

Community Energy Projects

Introductions

Tanis Brako - Director Energy Service Advice and Products.

tbrako@hydro.mb.ca

Jamie Hopkins - Section Head Independent Power & Renewable Gas Strategies.

jhopkins@hydro.mb.ca

Indigenous Relations Commitment Statement

Manitoba Hydro operates throughout Manitoba, on the traditional territory of the Anishinaabe, Anishinew, Cree, Dakota, and Dene peoples, and on the homeland of the Red River Métis. We are committed to respecting and supporting Indigenous peoples in all aspects of our business.

Indigenous peoples have a strong cultural and spiritual connection to the lands and waters, dating back to time immemorial. We acknowledge the impacts of our projects and operations, and we are committed to working cooperatively to strengthen and improve our relationships with Indigenous communities. We support the advancement of reconciliation with Indigenous peoples in Manitoba, and we will work to contribute to reconciliation efforts in our interactions with Indigenous peoples and communities.

- We will work with Indigenous communities to understand their evolving energy needs and seek to provide customer service that reflects this understanding.



We commit that:

- We will work with Indigenous communities to understand their evolving energy needs and seek to provide customer service that reflects this understanding.
- We will provide timely and meaningful engagement and communication with affected Indigenous communities during project development and ongoing operations.
- We will work collaboratively with Indigenous communities to address the adverse impacts of our projects and operations.
- We will collaborate with Indigenous communities in order to understand and be guided by their Indigenous Knowledge as it relates to our projects.
- We will promote safety on project-affected waterways, through water level notifications, community safety programming, and other measures.
- We will encourage the participation of Indigenous businesses in our procurement.
- We will promote and support the equitable representation of Indigenous people in our workforce.



Wind - Expression of Interest

As set out in *Manitoba's Affordable Energy Plan*, Manitoba Hydro will be issuing an Expression of Interest for the near-term development of up to 600 MW of Indigenous majority-owned wind generation.

- At this stage, Manitoba Hydro is completing preplanning work related to this competitive call for power.
- Our preference would be to complete our preplanning work before we meet with interested groups so we can establish our engagement and communication processes.
- We want to ensure we are open and transparent with all parties to ensure a fair competitive bid process.
- A dedicated webpage or similar online forum will be developed to share information related to the bid process and related transmission studies.
- We anticipate this information to become available in the coming months.



Overview of community project opportunities

Manitoba Hydro is in active discussions with a number of Indigenous communities regarding new low-emitting electricity generation projects.

- We are interested in community-owned projects that add value to Manitoba.
- Value can include financial benefit, economic development opportunities, improvements to system reliability, and environmental benefits (reduced emissions).
- Low-emitting projects can include wind, solar, battery storage, biomass and small run-of-river hydro generation.
- We would be looking for a proposal to review including:
 - the type of generator, timeline for development, expected generation profile, price, partnership structure, and location.
- Manitoba Hydro typically purchases the full output from the generator through a long-term Power Purchase Agreement.

Resource Considerations

Customer-owned generation

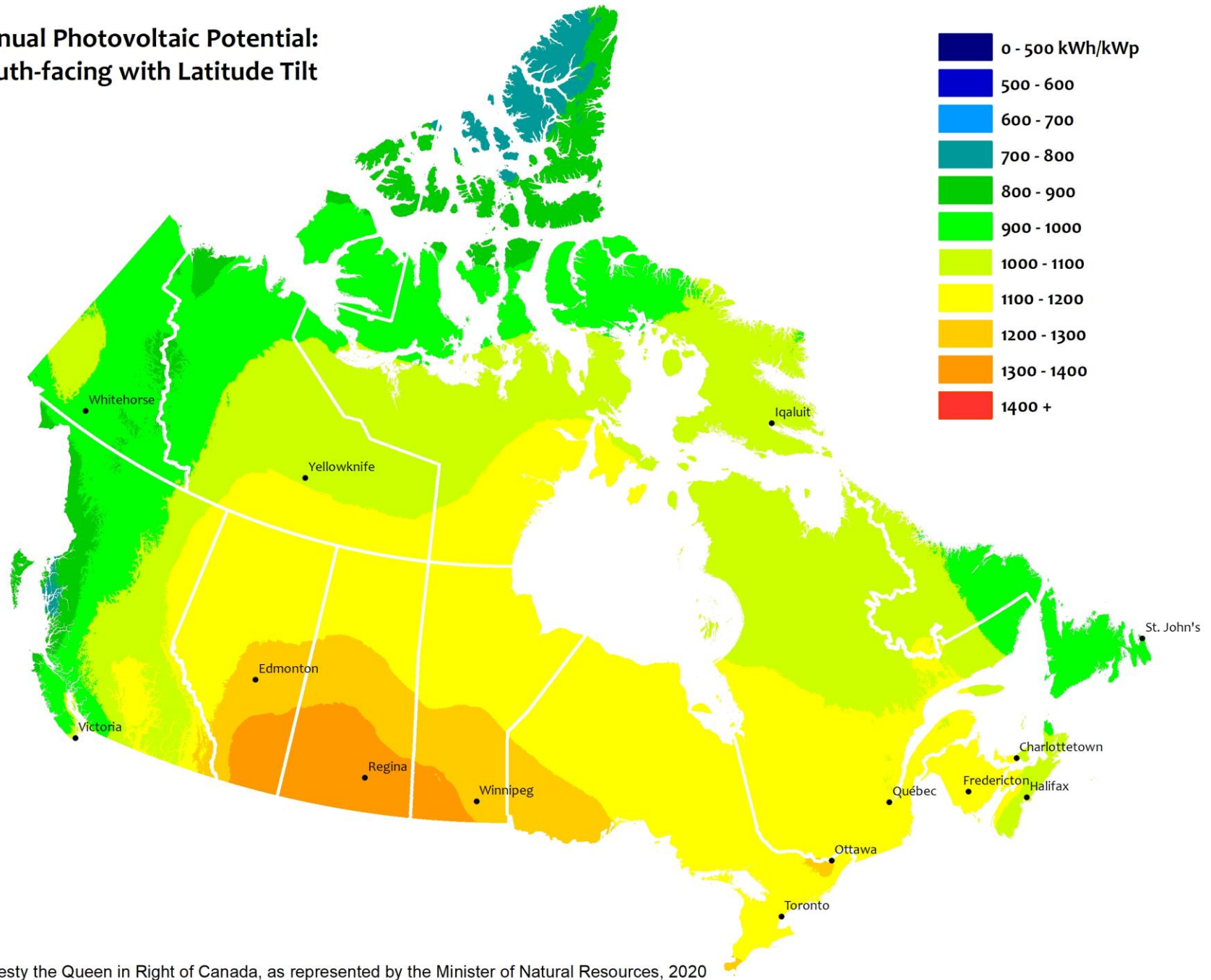
- A variety of factors are considered when determining project value.
 - Generation capacity during system peak hours
 - Typically occur during cold periods in January/February when the sun is down
 - Project that provide dependable energy
 - Economic development opportunities
 - Long-term job creation
 - Revenue generation
 - Training
 - Reduce GHG emissions

Resource Considerations

Solar

- Performance
 - Factors that influence performance:
 - Amount of solar energy potential - solar irradiance
 - Panel orientation - maximize potential
 - Inverter efficiency - converting DC to AC
 - Temperature - higher temp. reduces efficiency
 - Shade, snow and dirt coverage.
 - Weather
 - MH Solar study - January 2023
 - Ground mounted systems are shown to perform better with a higher average annual output when compared to rooftop systems.
 - Solar in Manitoba has a 13.33% capacity factor on average producing 11,680 kWh per year based on a 10 kW AC system size.
 - Typical systems use 40% of the energy produce for their own load and sell 60% to the grid.
 - Tips to maintain performance
 - Reduce shading by trimming trees and bushes.
 - Remove snow and dirt covering.
 - Solar energy used to offset load reduces energy purchases from the utility at your full billing rate, while energy exported receives the excess energy price.

Annual Photovoltaic Potential: South-facing with Latitude Tilt



Overview of community project opportunities

Distributed Solar Generation



- MH offers a Net Billing Program for distributed solar generation.
- You can install smaller solar projects for homes or businesses (<100 kW), use that electricity for your own use, and sell any excess generation back to the grid.
- Required to make an interconnection request and sign an excess energy purchase agreement.
- Please visit [Hydro.mb.ca](https://hydro.mb.ca) for further details.
- [Solar rebates](#) are offered through Efficiency Manitoba.

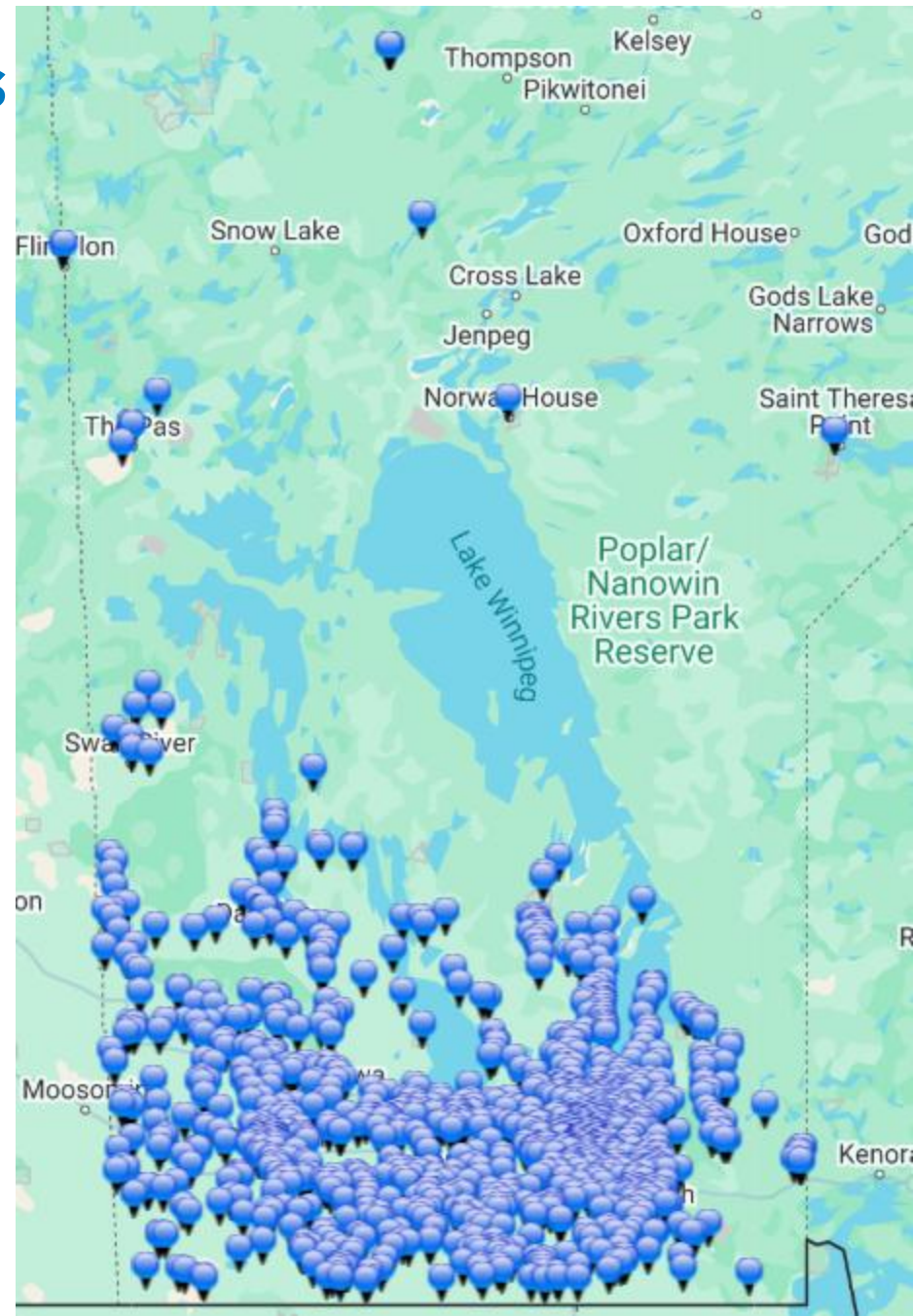


- Contact Josh Peterson directly with any inquiries or questions about distributed solar generation energy: independentpower@hydro.mb.ca

Resource Considerations

Distributed Solar

- 1700 distributed solar systems in Manitoba
- Includes residential, small commercial and agricultural sectors
- 40 MW aggregated capacity
- More installations in southern Manitoba but widely distributed through the province.
- Average residential size - 14.1 kW
- Average commercial size - 81.4 kW



Resource Considerations

Wind

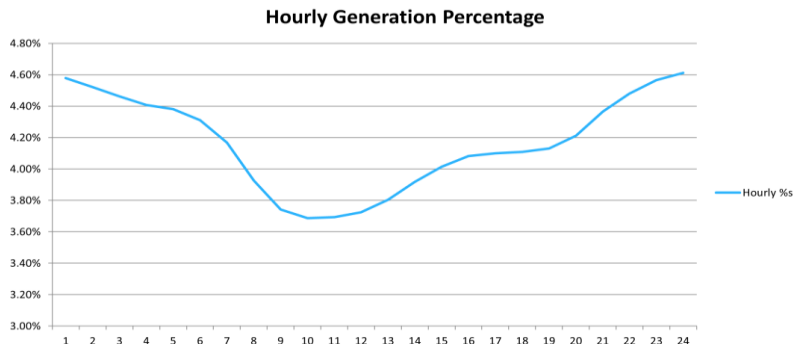
- Factors that influence performance:
 - Wind speeds - location and hub heights
 - Turbine and site design- blade length, turbine size, generator efficiency, wake loss, topography
 - Air density - higher air density (lower altitude, lower temperature), increase power generation.
 - Temperature - cold weather
 - Icing events
- Wind Study (2019-2023): correlation between temperature and performance
 - Strong correlation between low temperatures and reduced performance
 - In part due to reduced wind speeds during cold weather events.

Resource Considerations

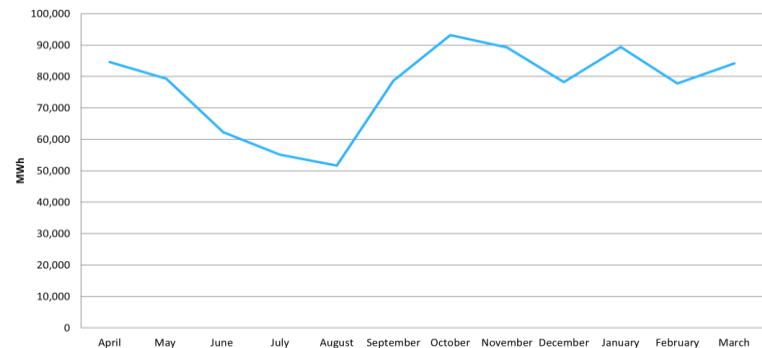
Wind

- MH has three PPAs with two wind developers:
 - St Leon: 100 MW in-service June 2006
 - St Joseph: 138 MW in-service December 2011
 - St Leon II: 16.5 MW in-service December 2012
- Manitoba has a fairly strong wind resource potential in southwestern Manitoba.
- More generation during off-peak hours and during the winter season.
- Can be significant variability from year to year.

Historical Hourly Wind

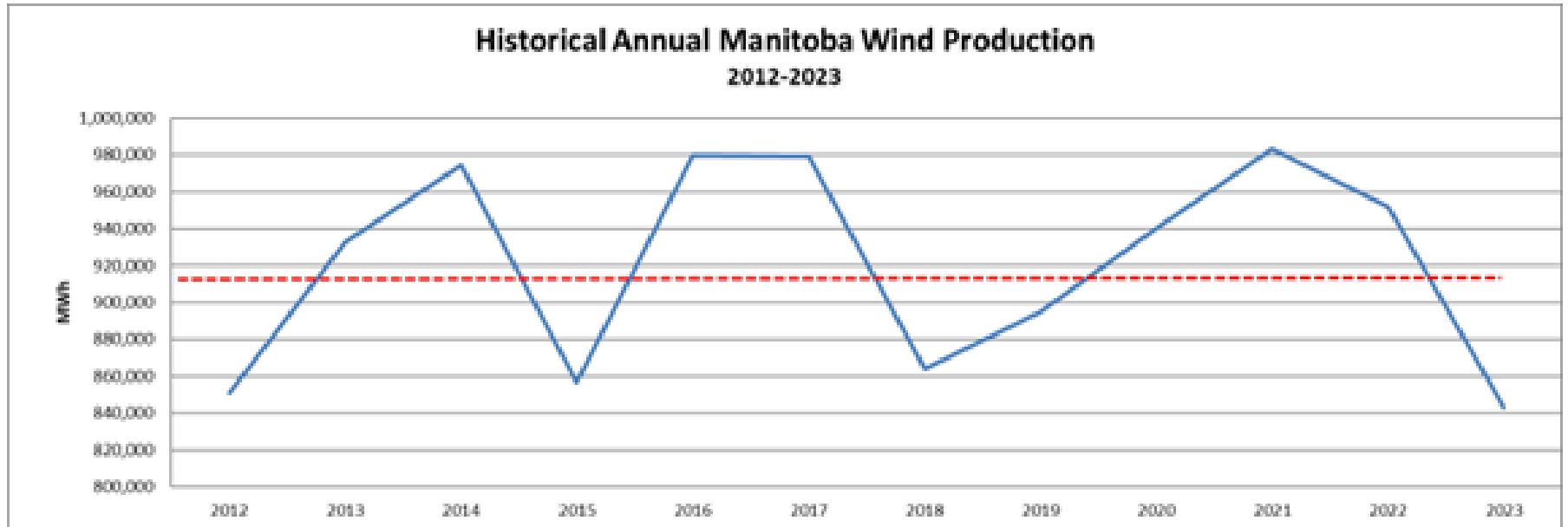


Historical Monthly Wind



Resource Considerations

Wind

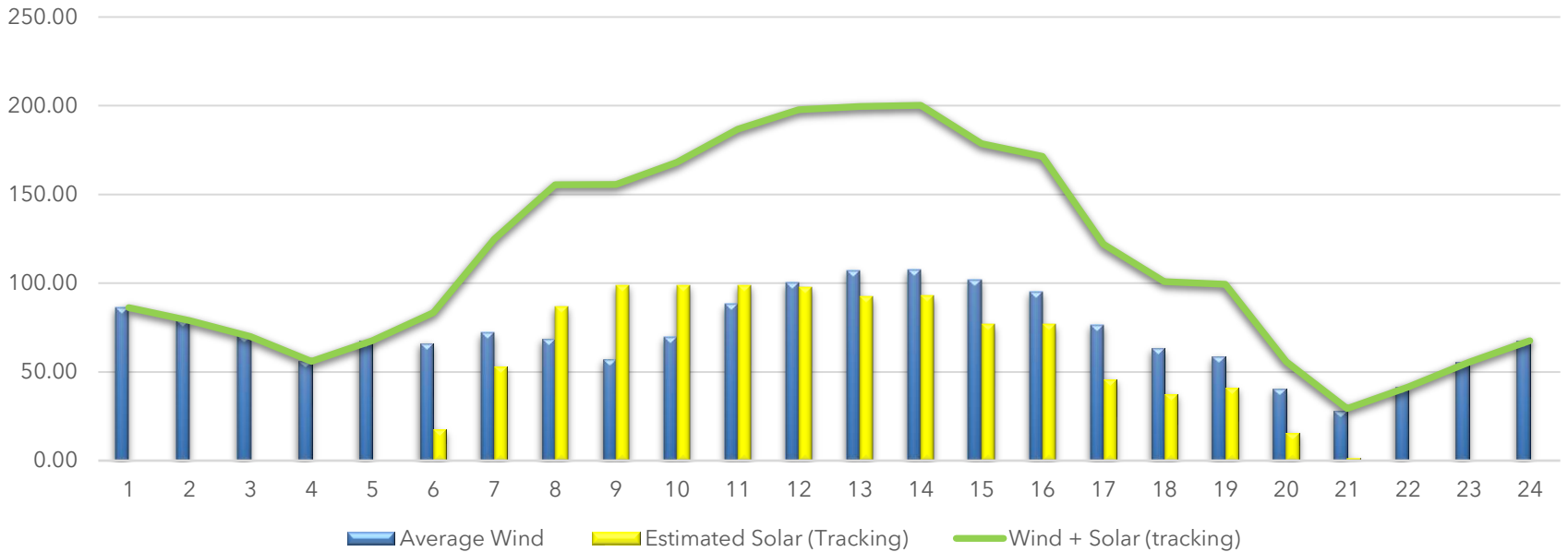




Resource Considerations

Solar and Wind - summer solstice

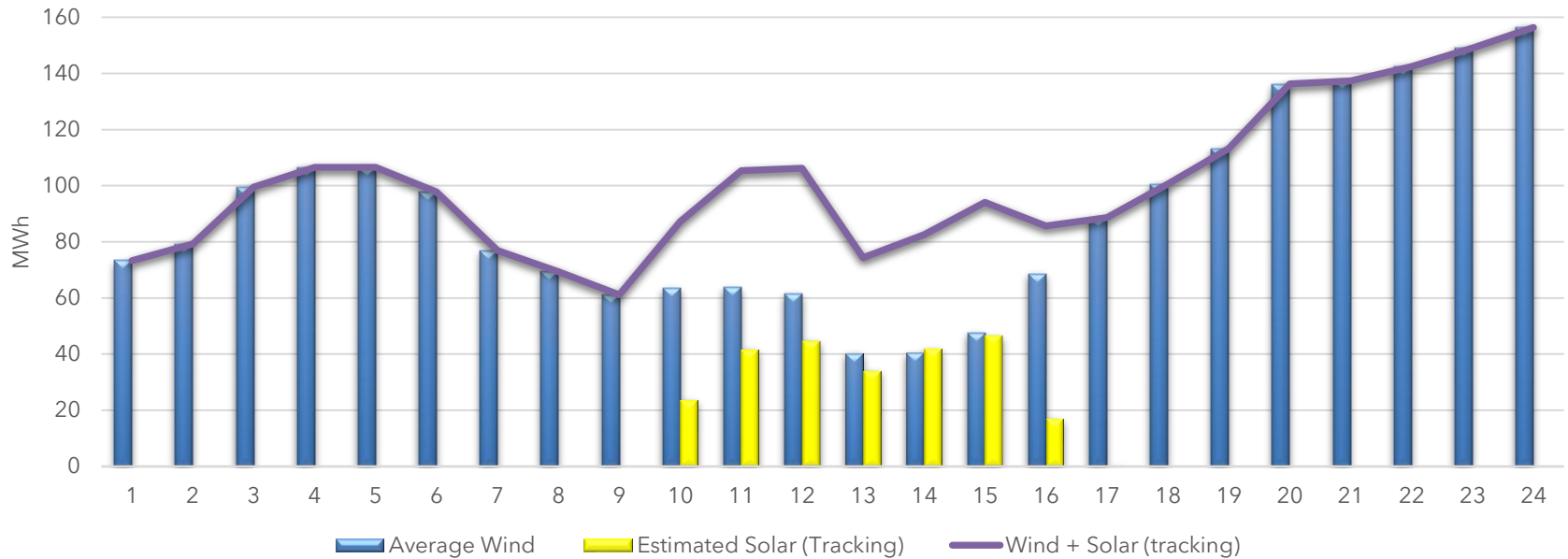
June 21st



Resource Considerations

Solar and Wind - winter solstice

December 21st



Existing Community Energy Projects



- Largest solar project in MB at Fisher River Cree Nation.
- 2 school solar projects and battery pilot with St. Theresa Point First Nation.
- 2 solar projects with O-Chi-Chak-Ko-Sipi First Nation.
- Solar project with the Sagkeeng Education Authority.
- We're also actively engaged with off-grid communities to reduce diesel fuel consumption with community-owned energy generation.



Funding and Financing Opportunities

Various funding and financing programs are available

- MH offers financing for distributed solar installations
 - Up to a maximum of \$20,000 (\$3,000 per kW) over 15-years.
 - Annual interest rate of 6.02% O.A.C. fixed for the first 5 years.
 - Paid monthly through your energy bill.
 - Preapproval is required.
- The Manitoba government has committed to an Indigenous loan guarantee program to provide First Nations and Métis the capital support to participate in new partnerships for wind generation. More details to come in Budget 2025.
- The Federation of Canadian Municipalities recently launched the [Accelerating Community energy systems | Green Municipal Fund](#) - grants, peer learning, and expert guidance. Up to up to \$200,000 (50% of eligible costs).
- Visit the Federal Government of Canada webpage to learn about any applicable [funding, grants and incentive programs](#).
- Clean Technology ITC and the Clean Electricity ITC programs.
 - Refundable tax credits on eligible expenses.

Thank you