaciers there will be diminished water in the rivers. Think again about the mountains in the Alberta and the glaciers are reducing at alarming rate. Others agree with this.
One of the scenarios entailed electricity generation by private entities – we don't support this – we support crown – private industry does not . Alberta electricity cost is out of sight and we need to look at our Crown Corp = subsidize electrical transmission units. Rural power transmission is an issue.
Not some external private identity.
The point of storage of nuclear fuel – any nuclear fuel will be stored anywhere but on site would. They would not want to store it somewhere else where there is still energy stored it. It can be regenerated in five years.
Visit to Cali – in Sask there is a role for SaskPower that has a role to play coordinating solar panels in residential and business.

Support customer generation because put some ownership on our customers – it is also the customers job to keep our planet clean. If they are part of it, customers will be more aware – find other ways to not use so much electricity. Might be an economic incentive for some people too.
No expert on power generation, but what I do understand of the possibility of small scale consumer generation (buildings built with generation) – I understand that there are so many innovations coming up – for example I remember hearing a small scale turbines in Italy that can be utilized to generate a certain amount of power – opportunities like that – consumers could look at various options to generate their own power and put back on the grid.
Smaller scale may be more sustainable in the long term.
Overall like this scenario – but with the caveat not sure how this actually gets us to the net zero. Like that MB option – for federal funding and bridge to help us amp up more renewables.
Customer Generation - two proposals in Regina (with customer option looking at – 10 MW solar outside Regina – looked at what is available for City of Regina too – 4 MW on buildings in Regina. Don't think the customer generation needs to just be the small scale solar on residential houses – but can also be looking at cities, villages, FNs, etc. City in Germany – generate for the whole city and then what they export the residents get a cheque every month with the revenue that they sell to the grid.
Have 33 solar panels at the farm – have enough generation for everything we need – but hooked into the grid to have reliable power. In trying to increase customer generation – need to consider the economics – what would make people invest in it, and what would they get paid for the power they produce.
Aware that we do have a river, obvious place that we could build up more storage.
Like the idea of cooperative based energy gen in communities, it is more democratic, it feeds nicely into a more wholistic plan especially for remote Northern communities.
Once upon a time, visited Southern California, many homes with solar panels on top, signed with corporation that owned and maintained panels, can see a role with SaskPower on working with government, god forbid, not taking land that is arable but installing on roofs, people don't want to mess with corporation (or panels?) but would provide space, collective will to get this done. When we consider water and hydro generation, and we consider the glaciers, there will be diminished water in our systems, do we think of that when we say MB hydro can supply our generation. A Good War also mentions.
One of scenarios entailed electricity generation being privately owned and SaskPower would buy it back, think it is unacceptable, strongly support our crowns becasue it supports the private good, private industry does not, children in AB high rates and not taken care of, need to stay with crown owned SaskPower. Need to stop with distribution issues, glad to pay taxes so equal opportunity. Does support small scale customer gen on distributed level not large industry take over crown essentially.
Nuclear that wants their fuel to be stored on site would be a fool, will not want it stored deep underground etc. why would they give up a valuable device, they have paid for their fuel and after about 5 years can be regenerated.
In SK here is a role for SaskPower to pay coordinating.
Does not sink money into fossil fuels.
Lots of room for customer generation.
Privately owned, think of it as a set of investors that are taking on risk and they should be rewarded for taking on risk. They are not the same as customers, but they are investors.
Think producing own energy would be good.
Bringing hydro in looks good because there is a huge amount of infrastructure but its long term and reliable. Clean as well. Don't think they flooded a bunch of farmland. It's already there.
Like that customer generation is included.

Like renewable focus.
Like the idea of partnerships.
Storage is a good idea.
Mass storage helps balance supply and off-peak production periods.
Adding customer self-generation.
There could be a potential to export and SaskPower could gain revenues.
Storage should be investigated to reduce cost.
Ability for options for residents in the province.

Scenario 4: What are the cons and drawbacks if SaskPower was to pursue this Scenario?
Renewables are a high cost. SMRs would be a good baseload option here. Renewables don't work in the winter.
Concerns about imports with bridge and investments required. Need a better strategy.
Large storage comes with big price tag. Makes green energy even more attractive.
Reliability might be a challenge.
Who is responsible if there is a catastrophic event? Now its SaskPower but if it's all customer generation then who?
Customer self-generation, do we have the infrastructure to even support this as an option?
Is it more expensive, customer generation?
Reliability of customer generation? Is this a problem?
As you move from residential to small industry or a collocate area, and then tie that generation into the grid – what could this look like? Reliability might be a challenge? Or a catastrophic event, then who is responsible at the end of the day?
Different scenarios bring different challenges.
Con – complexity to this scenario to traditional model. Need a lot of participation and coordination through government, industry and residential. Shift in how economics look like for SaskPower and how that will work in the future. Different and added complexity that needs to be worked through. Not suggesting a barrier.
Shift in thinking and in doing. Right now the biggest barrier around the legacy model of service and opportunity through distributional energy association to bridge gap around collaborate model and look to BC and tech providers and industry. Look at new ways of doing things. More collaboration and more people at the table.
Just the way this is positioned that high capital cost and investment and for interim use this is a poor investment.
From big picture this is hard for SaskPower to wrap their head around a lot of customer generation being the lone generator in the prov for many decades and shift for a new makeup and difficult to plan and what does SP look like going forward. Not a con but outside perspective. Bit component of organization and customers make up large portion going forward what role does SaskPower play?
If that is SaskPower revenue and how is rate payer effected down the line. A lot of questions out there and how can SaskPower let this happen if they go down the route?
This is wrapped up and how much will be paid if supplying power and marginal cost that SaskPower can power at. Con – Large number of small generators and economies of scale would that drive up cost of power?

Having an independent understanding of grid where they are areas in province that could support scale of generation without upgrades to system as low cost power to rate payer not incentive build out where upgrades are required.
Challenge with urban and rural divide. Easy in urban to share power, but how in rural. Not sure how SaskPower can develop a grid with people to address this.
SaskPower needs to maintain the grid for everyone confident power supply when it is needed. CSG is each for own but what about when you need that power.
Con is that individuals generating may not consider the interests of others and their needs for power.
Tough with batteries for high peaks but rest of the year, don't need it so large capital costs but don't always need it. Need something to back up renewables.
If you allow bigger companies to self gen and SASKPOWER has to backup, you strand those who can't afford to do it themselves you are left having to support those who can't afford, lose the cross subsidization, system spins up in cost, those who are most vulnerable are left having to bear more of the cost. Risk stranding, impacts those who can help themselves least.
Doesn't like the idea of relying on other parties to generate power.
Lots of risk and a bet on mass energy storage becoming technically and economic feasible. What if it doesn't?
Coordination requirements.
Assume we would need to have storage depending on intermittency of energy. Large unknown on how we would achieve storage (large scale) and questions on capacity to ride out large scale renewable intermittency (days/weeks).
Contractual guarantees for customer generations (reliability expectations). Changes customer relationship.
Additional costs if not done properly (stranded infrastructure risks).
Customer generation can be challenging – SaskPower was on track before with grid exchange. Rural vs. urban differences may be an issue (echoed by multiple people).
Need to make sure power is reliable.
Reliance on others for power supply adds risk in terms of cost and reliability.
Customer generation – see that as a nickel and dime solution – an incredible communication solution – how much power would we get from that? I see import power more desirable over customer gen.
Do support in theory to import – but building the grid to support that is a daunting task – expensive (maybe feds contribute) – but question the feasibility of the infrastructure and the feasibility.
Don't like being dependent on imports – keep money here and don't have to count on another province for reliability.
Concerned about mass electrical storage - EVs – is it possible through all the EVs (i.e. future have 200,000 EVs) play a role in battery storage vs. depending on some time in the future for large scale utilities storage.
Don't understand the question about power rates? How are some customers going to pay more than others?
In our field there is a lot of negativity about farms bills being very low with generation, yet they are still able to use the grid at night when they need it. There is a net metering engagement session coming up if you are interested in this, then these questions will be answered.
Why would importing only being temporary, we should look at a long-term integrated grid to build a more resilient east-west grid.
These scenario lacks detail – there are lots of storage options. Everything about this option is good for the environment and we should be putting boatloads of money into it.

This is the only future focused scenario- even though least comforting but it is happening all over the world.
Would like to steer towards other solution vs storing power as it is really expensive.
The assumption here seems to be that this will be Utility storage, but transportation batteries are storage, and industrial plants can be storage and with technology can synced and integrated. Storage will come from systems that use/store power and integrated customers systems.
Would think MH would want to be more than a bridge.
Don't know much about storage, would need to know more.
Concerns with large scale projects – staffing, experts in place to maintain the systems – becomes difficult to recruit and continue on.
Unfortunately, hydro projects dislocate Aboriginal groups to create the hydro projects. Creates some health issues in these communities.
Battery storage has as many chemical and mining issues.
Renting power to private rather than producing ourselves.
Long-term maintenance.
Cost to privatize power production.
Costs will be past to consumers.
Long-term risk, eventually power will get expensive and places like Regina will just produce their own and install their own SMRs.
People won't pay for it.
Inconsistency to farm out large scale solar production but it is difficult for homeowners to come on board to produce a significant amount.
Lots of things that can go wrong from efficiency standpoint.
Review ways to set it up to be more fair.
The average person in the province can't afford their own solar operation.
Complexity of the solution is the biggest con.
I'm also not sure about this one – hedging our bets that mass electricity storage will become feasible and affordable. That seems like a pretty big gamble when people have been trying to figure that out for decades.
Self-generation depending on how it's done would make it difficult for SaskPower to make sure we have a consistent amt of power – and the end of the day, SaskPower will need to be there – not sure how this will shake out. SaskPower still needs to provide backup- reliability for SaskPower will still need to be there.
Experience if you allow bigger customers to self-generate - potential to strand other customers – lose cross utilization. System spins up in cost – other bear more of the cost. It's not elegant for others, risk stranding other customers – customers that cant help themselves, options are limited.
Worries about energy storage and batteries – did not stop nukes and nuke waste…it still got built, so hope people are open that we will find solutions.
I appreciate the comments of others. I still have a concern about electricity storage. It does not need to be batteries only. The metals might not be such an issue. Whatever form of storage is used it needs to look long term to the aging of that method. Looking seven generations or more. Not immediate solution only. What do we really know about battery/other storage and their long-term life/disposal?
Is there a concern about reliability?
Concerned SMRs will be targeted to far North and Indigenous communities, concern colonization issues and impacts to Indigenous communities. Real concern about linking community based gen to SMRs which must be avoided at all costs. Definitely like the idea of importing, it is backward to think we won't need to rely on each other across Canada to meet Paris targets, SK has to collaborate more

responsibly. No expertise in energy storage but do know battery energy storage is a good option, and aware of companies in Saskatoon looking at battery energy storage for their projects.
Scenario 4 – the vision doesn't feel like adding new option but it feels more like replacement of existing generation.
My only concern about option 4 is the abandoning of the ties, question investing generation with limited lifespan.

Scenario 4: What trends, expectations or needs would this Scenario effectively respond to?
Put batteries on every residential solar installation – provide them a grant for the battery and SaskPower can control as a virtual power plant
Technology with renewables constantly changing environmental footprint with sources of solar, wind.
Excited to see technology evolve and better sources, lower environmental impacts.
As we get better at embracing renewables and production, will be interesting to see.
Need to look at energy service on consistent way and get out of silo of natural gas and big scale and small scale. Ties to customers net zero and job creation. Have new discussions around that and speak in terms of energy. We can sort out tech that makes the most sense but start with energy that make the most sense. Number of tech and de-silo these conversations and opportunities.
Concerned that reliability is based on import or storage which when in place or proven and makes me concerned as a citizen and industry. Where do I get my power from if solar and wind are not up and running? Do we work with Manitoba or Alberta and battery storage which is a high risk and would be interested in SaskPower to provide insight on how risk will be managed. If there is no storage what is the alternative?
With this scenario there is work to do to change peoples expectation for reliable power and if we want to shift the lights won't be on and that is a risk and shift expectation for 100% reliability.
Trade-offs – tech piece is question mark on storage side we may get to large scale storage is possible and we may not depending on time lines and feasibility and match up with regulatory needs and other needs?
The development, progress and costs of batteries.
Customer generation – other customers need to know the generation supply is there and the customer self-generating doesn't sell their power to the highest bidder.
Mass electricity storage works where you have large concentration of customer, but doesn't alleviate line losses up to far North, they will still have this issue.
See as most favourable scenario, good chance of reducing GHG, and distributed power.
Mass utility storage – large vast area of the province – doesn't alleviate line losses and radio line problem to La Ronge, northern areas – they will still have the issues – helps inform the time shifting, but does not capture the issues for the northern communities.
Non-grid distribution and non-pipe on gas side is starting to emerge, we will need to think of the integration of distribution and generation system.
Distribution system needs to be upgraded.
Generation should be made available to small customers, industries should make improvements in efficiency to bring down costs.
Think the principles need to be 100% renewable. Nuclear is not renewable. I prefer this scenario. Need to pursue the connection with Manitoba, not just as a bridge.
Learning more about storage all the time.
Storage options are going to increase all the time. These options seem more sustainable.
Moving forward with renewable and considers climate change.

European strategy with smaller projects to supplement the grid.
Electricity storage – there is going to be competing demands for battery technology. Not just in storing power from these green sources but also in electric vehicles.
Batteries seem to be ahead of SMRs in terms of technology development.
SaskPower needs to pivot to provide services…the panels – that it is safe. Worry about transmission. They may not be a huge producer – how does that affect workers and infrastructure?

Scenario 4: What other input or feedback would you provide for SaskPower to consider about this Scenario?
Need to know more from SaskPower about storage – what it all entails.
Need to know how much is used by industrial.
Needs costs – does this scenario result in financial savings that can be used to fund customer generation?
How quickly could customer self gen be applied on a large scale?
Prospect for creating hydrogen – to cover winter renewable storage needs.
Like this scenario, would rather see SaskPower spend capital on this option since it meets the needs to be self-sufficient for the most part.
Consider storage beyond just a traditional battery.
Customer generation need to send right price signals, value products properly so we aren't investing in industry that eventually gets shut down.
Need to do our homework before we invest.
Changes to net metering were over correction; Could argue one extreme to another. We need a better understanding what works elsewhere and what would work here.
Solar on everyone's house won't supply big generation needs.
One piece we don't talk about much is timing. There is a very significant push for timing from Industrial and residential, whether it is company ESG targets or addressing emissions penalties. If we SaskPower to do something right away we need to open up an option now for customers to do more things. We have to get moving, what ever that looks like.
Encourage Demand Side Management.
Send information to residential customers to get them to reduce load when renewables drop off. Time of day prices.
Glad that SaskPower got the approval to build Great Plains Power Station.
Would like SaskPower to continue to be a partner in generation.
Need a good process to evaluate unsolicited power proposals.
Would like to see nuclear as part of this scenario.
Could we use batteries in electric vehicles as a storage option.
Where this is opportunities for private generation? We should explore that more.
Partner with industry, structure the deal so it becomes a reliable source.
Being a good partner, and take advantage of economies of scale.
SaskPower will need a good process for evaluating UPP.
SaskPower needs the experts that can evaluate these opportunities, maybe SaskPower does not have the expertise internally, because it is such new technology?
I would like to add nuclear (SMR or smaller reactor) that could be utilized in industry as well.
Large industrial storage is a for sure, I like that!
The efficiencies are getting better and the cost too for batteries are improving, let's look at that.

Widespread adoption of EV. EVs could be plugged into the grid and be a load or generator. Significant capacity that will become available for the grid, should be pursued.
If we move away from being a generator, it is good and bad. SaskPower should own projects, but where there is opportunity for other industries to generate we should also take advantage of that.
Stand by generation and scales of solutions.
Life is important. We are one with the environment. Cost is not the key factor or variable. Two of our participants said this.
This theme seems non-comital.
Scenario 3 and 4 are almost the same.
How do we make sure that risk and cost is the same for all customers?
How would contracts be set up for customer generation?
Does SaskPower get out of generation?
Would like to see more options explored for storage than just batteries.
This aligns with both Regina and Saskatoon future plans. Dialogue needed.
A big part of it would be how the contracts are setup for these customer generation and whether or not Bruce Power could show up and build an SMR (like Bruce Power) and then SaskPower becomes more of a distribution entity than a power generation.
I would like to see other storage methods be explored rather than just battery storage.
Compressed air is another big option. If you talk to the experts, they think they can do two 300 MW facilities which seems […] to me, but I am also not the expert.
Accelerating grid modernization is also really important.
Having the consumer choose if they can turn on their stove, A/C, whether it is an industrial facility, etc. Ancillary Services – breaking them out and handing them off to the customer. Grid modernization is low hanging fruit and an easy win to catch up to the rest of North America. It can help run the grid more efficiently into the future.
I think it's interesting that we have an open market right next to us that is AB and to see the sheer amount of solar and wind being developed in an open power mark that can compete and have us developing at such a small amount should be shocking I think and be talked about a little more openly as to why that is. That makes me believe that when I read reports that renewables paired with batteries are cheapest that it must be true. When you look at the numbers you can quickly see what these generators are making.
Self-generation – need to ensure SaskPower has good knowledge of incentives required vs. what will work. We are one with the environment and we will not exist if we don't address climate change.
I don't understand a lot of these technologies very well so can't compare them – if we are building a power grid to bring in import power, why do we have to consider a four-prong approach? If paying that much money for infrastructure why do we need to get power from other sources as well?
Role of geothermal for generation – know there is a pilot project – also pilots in AB about closed loop geothermal – lots of potential here to provide baseload power.
Why is geothermal power not being mentioned? We have first in country.
Fascination with SMRs is a distraction when we should be working on other things, we have people laying pipes, generating power now which isn't being considered but SMRs which are an idea, way out in 2030 is taking up all the planning time?
Does SaskPower use hydroelectric? why are we not mentioning that in scenarios? Of course hydro provides a baseline for energy. Even nuclear needs a back-up or gas for the safety for the nuclear power plant – for energy when it turns off. I'm surprised it's not included. We keep saying clean energy from MB, I wouldn't say it's clean because of how Manitoba Hydro handled Indigenous

communities to obtain its electricity. I have an issue with its ethics. A moral issue. SaskPower comment: SaskPower has taken note of ethical issues, Stakeholder Engagement is recognized as key issue.
SaskPower Answer: We will continue to use our exiting hydro for back up. Other than our baseload we currently have we have already used up our available and economically available hydro which is why adding more hydro is not top of mind. If in the future if something looks promising we can look at it further. We don't have same hydro opportunities that Manitoba has. Noted as green due to no GHG emissions.
Scenarios 3 – Why couldn't continue with current options and build SMRS without building high power voltage lines from MB. SaskPower Response: Federally mandated to retire coal-by 2030. We usually forecast some increase in electrical demand, so need to know where we will get that power from – but mostly due to retirement of coal (by 2030).
Federal government is not being very nice to us.
I like the idea of tying to Manitoba and Alberta we can take and sell power that way, still buying local from other Canadian provinces. SMR's if we are developing tech available in 15 years – worrying it's a current trend. And in five years we flip and it won't come. My understanding SMR's were for northern communities, sounds like northern communities don't want this type of power. Northern communities should decide if they want this type of power. Don't want to see another Uranium city-abandoned – it was a abandoned city- in less than 3 years. I would worry that would happen again, a conversation for SMRs in the north would be needed.
How does SaskPower insulate against changing political needs and wants? A whole new guidance would be provided every four to eight years – things to look out for but not put all our investments into technologies right away.
I like the idea in the west we need to connect together, 1 million population same in in Manitoba which is the same as Saskatchewan, Alberta is more. We have similarities. Connecting makes sense for back up, increase support for individual for smaller companies. In terms of business lots of hoops and regulations, need a parallel process what is the impact beyond because they want to tie in on houses or a business to generate their own power and then put excess to the grid. A lot of quick work (now) to put policy changes on the map and see what we can do to support those interested in generating all types of power. We all know someone with solar power, how do we make those changes and support those efforts? Five years ago we looked at things quite differently. Lots of concerns with SMRs a lot more discussion needed. I can see on paper you can ensure safety, but we can't ensure 100% everything, lots of talk on technology but lots of discussion in public if and when those would be used.
I agree with need of public discussion on SMRs I once upon of time in the 1960s I thought nuclear power was everything. Some of things it said about itself in 1970s was all lies and I haven't liked it ever since. If you read information, you would think we could plop down SMRs like toasters on the shelf whenever we want electricity, sounds enticing but none of them exist. Industry failed to gain acceptance on wall street, no private money, all federal money, something that can be used to deal with waste. I am a doctor in Uranium City and I have seen the waste left from mining. A 20 million dollar pocket to clean this up. It is a dead community. I lifted the tile from the high school and brought it home. Means northern SK has a number of mines that need to clean up. Nuclear reactors SMRs not built, the last generation is stuck (Arvea went up-not a company anymore and still has clean up to do) what is driving us to keep moving to nuclear? I am opposed to nuclear power.
Any thoughts on customer generation?
Yes to customer generation, need to modernize grid, and accelerate grid modernization to allow for customer relations.

As soon as see increase in customer generation I think of Evraz and I would really want to know what the economic advantage would be for them to put up their own power? They are a huge consumer. If there is some economic return that seems like an awfully good idea.
Agree SMRs are risky and costly. Globally trending away.
Don't like Scenario 3 with SMR. Waiting on other provinces and think that it won't be cost effective like pursing a tie with Manitoba. Have to go all the way with 100% renewables.
See opportunity to work with City of Saskatoon to put in a small hydro project in the river. Something that could be looked at all across SK.
Would like to see partnerships – expand and create something with small projects. i.e. River project – weir project in Saskatoon.
Hold larger companies responsible to create their own power generation.
In Denmark they have underwater grid system and recapture the heat from the water that has been used. Somehow we need to move forward with those kind of things.
Agree with this, have no use for SMRs. Agree with the partnership with Manitoba.
Work on using existing infrastructure better.
Challenge how we can re-design rates so it's more fair, saying one customer is better off than others isn't a good way of framing this.
Look at it from stranded costs and unburdening customers – it's a better way of framing it.
Pro – Aligning with companies on self-generation, it's a win-win situation.
We can manage our carbon footprint ourselves, but the costs may be a challenge.
Naturally some customers will be better off than others because they will be able to put the capital upfront and reduce reliance on the grid and reduce costs in the long run. Building out the regulatory framework so that there are market mechanisms in place. Alberta is a great example where they have deregulated the market and the system operator has created a framework that is fair and equitable for all and generators can come to the grid and reward those folks appropriately and compensate those folks for reducing the cost of the grid overall.
How will we have enough storage for a week? Ample reason to look at storage, but the question is how long we can take it? how do we use it?
Lots of questions around details of battery technologies – usable life, capacity, costs.
I would not like to see it but if you are importing and built a big reactor in partnership. The wave of the future. SaskPower, other professionals and what they do, and they could do it more reliable and efficient. SaskPower is in the ocean without a rudder. Bring in the pros.
Storage capacity in hydro dam? How much capacity do we have for this storage? We don't have the answer right now. We don't have same resource as Manitoba and we are planning to look at it. So for now we are looking at batteries, CAES and hydro might be import from Manitoba.
We have a river system so curious why can't we have some. Others asked the same question another source of energy could be hydro apart from wind and solar.
Prefer this to all scenarios presented. Storage doesn't have to be large scale battery store, but like the mass storage option.
Don't want imports to be a bridge, want it to be a long terms solution.
Changing rates, is an issue in customer generation. This is a disincentive now. An Ontario customer, we are given credit for doing the right thing, now it seems to be going the other way. In favour of time of use rates. Key to moving forward. Customers can use smart tech.
Customer generation, customer should have local battery storage so they don't need to rely on grid.
My favourite option – current rates encourage defection. People will buy EVs and store the energy on their own instead of paying the retail rate. Should storage be DER vs large scale, houses going to heat

pumps may lead to thermal storage and not rely on as much additional load. Oil and gas extraction demand will decrease so decrease overall increase in demand.
Perhaps this option is a bridge to a bridge – to get us to a place where demand has increased four times with electrification.
Should we incentivize for landlords to generate as well?

What else would you like to share related to any of the four scenarios?
Options 2 and 3. Most familiar with but I am no expert. I look at the options and consider them from my perspective. Not familiar with 4.
Too simplistic of scenarios to consider.
Going private is less popular than nuclear in Saskatchewan.
Customer generation could be perceived as private ownership (non-crowns).
Support for batteries, expect to see those in Saskatchewan in the coming years – success in Australia (Elon Musk/Tesla) and it appears Alberta is moving this way.
SMRs are a good option – SK is leader in uranium production – whole supply chain.
Geothermal should be factored in – DEEP pilot project.
Biomass should be reflected as an option; algae.
Hydrogen should be reflected as an option.
Need costs on those new options.
A counter to SMRs – so many uncertainties about this option, I think it is not reasonable to put a lot of faith in them as a workable option for SK. Many studies show the economics can only be feasible if there is a large market for a single model, and there are 150 different models competing. If large scale production of these occur, it will not happen in SK – jobs will not be here. Time delay is a concern, we won't know for 10 yrs or so if they are a workable option, therefore SaskPower would be wise to not build this in as a very likely component of our energy supply.
What would be preferred baseload? Smart grid that can pick up distributed generation sources that picks up renewables and imported power.
We need to figure out if we will have enough storage for refineries and large consumers.
We need to make a decision that's sustainable, so our kids don't have to make these decisions in the future.
Energy storage-battery option. Not a bad idea. They did it in Australia. Tesla came in and built a battery for back up.
We are short sighted to not consider battery storage.
We have a responsibility to be conscientious about other technologies.
We keep hearing references to Fed funding. When will we know? Would be nice to know so we can plan our future.
Scenario 4 has most diverse options.
Scenario 3 – Oil industry, we shipped raw materials instead of building refineries and ship and export. Here we are sitting on Uranium-we mine and export instead of processing in SK.
Brings jobs. Easy to ship out but doesn't benefit SK much.
SMRs scary but we have been pulling Uranium for many years-we need to process and use it here.
We have Geo in Torquay-and CCS and coal. Notice that all energy production produces waste. South has capacity to increase economic benefits.
What other economic drivers can we generate? What can that expand to and income from by-product .
SK government has responsibility to develop economy.

Greenhouse at Shand requires improvements-we need more GH to utilize waste heat and have environmental benefits. Use of waste heat, trees, jobs, environmental initiative.
How much value is there is allowing solar on residential?
What are our biggest issues? Economy, environment, jobs? Hoping environment is part of influence.
I would like to share and follow up on having the government has already decided to already go with SMR and they are using SaskPower to play their games.
Warren Keading quote, "In the SK growth plan SMRs were identified as a clean option and serves to support the option of renewable…fueled by SK uranium …export opportunity."
We will be contacting the government as I believe they are committed to going ahead.
I would hope that SaskPower would exercise its due diligence and do their homework as SMR is not a good plan.
SMRs are in no way shape or form a viable option. I can go into hours of data on this.
My concern is to make sure that is clearly communicated economic safety and security concerns over SMRs.
Scenario 2 & 4 - CCS is applicable to other industries and there could be overlap and common infrastructure that would more broadly benefit the province in reducing emissions.
I think option 4 is most attractive – greenest in terms of reducing GHG emission – speedy action and not waiting for tipping point for the planet. Amazing economic stimulation for green energy development and talks about moving away from fossil fuel. We need to supply with people from that industry –son works in the industry – but its time to think about moving away from them.
Scenario 4 is the way to go it will be complicated and will require investment. Two sources of money – 1) The government should waive the dividend paid to the them by SaskPower and use it for renewable installation. 2) Estimate that fed government carbon tax rebate will total 600 million dollar in 2021 in SK and this money should be dedicated in investing in green power and home retrofit so that we can reach out targets and reach the goal instead of dragging ourselves.
Scenario 4 agreed. Agree with most of the comments. A fed crown corp uses public service to do better with public consultation. Provide to these communities and retrofit its buildings. There are ways to do it with fed crown corp. Like Canada Post. We can't lose the idea that its public service. I do support the idea of retrofit the building. Work with other corps to come up with a plan. Look into energy storage and consultation with Indigenous community.
Tax should be different for uber rich. Billions of dollars can be raised and the costing has been forecasted that it will generate a lot of revenue if the tax system made everyone pay their fair share.
Scenario 4 will be the best alternative.
Like Scenario 4, does customer generation mean individuals or large industrial customers? Needs to be both. The more we diversify the better.
This one looks like the best option so far. There is certain aspects that aren't included – in addition to customer generation, we also need the province building utility scale. The customer range should be down to the individual home and not just limited to large investors to build wind and solar farms
I don't see the imported power as a bridge. I think this will be persistent. I can't imagine hydro giving us low cost green energy and being short term. Should be long term contracts and then share back our wind and solar.
The risk in storage and costs.
I doubt building to the US and AB – don't see clear reason to not just build our own wind and solar.
SK does have wind and solar that are the best in Canada – natural advantage. Modeling work looking at zero included over building and exporting. Big opportunity to export wind, solar and possibly hydrogen.

If hydrogen happens to be what we are generating, it also is useful in larger vehicles. Helps reduce GHGs.
EVs and heating becomes a medium of storage.
Power generated in our own system is sometimes said to be important. Is it a concern?
It is good to have imports of hydro and exporting if we can build it well.
Make it a net benefit for both sides.
We need to be worried about all our environment. Need to have all the options to keep the economy going and environment improving. Work within ourselves and neighbors.
Scenario 3 – SMR piece – big concerns since the first time I heard about it. Safety and for the future of our kids, the radioactive waste – how do we manage that. Burying it doesn't cut it these days and what else can we do with it. Safety not just regards to waste.
Back to DSM, if we do it properly, we can clip off the bottom half of those options- people seem to be supportive of wind, solar, imports, storage, customer gen – can eliminate CCS, natural gas, SMRs – with DSM.
Incentives – working with a gentleman from Evraz – needed a two year payback to swap equipment. If SaskPower could provide services [incentives], companies will start making the switches. If they knew they would get revenue if expanding solar for example, they would do it (changing the model for how people get paid for export power).
Comment on controlling DSM – rural SK is a long way from being a long way from being concerned about energy consumption – in small towns every truck is left running – no one cares! Maybe you can control demand for commercial and some residential customers – but rural are so not there.
Not sure if urban are really there either. Example of the passive solar house – architect designed but no builders want to build – Need education.
Education and incentives to prompt the change (how about a carbon tax!).
SaskPower should not be devoting a lot of its resources and manpower for CCS or SMRs – really think that SaskPower should be using its ambition for reducing GHGs emissions – yes lots of progress, that power generation has made more progress then say the oil and gas sector – would really like to not have SaskPower waste time or money on nuclear or carbon capture options.
Scenario 4 is the most ideal. No nuclear waste, no carbon emissions.
Lots of economical storage systems are being developed. Lots of chemical battery storage systems in place, flywheels. Tech is there and improving.
Need storage to increase reliability of renewables.
SaskPower needs to maintain the big picture and manage cost/industry requirements, etc. Whatever options are used are fine, but cost is critical.
What can we do to make power usage more efficient in heavy industry. Can we raise power rates to ensure efficient use.
Need to make sure we are not driving industry out of the province.
Important that a crown corporation ensures energy fairness for our province. Rural users need to be considered.
I think option 4 is the most attractive, it is the greenest, enables speedy action, instead of waiting for the tipping point climate change, there is amazing opportunity with green jobs, important transition away from fossil fuels is seen as an emergency and provide supports for oil and gas, strongly opposed to fossil and my son earns his living there, so it's complicated but need to change.
Agree Scenario 4 is the way to go, it will take innovation and money, SaskPower and government should be willing to do: 1)dividend paid to government from SaskPower should be waived for at least 5 years, 2) estimate from Fed gov is that carbon tax rebates will $600M let's change the name to

climate action levy, should come to SK and be dedicated to renewable energy through SaskPower and also home retrofits and many other green initiatives.
Also like Scenario 4 because agree with others points. It is the greenest and best in that way. We are from a Federal crown. Pushing for the corp. to do better with engagement, part of that is to provide to those communities electricity, and retrofit buildings, there are ways to do within Fed crown corp. Biggest worry is privatization of crown, as much as like #4 wouldn't be supportive of privatization. Work with crown corp. to install PV and crown manage good idea. Consultation with Indigenous is very important.
Appreciate comments about where to raise revenue, tax breaks for those who earn >$2M /year need to be changed, Broadbent Institute, huge revenue source if we tax them even 1%.
Scenario 4 agree that is the best.
Ensure we continue to consider natural gas in the interim. Agriculture industry is concerned. Hydrogen might be the only alternative to fossil fuels for the farming/agriculture industry.
Add Natural gas into Scenario 3 – which might be the way to go.
Continue to use coal until we get to some of these other options
Why don't we burn natural gas in individual houses – cogen – waste heat from the engine can run a little heat pump.
I like this session the public could use more knowledge on what we are all doing in the background to make SK better and cleaner and greener. We do a lot of Indigenous engagement, but what is SaskPower doing to engage the general public? Nice to see the 2050, 2030 targets.
I teach business management students who are all focused on their future and earning livings. Sustainably is a big topic around that. Tension around sustainability and profit. Environment, economics, society. When I look at SK and Canada, we are still on the trajectory of bigger, better, faster, more. Our earth can't sustain this forever and ever. This part of the conversation needs be more prominent. We are here to provide energy, but does it have to be in exorbitant amounts? Where is the balance in our approach to life on earth?
We never talked about geothermal much. Oil and gas industry expertise could be used. Pumped hydro should be looked at. Compressed air storage should be looked at. I work in software - important that solutions are not band-aids or stopgap. Don't build natural gas then be saved by SMRs in 2030 plus. Build something that is the optimal solution the first time.
I think a combination of all the scenarios might be a really great solution. Transition with interconnection and Natural Gas, integrate CCS if feasible, SMRs when possible. Great this conversation is happening.
On compressed air, that can go two ways, as you compress the air you generate heat, can use for district heat, re-expand in stages, and come out ahead.
There need to be more conversations like this!
In compressed air, adiabatic process provides energy storage.
Like that we have reliable, reasonable priced power in a northern country. We are large and cold and need to maintain a large grid. Kudos I think SaskPower does a good job.
Concerned about communications – understand that we need to simplify but be aware of where you are slightly promoting something. Renewables are not necessarily unreliable but can help to increase reliability, instead of saying high, low, expensive. People need more context, is comparison to what and in what time frame.
Communication on the website about renewables especially about solar is negative and calling it intermittent and not a good option.
Are interested in biomass tech and has been used as a bridge in Europe and the UK and maybe this is an option with our forestry waste.

Happy to be involved in these discussions, concerned about action plans coming out of the consultation. Often there is no action afterwards.
Engineers will figure out how to build the system, once we know what the people want.
Hope that there is more consultation with indigenous rights holders.
Always think about what my six year old granddaughter wants us to do.
Need to look at geothermal.
The lowest cost generation option is demand side resources and is not on the list, it makes no sense.
Where did the directive to pursue SMRs came from given it is an untested tech? It is the only scenario that doesn't exist right now, so why?
Moved here from Ontario and 50% is old nuclear tech. Don't want to look to Ontario for any solutions on anything else – only nuclear – fascinating.
Looking forward to Net Metering discussion – all really great discussion as long as SaskPower takes our feedback.
Also think we should look at geothermal.
Interesting that hydro wasn't included in SaskPower's list of options.
I would hope that SaskPower would exercise its due diligence and do their homework as SMR is not a good plan.
SMRs are in no way shape or form a viable option. I can go into hours of data on this.
Nuclear is a nonstarter. Works in France but has never been cost effective, causes huge problems when you wind down. It's expensive, slow, dangerous and the only reason to look at it is the political lobbying.
Scenario 4 will be expensive because of all the customer generation. It will increase rates, so would need government support to keep rates down. SMRs may be a good choice. Nuclear has worked well in Ontario, rates reasonable, safe. Thorium and molten salt are good options that should be looked at.
Don't like the idea of nuclear. If we have to do it, SMRs are better.
I like Scenario 3. If SMRs not available until 2030s, natural gas can tide us over until then. A combination of the four scenarios would be best for reliability and affordability.
It seems like putting in the interconnection is a good idea, then we can do SMRs or whatever we want for 2030 plus.
Is it necessary for SaskPower to roll things out the same way in all parts of the province, or could it be done regionally? Maybe microgrids in some areas and other solutions elsewhere.
Partnership model, like Saskatoon Light and Power. A municipality could buy some land and throw a bunch of solar panels on it – they could partner with SaskPower.
Ontario hydro nukes. I don't agree it's been economic. Maintenance costs have been high.
Counterpoint, Ontario's power is cheaper than ours.
Needs to be a combination of all options, including SMRs if we are to get out of coal. In the Far North wind and solar won't work. I see SMRs as not too scary. Other benefits as well, nuclear isotopes can be used in medical world. My opinion on SMRs has changed over the past year. Can't be all or nothing. We will have to use a number of options.
Rural areas. Reliability is an issue – we have surges, brownouts etc. Some rural people don't necessarily buy into GHG reduction, they just need reliable, affordable power. Getting buy-in will be a problem, but if it is reliable and affordable that will help.
Like this – would like a combo of option 3&4.
Should we incentives for landlords to generate as well?

Scenario 2 importing power could be a positive because of hydro, but a downside could be it could take a few more years to expand. I find it more of a con to have continued natural gas and fossil fuels based on overall environmental and emissions impact.
It is all well and good to talk about moving away from wind and solar but need natural gas to back up. CC takes a long time to start and stop.
Germany still have fossil even though lots of renewables.
Or find alternatives like hemp or other things like that.
Yes, but we don't have enough land to grow enough hemp, and it still puts emissions out.
Feel if we put in same resources into green as fossil could find a way.
FNPA capture flare gas from oil fields capture emissions and put into energy. There are some band-aids. Flying Dust Flare Gas Project.
Meadow Lake Tribal Council has a biomass project from wood waste.
Pulp mill in PA has a 40 MW generator in past.
Customer self-generation is a good start, and support from our crowns and our governments is always welcome.
Electricity storage, what types, CAES, BES, pumped hydro.
With only 1 million people we don't want to be a pioneer, others in EU are going hard on wind and solar, but experiencing more blackouts, and more costly.
That has a lot to do with privatization of grid in Texas, also ERCOT, and they are unconnected to the rest of the nation.
We have to think about cost, we keep saying it is not cost effective, but the way the world is going you will not be able to eat drink or your money.
But we don't want energy poverty either.
Or we can change our lifestyle.
In terms, the last point, community generated power is the main point, we should consider how that could benefit our communities. The baseload power issue, power and wind cannot be the full solution. Even amongst peers of mine, people would very much like to look into generating solar on their homes, if more incentives were to be put in place they would be willing to do that and that could speed up the process.
But then with SMRs the issues with that technology we should look, cost is an issue, but lowest overall env impact, and lowest climate impact, need to look beyond emissions we use. And balance the cost with customers in the province but also environmental costs.
Denmark is one of leaders in wind, their back up is countries that use nuclear power.
I don't want cancer and have a picture of a two headed moose, etc.
Geographic perspectives are so interesting, if we are speaking like I am from a city where that is not likely to happen, we need to listen real hard to the human bodies.
Customer generation sounds very promising. The fly in the ointment, is you do need a lot of subsidies to get customers to put in the capital. If you have customers doing it less than grid scale, you have problems with maintenance, and instead of dealing with one large unit you are dealing with lots of small customers. And very sensitive to inputs, wind and solar are very chaotic, any more than 20% of wind and solar on a grid becomes hard to control.
What is the source for these numbers?
Ontario Engineering Society, California they have integrated a lot of wind and solar, rule is basically more than 20% of variable renewables and it is hard to stabilize the grid. I worked in a power station and it is a just in time service.
Imports make sense in a province of 1 million. Makes sense to share networks.
Importing would be great. Would rather see us take it than sell it to the United States.

Can support marginalized communities with an import transmission structure.
The allocation of land use for putting up windmills and solar farms. They are not attractive and the damages that can happen to the panels over the life expectancy, so that they may not last as long compared to what SaskPower may advocate for.
Wind and solar is good, but need stand-by power sources is the sun/wind fails. Can only use it as a certain percentage. We need back up with natural gas or nuclear, which is costly.
Natural gas has leakage, which creates methane and is a GHG. Fracking is involved and that is problematic.
CCS is expensive which we have seen at BD and very costly. The by-products are created from increasing fossil fuel productions.
Semi-national distribution of power between provinces that have economical power, when we look at the cost of national grid, the cost of that grid would be much less costly than the cost that would be made for building wind and solar.
Is the cost of wind and solar being subsidized by the costs of the existing facilities and gas-fired facilities? When we talk about green, it's truly not green if we are subsidizing with other generations.
Estevan is the sunshine capital of Canada. The fact that we are using coal there is completely ignorant. SK does have enough solar and wind to be able to share it with other provinces. We need to progress forward. We do have the natural resources and we are able to continue into seven generations into the future.
Solar and wind have varying degrees – don't need massive wind or solar farms, lots of unused roof areas, it doesn't have to be massive farms – the focus should be on reducing our energy consumption. This is for SaskPower to come in and focus on how people can reduce their consumption.
Want more percentage information on the scenarios because it's hard to understand. What is a good mix? Is one panel an expansion?
Want to see many thousands small projects rather than one huge, mega project.
Issue with smaller projects if you have 400 of these 30 MW stations, now you are looking at huge service costs, whereas the existence of existing plants and complimenting them with reducing GHG programs then you have allocation without having to create new infrastructure for distribution.
These scenarios should include storage options.
Scenarios should address conservation and energy efficiency.
I concur with Scenario 4. SMRs are not built yet and will be a very, very expensive alternative. When you consider building wind and solar won't be the same problems.
There are people that could develop private ownership project which is job creating with comes in scenario 4. What we don't need is a complete monopoly by one entity. People can buy-in to this scenario.
Storage and Customer Generation would create jobs which is a nice side benefit and has a better impact in meeting emissions and is cheaper than SMRs.
I am a proponent for nuclear power. I don't see a problem in it. France is a good example for how it decreased their carbon footprint. I don't see a downside in a geologically and politically stable environment. What is harmful is the fuel cells but they are not generated outside of the facility and are recyclable. SK has all kinds of low usage land to build on.
Wind and solar creates jobs.
SMRs are not the way to go. We don't need Chernobyl or three mile island. Not now, not ever. The waste will take millions of years to break down.
SMRs are very expensive and right now are basically just blueprints. Living near nuclear power hasn't been too healthy for people. See an increased risk of thyroid cancer when living 20 miles near a facility.

Solar and wind have storage issues which have a high cost associated.
SMRs are a very expensive way to go for creating power. In Turkey they have nuclear power and it was so expensive.
Why can't there be a little solar panel or wind turbine on every power pole?
Conservation – we live a passive energy house, and I don't understand why every house doesn't have to follow that construction.
Incentives to properly insulate their houses – there are ways to get people to reduce consumption. Change the cost of power during peak times. Clothes lines versus using a dryer.
I don't want to be three quarters of a mile underground in a potash mine relying on wind to power my ascent back to the surface. Evraz uses giant amounts of power, can't generate that with solar without blacking out several miles of land with panels. We need power generation for the industrial, without major generation even renewables can't charge up EVs. Look at Texas, their power gird is down. People died because they deregulated their power supply.
Mining and renewable can work together – battery storage is where support should be put for the high energy usage industry in the province. Indigenous support could be part of this solution.
Steel industry is moving towards renewable – Missouri plant is going to be running on wind energy and can be shifted to heavier industrial use.
Wind and solar – you have to produce these blades and panels and generators. There is mining that occurs to create these. It's not as green as we think it is. It's green when it's installed, but the manufacture and fabrication is not exactly clean.
Batteries have a life and what are they made of? They are not green. How much battery storage do you need? To power a house, let alone a city block?
I don't want my grandchildren developing cancer. A study in Sweden showed that the closer you lived to the nuclear facility the worse it is. I don't want to do that to future generations. Do you want to do that to future generations?
I would encourage SaskPower to conduct full life cycle assessment and thorough environmental impact assessments for any of the proposed plans. Valuable to look at the concept of green – how do we pay off the debt of green infrastructure?
All the SMRs, natural gas, carbon capture have been subsidized to a great degree. No benefits from that.
Yes, these are renewable sources of energy, natural gas is not but wind and solar is, reduce GHG, natural gas as a backup with the graphic we are already using a considerable amount of natural gas. We would continue to be more self-reliant.
Con – a lot of pieces we don't know on relatability of wind and solar, how quickly would they fit into grid, how reliable, space for solar and wind is an issue because they take up a lot of space. Sometimes we don't have wind or solar, where would you put wind in northern SK, would it work? For solar, where would put it in other places other than southern SK? we are more than just prairies in this province and renewables won't work everywhere.
The first two scenarios are the same – one uses local natural gas vs imported energy. Neither scenarios could be THE scenario. Long term we should be tying into AB and MB and other provinces. AB runs different power but I don't know or understand the details of it. It's expensive but we should be thinking we connection, use resources within SK. No natural gas as back up.
Wind and solar – there is quite a bit with battery storage, but I don't know fully on what all the options are here but would like to see this as a long term solution. Feels they are narrow scenarios
Problem with some of the looking forward to 2050, agree to tie into other provinces. But we are going to have half volume of water as we do now coming out of glaciers in the near future. Dam produces electricity on South Sask- not considered here. These scenarios are based off of believing,

continual increase energy demand. We did energy conservation in 1980s and if we continued to follow that trend we would have half the energy use we have now. The car I had then had better millage then what I have now. So we can do more with efficiency – I could be wrong but we could demand more and more energy at some time the human race will have realize the limited planet we live on. The natural gas alternative, natural gas has a limit too. I don't know how much natural gas we will have in 2050, both these scenarios require we have natural gas around.
I have a solar and wind power and battery powered home, when the wind doesn't blow can't get power. But when sun doesn't shine you can still get some power through UV rays – check it out.
Economy is concentrated in large productions, big factory, learned from COVID, should be working to buy local 100 km food supply chain, is applicable to energy production. Nuclear plants – when 1 plant goes down it would take out all of SK. A better solution would be distributed energy production which is wind and solar – as it can distributed all across the province. Better for reliability of system, reduce power line costs because not putting so much power down the line. Go to smaller, more energy production for better relatability. Yes, natural gas option – can do it in your home – therefore excess heat and heat home, and excess electricity can go back into home – SaskPower and society has to look for distributed power options.
Lots of pros going with renewables resources. Like generation at the source rather than large scale projects. Continuing with natural gas, have to look into simply can't be replaced at this time. Reliance needs to be looked at and environmental impacts.
On the surface SMR looks okay but lots of concern with transport, storage around the world seems to be phased out.
Really like SaskPower moving towards wind and solar. Low hanging fruit that could be cleaned up to reduce carbon footprint and UN platform – talks to energy poverty – can't leave anybody behind. Build back better. Look at why customers going to electric baseboard heaters. When we shift to energy sources need to not be so gluttonous.
We really need to support solar/wind and use universities – partnerships with and community engage to built trust. SaskPower needs to build trust with the community.
This scenario looks good. The pros are that by having more gas and less coal the carbon footprint is reduced.
Wind and solar tying into SaskPower – don't understand how it can work. Really need the energy produced when it's not producing. Really not doing SaskPower any good to have the small 6.8 kW system on my roof. Solar is such a small factor.
Everyone thinks bigger is better. The North American approach is such large scale for one mega project and that is what SASKPOWER is getting caught up in again. Grassroots small scale – if you get 10,000 of those it makes a difference. If people aren't working at home there is an untapped resource on their roofs. SaskPower says small solar power is a detriment to the grid. Don't understand how the mega projects aren't a detriment. It frustrates me.
Think this Scenario 1 is really out of line globally. Is still fossil fuel. Is risky for business – need to be net zero too. If they can't buy their power from the grid because natural gas is emittive they won't locate here.
Inconsistent with the global science on climate change.
Scenario 4 - Wind , Solar, customer gen , imports and storage.
Crown doesn't have to make profits, there's more latitude and you can do things differently.
I fear SaskPower is being run by certain lobby groups- should we be making power for dirty industries?
The costs around net metering sound like SaskPower has manufactured this. It sounds like spin to me. "It'll cost you more customers."

The scenarios presented were disappointing and confusing. Are you going to net zero or aren't you? If there were more scenarios with zero emissions as the end goal for everything – then it would give me some confidence.
This space that we're in right now is eroding trust in the power utility. There are questions about whether you're serving the public or even providing public services.

What scenario might you suggest?
Ideal scenario would include CCS, natural gas and nuke.
Scenario 5 – some mix of all of these. Timing of technologies and cost.
EU requires a certain amount of interconnectivity between jurisdictions in order to provide insurance, accommodate renewables, etc. More transmission is a good thing
So much risk going forward, how can we choose? Transmission bridges that gap and gives time to find better solutions
Jobs are very important. Nuke jobs are high-tech, well-paying jobs.
Conversation is the most important things we can do. People have the skills for these types of jobs.
Wind produces more jobs per MW than coal plants. Plan to align with available skill sets.
Where does geothermal fit in?
Scenario 3 and 4 are best – imports and customer generation are good.
We can't make everyone happy. If SP chooses proper direction, we can be leaders in generation as a Crown, 20 years now, no one will remember this conversation.
Days of building 50-year power plants are gone. Paths may not even last 10 years with advances and technology.
SMRs could be ideal, reliable, emission free option. There is a gap with regulations. SMRs not ready yet. What do we do?
Common consistent piece is solar and wind to eliminate GHGs.
We need a strategy to align timelines.
A more holistic view on economy.
Reliable and low-cost options preferred.
Align with companies that would purchase waste energy.
Estevan and south open to SMRs and gas. Want a solid plan for transition.
SES released a document encouraging SaskPower to be carbon neutral by 2040 and lots of things being discussed in Scenario 4.
Biggest thing to add to Scenario 4 is optimizing industry specific energy use and provide technical support. This kind of stuff can't stop.
When doing a one-size fits all scenario, a SMR might fill a void.
Something like a Scenario 4 but even more collaborative between residential, industrial, etc. We are trying to accomplish a similar goal and the world is changing. It isn't just a money conversation now, and the last two years the main focus has been ESG's. When they are really targeting the fact that they have been moving jobs if ESG targets can't be met and timing is a sensitive issue.
I think Scenario 2 if it had bioenergy with CCS instead of coal would be the best scenario for us to consider. Ranking these Scenarios 4,2,3,1 just focus on natural gas may appear to be best short term solution, it is the worst for ultimate goal of carbon free grid. Identity crisis that SaskPower is going through cannot see future without more cooperation from jurisdiction to jurisdiction, that defense in depth to avoid Texas situation. It is different than what we are used to, MB has an excess of hydro, Sk will have excess of wind and solar only through cooperation we can take best advantage. If we can't cooperate in Canada with lowest population density and …. world is in trouble.

Good point, vertically integrated power companies suffer from those same issues.
The time is now, battle over carbon pricing , there should be cooperation between provinces and Fed, BECCS program would need Fed cooperation, they have a Fed fund announced in budget, CCS carbon tax credit, Fed putting in money to fund these options, need cooperation and SK need to embrace carbon pricing not avoid it.
Lots of trains shipping out of SK then come back empty, why not bring back biomass from BC, should have rail from Estevan to La Loche, it is a huge project that has huge ramifications.
When you say Estevan you mean Coronach also.
Net Zero Accelerator Fund.
Agree with a lot of what has been said, SaskPower has spoken about wind and solar but done little. I too am disappointed, SaskPower currently has interconnection agreements, that cooperation should always be there but that is not to eliminate the need for other forms of cooperation. All scenarios have pros and cons, don't want to see us put all eggs in one basket, the technology around all of them is improving dramatically, as the need arises different solutions will become known, gas may be short term but it is a solution, all of those need to be left on the table.
Echo as well, answer lies in all not one, need a combination of all four scenarios.
Agree there is no perfect solution to go net zero. Look at different options and weigh out pros and cons, act on the now instead of the future, try to do that.
Has biomass plant that is coming on been discussed, it is 7 MW should be in operation by end of year. Tazi Twe proposed, terrific opportunity for hydro especially in far North.
Democratize the generation, the importance of equity.
How do we encourage as much power generation by the people consuming it?
Scenario 2 & 4 – CCS doesn't fully eliminate emissions, so it is not a long term solution. Extremely expensive, which is why no one else is doing it all over the world.
Choose Scenario 2 because it included CCS.
Choose Scenario 4 because it included energy storage.
Choose Scenario 4 because storage and customer generation need to be a part of whatever the future solution is.
Distributed energy provides an opportunity for all customers to participate, especially First Nations.
SaskPower should do something to educate the people that this is an emergency situation and do stuff to suggest that there is an emergent situation. Climate change is real and it needs to be transferred.
Estevan and Coronach – what has SaskPower suggested to people down there? What's going to happen next for them? Some are advocating solar, wind and SMRs.
SaskPower needs to incentivize residential customer generation. Need more support for customers, partnership with universities.
I am in favour of wind & solar and importing Hydro from MB – energy storage of the future may be part of the picture. I don't know much about it, but I think geothermal is something that is in the future.
Out of the 4 scenarios – would pick number four.
Hydropower – developed and produced and sustained in SK.
Support number four.
Scenario 4 has the most potential.
Geothermal should have been included – a project in Saskatchewan that is showing great potential that SaskPower should be emphasizing and looking more towards geothermal.
We didn't discuss biomass or biofuels that should have been discussed – I don't know much about them, but they should have been discussed.

Scenario 4 plus conservation plus more effective building codes.
Haven't considered biomass. In Denmark they collect hot water from their sewer system. They reuse that heat source.
Maybe SaskPower needs to see what others are doing internationally? Canada is getting international reputation.
Prefer Scenario 1 because avoids more coal. Others brought up some really good points, and for reference to Flying Dust.
Like Scenario 1, CCS may be a lot of cost.
Wind and solar is good, carbon capture we saw what happened down south, could light a fire from your faucets, coal is bad, talk about stripping mountain tops, will increase climate change. I think we need to go to wind solar and renewables. Hemp is incredible it could be used for many things including power.
Know Scenario 1 is more realistic especially for far North communities, wind and solar not the best for far N. For now Scenario 1 works the best, in a perfect world we would rely completely on renewables but it is not possible right now.
Made reference to Federal funding being available for some things, it is still our money, even rebate programs for solar, don't see how that is saving us money if we are paying for it anyway.
Scenario 1, some good points raised so far, major pro is expansion of wind and solar, renewable resources, still have impact but lifespan positive is renewable. But you do need backup. Con to using natural gas is the extractive process of using natural gas is harmful so need to account for emissions released when extracting natural gas as well. Life cycle.
It would be incredibly exciting to look at Safire. They would send some of the best engineers. It would be groundbreaking for the energy industry. And they're getting close. They've got some self-sustaining energy balls that are maintaining power. The joke is that they're 10 years away, but they may really be 10 years away. They need more funding.
Natural gas is amazing for heating homes. Going electric is just really inefficient. Especially if you're burning natural gas to generate power. We should be shooting for higher. Thermo-reactors are an option here. It didn't go ahead because they couldn't weaponize it. You don't have waste, they're efficient and they're more stable.
It's great to be cleaner and more efficient. It's good to consider what I know as the truth of what's really going on. Even though we're being lied to by the UN. You guys should know the truth as to probably the environment we are going into. It'll be crappier winters where we'll use more energy.
Safire project in Toronto. Look at the fusion technology. It's so new. There are maybe 13 projects worldwide.
Geothermal is something that should be discussed; but it is run by electricity. Hydrogen is a storage component to EV fleets to argument electrical systems. Not use mech batteries but a hydrogen fuel cell. Eg. City of Regina is looking at bus charging options. Not a generation discussion but how to better utilize electricity. SMR excess capacity can help with generating hydrogen in low load timeframes. Synergistic technology to be more cost effective overall. Gap at Federal government level related to hydrogen and lack of hydroelectric power in SK (compared to Quebec). Look at SK challenges, need more tools in our toolbox. Diversify how we get energy. Energy storage in context of solar and wind. What to do when excess generation. Eg. Use excess to pump water into elevated reservoir to use when needed. Or use weights or compressors to create pressure in caverns that could be released to generate electricity when needed.

City would like to have more discussion about virtual net metering at the commercial level, those with multiple buildings

What are your thoughts on imports?
Supportive of renewable
Supportive of renewable and economical
For meeting ESG targets, can't guarantee if energy is renewable, prefer a made in SK solution to have more control. Would like the made in SK, controlled in SK collaborative solution.

Do you see SMR's playing a role?
Since the fuel is in SK am in favor
Thinking globally, many moving away due to cost over runs and what to do with the waste fuel, would rather see other options developed, they are far off, and we need solutions now. Not supportive.
Given the geographical and weather challenges in SK, we need a basket of options. Like the idea of keeping all options on the table.

Any final comments?
What is the cost of these options, for industrial power? Has impact for future of doing business in Sask.
City would like to have more discussion about virtual net metering at the commercial level, those with multiple buildings
Lots of frustration in Estevan and Coronach region. No consideration for further CCS. People are giving up hope for dialogue or future of CCS.
How can one defend CC for natural gas but not CC for coal. Liberal government dragging us down a path to 100% renewables and natural gas will be in the cross-hairs soon. Pro-nuke. Mine it, refine it and storage of nuke waste as industry.
Talk of SMR being located in either Coronach or Estevan area. Still down many jobs.
Supportive of customer generation and economics are there is can export to the grid. If not, economics aren't there.
Don't want tax dollars to go into projects that are inefficient.
Efficiency shouldn't matter as long as its low emissions and cheap power.
Politics are influencing decisions – we're not necessarily choosing the best way forward.
Use resources the best way we can.
Don't put all your eggs in one basket.
As long as costs are low.
What about community heating? District heating.
Passive solar – housing that only faces south – change building code/educate people to be in harmony with nature.
Change in a view about what baseload is – not just steady production – but that renewable electricity has to be available, vs. produced all the time – so batteries can be useful. So looking for baseload may not be the best view – we need access to power all the time. Baseload is important for industry – a challenge to consider in the future.

There are a lot of regs and red tape to get large scale solar/batteries in place, especially for industrial customers.
Missing energy efficiency.
Cogeneration – industry.
Estevan in better position with Prov. Finding coming to assist.
DRAX very large generator in UK had a massive 4GW coal plant converted to biomass, biomass is coming from BC, purchased Pinnacle Resources to secure that biomass for the UK. It is a huge part of what the UK is doing to get to net zero ahead of most countries on earth. Astounds me they are using our biomass, we could be doing the same thing here, it is an example of negative emissions.
Are we concerned about supply chain impact with Europe?
Yes, concerned about EU cornering market on biomass supply, they don't have a lot of resource options. There is a limited supply of biomass and we are one of the world's bread baskets of biomass we have to look after ourselves too. It has to be sustainably sourced if not you are defeating the purpose. I was a little shocked that that happened and it is a done deal, they own Pinnacle Resources now. There is a real opportunity in SK to expand Ag and go into purpose grown biomass willow, poplar etc. short rotation biomass, harvest 20% to use as fuel for power plants, then it is sustainable, it is a large undertaking.
Similar to sustainable forestry, very fast growing trees and switch grass, there is opportunity beyond BC wood pellets.
We are not paid back for the power we put back into the grid. In fact we pay GST on it. It is a way of reducing GHG emissions in our neighbourhood.
We need to highlight decentralize, and a big increase in solar and wind. Producing power close to where it is being used. Why we have not gone there, I don't know? The utility should pay for it and install it.
More geothermal studies and biomass studies.
Energy conservation was missing.
SaskPower being a service vs. a producer.
SaskPower providing the tech – inspection of solar panels on homes.
Disappointing the SMR thing is such a huge focus.
The rest of the world is moving away, the tech is not available – focus on distributing energy wealth and ensuring everyone can benefit.
The idea of importing – South Australia put in a super battery – solutions already exist, SaskPower needs to investigate the options. Bring it here.
I am all about CCS – all four scenarios are dreams, all good things come from dreams. Not lose focus on baseload power – baseload is the most efficient. Geothermal project – testing is ongoing, for four years now. Not sure where the tech is at, Note that it has provided jobs by drilling holes, in four years it has not produced power – not sure why. Baseload – cannot lose focus. Shutting coal would get rid of 1500MW, whereas the smaller renewable projects – you need a lot to get that back.
Appreciated this opportunity and the process. Thanks to the group. I have learned. I had some questions about the transition to the dream and the impact of how we help SK shift the employment model from large production employment to diverse sites. I share the concern about the need for baseload for reliability. When we say import from MB for bridge…it can be there longer term.
River run hydro – I have habitat concerns.
I really appreciate SaskPower did this, there needs to be a just transition for workers at SaskPower – trying to morph this into a thing that works for everyone. Let ppl know in government that we don't want to contaminate the province with nukes. They think it is connected to the uranium mines, but none of the SMRs use uranium from SK.

Where does geothermal fit in? Would like more discussion on natural gas for a bridge, how long would it be for? If we can ramp up energy storage quickly, may not need it. Some things missing – more energy storage, smart grid.
SaskPower needs to purchase power from self generators at a higher rate, not penalize them.
What do people like about customer self generation? Self generation advantages– independence, feeling you are contributing. Self-generation will save money on the power bill. Need to look at what they are doing in Europe and consider it here. Look at decentralized versus centralized.
Scenario 4 with modifications – if we build in a natural gas generator, they should be able to run on hydrogen or other renewable.
Energy storage is showing it can work.
Cogen can create electricity and has been around a long time.
Energy conservation and critically important.
I think there is someway to harness SaskPower and SaskEnergy and have them make money through conservation. They get a reward by helping people conserve.
Achieving a climate goal is important and zero electrification is a pillar.
Thinking of a customer side – electrification needs to be thinking about how to facilitate that. Know the tech that's available.
SaskEnergy and SaskPower should maybe be together again so they aren't competing.
Jobs in the province – part of our economic is oil and gas, opportunity to keep those skills and keep them employed is a win for hydrogen.
Energy efficiency needs to be part of the thinking. If we electrify everything, could be a growth rate of 5% a year is possible.
Keep doing engagement – details of jobs and cost for each scenario.
In the era where we are closing coal, they have some of the best coal and wind, just transition will be into the solar and wind generation. It needs similar tech skills.
There's a lot to be said about hydro transmission. I doubt building to AB is economic.
I like the idea of building wind power generators in Canada. Don't like relying on other countries. Could put us in jeopardy to have an energy supply. I bet the fed government would help.
How are questions going to be answered – in the lead up to the event?
Wonder what SaskPower could do to create the feeling we are all in an emergency. I don't get any info from SaskPower re: climate change or need to change. What about Estevan and Coronach what has SaskPower suggested to those folks about next alternative.
Some are advocating SMRs, wind and solar for Estevan and Coronach.
I love hydro, I like nuclear – I do believe it is a safe fuel to use with the technologies in place. We should develop a nuclear refinery in Saskatchewan – take advantage of the economic opportunities in Saskatchewan.
Hydro can be utilized to the utmost only if we build interconnections east to west not north to south
Keep uranium in the ground where it belongs. It doesn't do mankind any good thing.
Thanks to SaskPower and the people that put the program on. In future discussions you have a perspective what people from different walks of life have. I look forward to the information that will be brought back to us. As a resident of SK I have an interest in what SaskPower does.
I want SaskPower to remain as a public organization. We tend to take our power for granted and it doesn't have to be. Expect for maybe the guys in the coal mines. We need different things in the basket. In the 35 years we have lived in a passive heated house – the sun has changed and climate change has to be taken into account.
I believe solar and wind should be reasonably continued, with either natural gas or nuclear as a backup. I would seriously suggest SMRs be looked at, especially to reduce carbon footprint.

End of life of windmills and solar panels should be considered. Recycling? I think SaskPower should be getting to be a part of that – being an advocate to solving that.
Wind and solar are still manufactured products, but they are more carbon effective.
Has anyone ever experienced a power outage? Don't tell me it's a 100%.
We are looking at qualitative analysis rather than quantitative. With EVs, there is going to be a big power increase. Our future consumption could be massive. Fostering more industry – hydrogen produced from methane is being developed.
There are net zero building codes, it's the existing buildings that have to be brought up to standards.
Conservation and GHG – a lot of industrial customers are planting trees.
Biomass is a carbon producing because it is burning and creating by-products.
The best way to reduce CCS issue is to not produce on carbon in the first place. Money spent on CCS could have been used to build solar panel manufacture and give away solar panels and recued carbon in the first place.
I was thinking about the mention that has been made, electricity fitting in human right concept, and if it's our right then I think it's like health, and other social services, it should be provided by government. However, I would hate to see how power needs held with the four year government cycle. See more efficiency and conservation of energy. Let's look how we, stop producing carbon or reducing it.
Educating people. People at the end of grid they will learn fast how much energy they waste. People have become complaisant on how they use power. Electricity is cheap on our budgets and people become blind to energy they consume. So Scenario 4 to generate own electricity they would learn how much they waste and reduce carbon. Consumers have lots to learn.
Having ability to be part of grid as an individual, ways and means to do it, We hire people to help us: people to hire someone to build and maintain solar and wind at our homes so there is a lot of opportunity for economic options. Feed into larger grid, SaskPower needs to be overall controller to maintain safety. I would like to see good solutions in the final report that you produce from these events.
Avoid nuclear power, biggest and most fraudulent industry since smoking, we are addicted to it like cigarettes and we are having trouble giving it up. It's entering our environment and it's not a healthy thing.
Really want to promote the UN sustainable development. Builds trust for SaskPower. Every source of power has a carbon footprint and has a story. Would really like SaskPower like to look at activating the thermal mass. Gives the ability to store energy so if power goes out you have a chance to survive extremes in weather for 12.9 hours. Should include that in the conversation. Not be gluttonous at the bottom end and hurt the top end.
Really need some sophisticated modelling of the scenarios with costs and environmental impacts. Would be much easier to have the conversation with the data.
Concerned about who is pushing the agenda at SaskPower. Worried about nuclear secretariat and worried that people at SaskPower aren't empowered to make the decisions. Tried to request documents on costs on solar program and weren't provided. Want transparency to see decision making. Shouldn't be just from the government and not influenced by the government. I want that noted in this discussion.
SaskPower could be bringing in incentive programs who are building better and help reduce the energy demand on our buildings instead of relying on federal grants.
Thermal mass – can we use abandoned wells from oil and gas?
Like the focus on renewable.

Planned power system, if someone wants to make the case for private it will need to be a good case made, private is not efficient.
If retrofitting every house cost effective, sure.
Large scale SASKPOWER owned, is the best option.
How much lack of planning is because of political interference?
Not a lot to add.
What we are doing is impacting our personal views (solar panels).
SaskPower should get into solar arrays.
Some sort of storage and working with technology available to reduce costs.
When it comes to how it would work at a municipal level it should go to most cost effective, and ability to create power.
Solar panels on homes and options for both is crucial.
SaskPower has opportunity to create large scale solar farms.
How will energy mix be determined and who makes the decision.
Further role for public consultation.
Ideology plays in and the government views.
Public opinion should be reflected on.
We are not paid back for the power we put back into the grid. In fact we pay GST on it. It is a way of reducing GHG emissions in our neighbourhood.
We need to highlight decentralize, and a big increase in solar and wind. Producing power close to where it is being used. Why we have not gone there, I don't know? The utility should pay for it and install it.
Far North – wood gasification may be an option.
Does SaskPower promote energy reduction?
I'm in favor of self-generation.
University of Regina's goal, 25% reduction in emissions from 2019 by 2025.
A lot of things cost SaskPower money. CCS and net metering. I realize that you have infrastructure costs and it's not free for people to generate on their own.
We have long suspected that the government has forced its agenda.
People feel like "I have to do something because the utility is not."
Good education and ideas.
e.g. burning garbage.
Carbon is already there. Unless you're doing something nuclear, CO is plant food.
Climate change is real but the UN has really spun a story around it.
The sun has some real influence on our climate and it doesn't put out a steady amount of energy. When we get into the bottom of the solar minimum .25-.33 watts less per square meter than we typically receive. Small amount but globally we end up with colder, harsher winters. As the magnetic fields go out of sync it messes with our jet stream and our polar vortex. When the fields get sloppy we get cold weathers. Like Sept 8, 2020 was -8 that was record for us. It shattered the other records. Four phases of the sun.
No one grows beans anymore because they die, it's a pretty harsh lesson to learn ($500/acre).
Farmers learn pretty quick – and they adjust.
Environment UN originator of Maurice Strong (Manitoba), socialist, who was radicalized (self proclaimed radical), he had a hard life growing up, he was the Elon Musk of the analog age (genius but also a socialist), he ran 100 companies through his lifetime, he knew that in order to "the only way of saving the world is for the industrialized society to collapse, isn't that our job" – International Panel on Climate Change.

Pierre Trudeau recruited him to run Petro Canada.
We're actually in a mini ice age.
Jack Eddie was a solar physicist in the US and his knowledge got bypassed by the UN since Maurice Strong said Jack's wrong.
If you're a farmer – our growing season is getting shorter.
I can bring in other scientists and can help you guys put on clinics.
The UN duped the west into global warming when the sun was in a heating phase. Now that we're going carbon neutral we're chopping off our own nuts to our own detriment.
CO2 is plant food. It helps plants grow better. It's good for the environment. And there is a greenhouse affect but it's very, very minuet.
For what we pump into the atmosphere, the earth pumps in the other 70%. We're being lied to by the socialists. That's the politics. I don't know if we can defeat the feds. There's a small group of us in Canada who talk about what's actually happening. They're well educated.
China gets a free pass in the UN. They can build coal until 2030 and then they can still claim they're a developing country. As their economy grows and they build coal and we go the opposite direction. We become uncompetitive. Our government is either complicit or ignorant.
This has been happening since 1988. Now it's coming to a head. The great reset. Agenda 2030. When we finally hit solar minimum, it'll be 2030 and food production is going to get crazy. (difficult)
The top physicist in the world know the waves (magnetic fields in the sun) they've all calculated that in 2030 the earth will be colder and more constant. We're going to need more cheap, affordable energy and we're going in the exact wrong direction.
Whatever we can do to make the grid more reliable is important. Grids can go online.
The sun can kick out solar bursts (low probability, high impact) last one was Carrington event (1859 late August) it fried all of the telegraphs of the day. They'll throw a DC current on your electrical lines. So a 1,000 km line you'll get 10,000 volts on your line that'll cook all your equipment.
Used to work in the oil field and farm in Saskatchewan. Six years ago I farmed.
The sea temperatures were indicating we're going into a drought. I'd feel fine if they'd sell the farm. I told the guys we were renting it to that, but they still took it.
Some of these issues are really important. What if you have an x-flash on BD? If you can't open your gates and your dam overfills, what then? Lots of important infrastructure and it all revolves around power. Without power we're screwed. It's the most important infrastructure. That's why I'm a fan of getting a solar panel on everyone's roof.
Long View?
General fusion Jeff Baysos in Abbortsford.
Montgomery Childs is the Director of a program looking for funding. This would be a fantastic fit with Saskatchewan.
Texas wasn't ready for it. You're going to see more snow and cold in Texas and their grid isn't built for that. They've got oil designed for heat in their system. And when it gets cold, they're hooped.
If you control the energy, you control the nation. If you control the food, you control the people. And food production is going to get absolutely hammered. We're going to sea surface temp decline. Warm air holds more moisture than cold air. If it's dry you can burn all the fuel you want and fertilizer.
CO2 isn't causing global warming. An Inconvenient Truth (book).