



Cowessess First Nation Our Renewable Energy Journey

Northwest Community Renewable Energy Conference
May 23, 2018



Project Overview

- Cowessess was the proponent of Canada's first wind turbine-battery storage project on Cowessess land outside of Regina
- 1 Megawatt project with a 20-year Power Purchase Agreement with SaskPower
- Enercon E-53 wind turbine with 73m hub height and 53m diameter blades
- Saft lithium-ion battery system housed in two containers
- Cowessess owns the project and executed through a partnership with the Saskatchewan Research Council



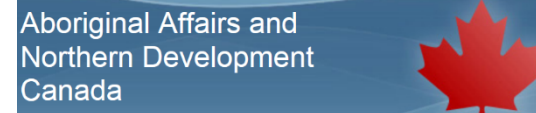
Project Collaborators



Cowessess First Nation



Natural Resources
Canada



Power and productivity
for a better world™



Project Benefits

- “To develop practical methods of wealth creation that honor First Nations tradition and collective ownership”
- Reduce greenhouse gas emissions
- Reliably increase the amount of renewables on the power grid
- Local contractors for design, supply, integration, and maintenance
- Prove the reliability, durability, and value of wind-storage systems over a suite of applications



Key Project Milestones

- 2009
 - Project concept developed
 - CFN/SRC relationship established
 - Funding applications submitted
 - Initial work began
- 2010
 - Environmental Assessment Started
 - NAV Canada Appeal – Project approved after initial denial
 - Project structure developed
 - Geotechnical study completed
 - Funding agreements Signed
 - Project approved for SaskPower Green Options Partners Program
- 2011
 - Engineering work well underway – developing innovative algorithms, site design and single-line diagram
 - Engagement with financial institutions for CFN contribution
 - Initial research on turbine and battery suppliers
 - Release RFPs for equipment
 - Reporting structure developed with all funders



Key Project Milestones

- 2012
 - CFN project equity secured through TLE Schedule L vote
 - Finalize wind turbine and battery suppliers
 - Project construction underway
 - Active project cash flow management
 - Roadwork complete, foundation work complete, battery storage system delivered
- 2013
 - Turbine delivered
 - System fully commissioned
 - Project moved to operations
 - Initial revenue being generated by the turbine



Construction Milestones

- July 16, 2012 – Anemometer Tower Installed



- Sept 12, 2012 – Road and site earthworks completed



Construction Milestones Cont.

- Sept. 20, 2012 – Three-phase line installed by SaskPower



- Nov. 2013 – Foundation work completed



Construction Milestones Cont.

- Nov. 30, 2013 – Site operations building installed



- Dec 20, 2013 – Batteries and transformer installed



Construction Milestones Cont.

- Mar. 11, 2013 – Turbine construction started



- Mar. 16, 2013 – Turbine construction completed



Commissioning Milestones

- Mar. 13, 2013 – SaskPower energized the site
- Mar 27, 2013 – Wind turbine commissioned
- April 20, 2013 – Phase 1 of battery commissioning completed
- May 10, 2013 – High Wind & Storage system fully commissioned



SaskPower Connection

 **SaskPower**

To Grid



S&C System VI Switchgear



Enercon E-53



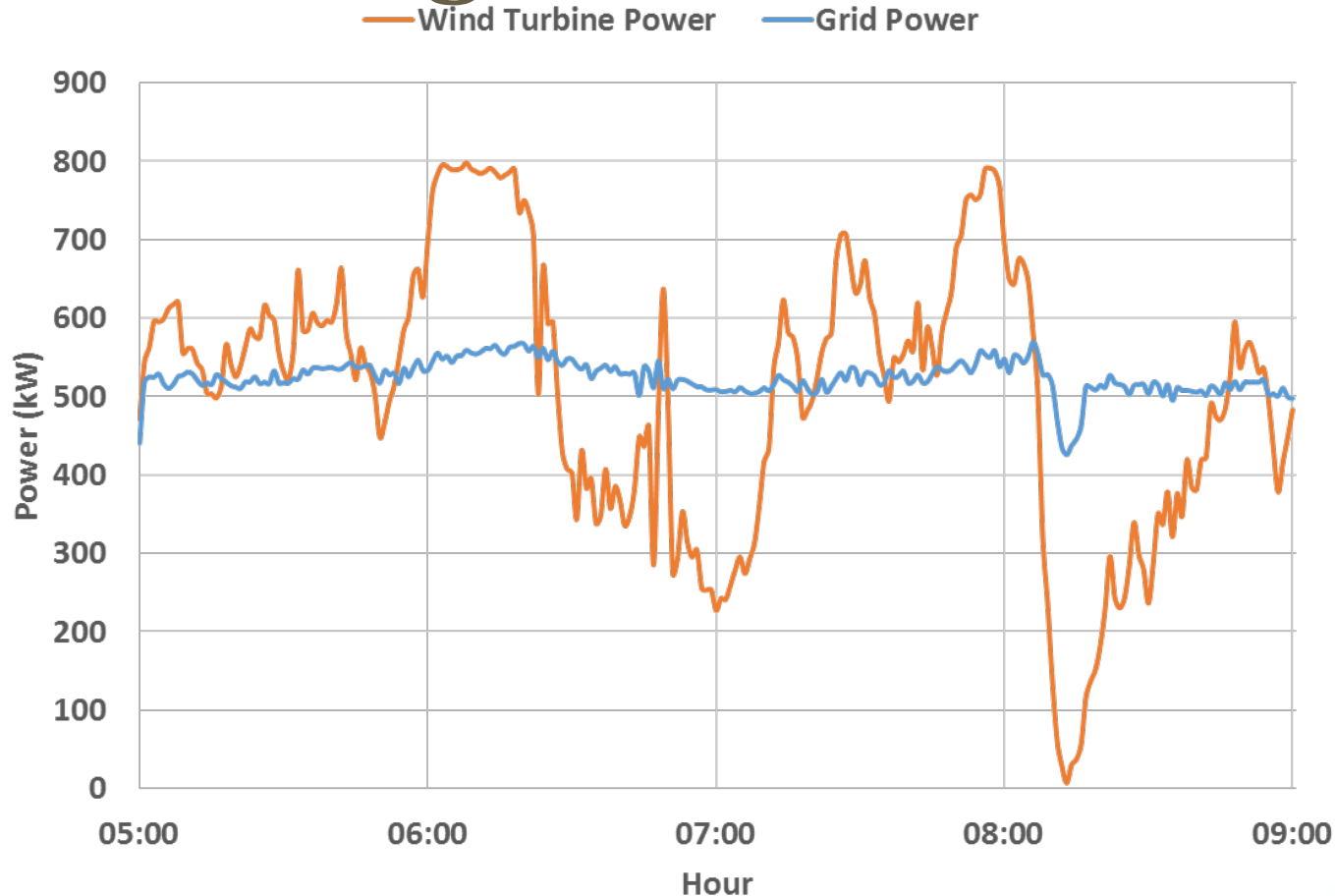
Interpretive Centre



Saft Battery Energy Storage System



Smoothing Wind Power



- Project reduces volatility to the grid by storing power that can be dispatched on demand

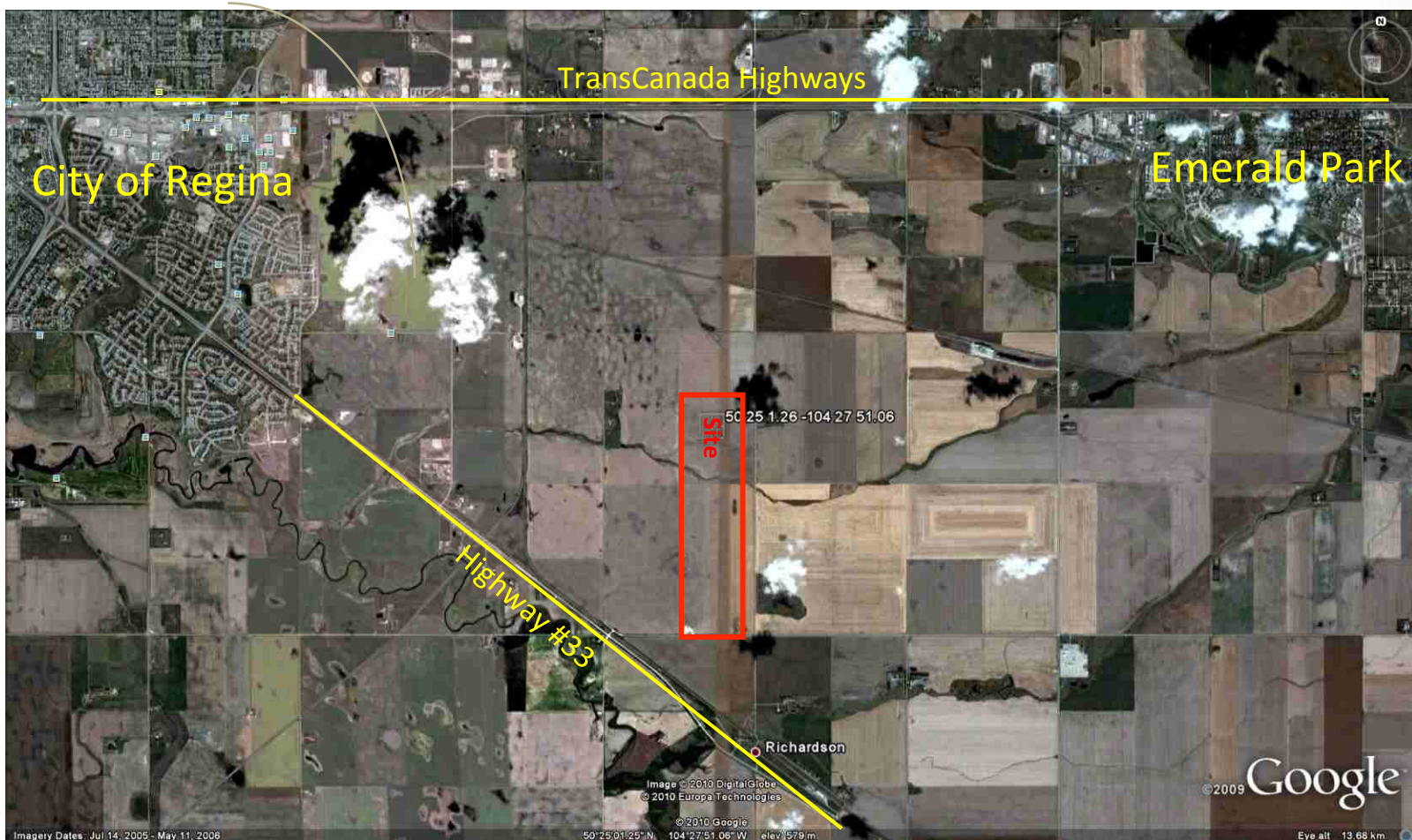


High Wind and Storage System

Cowessess High Wind Storage Project, Regina, SK 2013-05-13 10:30:09



Project Location



Project Hurdles

- Complex technical project required ongoing engagement of Council
- Complex project management with a variety of funding sources
- International procurement of multi-million dollar equipment from Germany and the United States
- Managing risks procuring and installing equipment from battery companies
 - Cowessess installation went smoothly (in -30C weather)
- Cowessess election took place one month after installation – new administration tried to sell the project, but legal agreements held up.



Opportunity for More

- After 4 years of operation SRC noted that the turbine is at about 32% efficiency (simply because wind is wind), which mean we produces approximately 660kW per year to sell to SaskPower.
- Results in 340kW of available generation space in our existing 1 MW PPA with SaskPower. Had to “sell” add on to SaskPower.
- SRC and McNair developed new proposal to federal funders for a Solar – Wind – Battery R&D Project.

CONTRACT

EXISTING

OPPORTUNITY

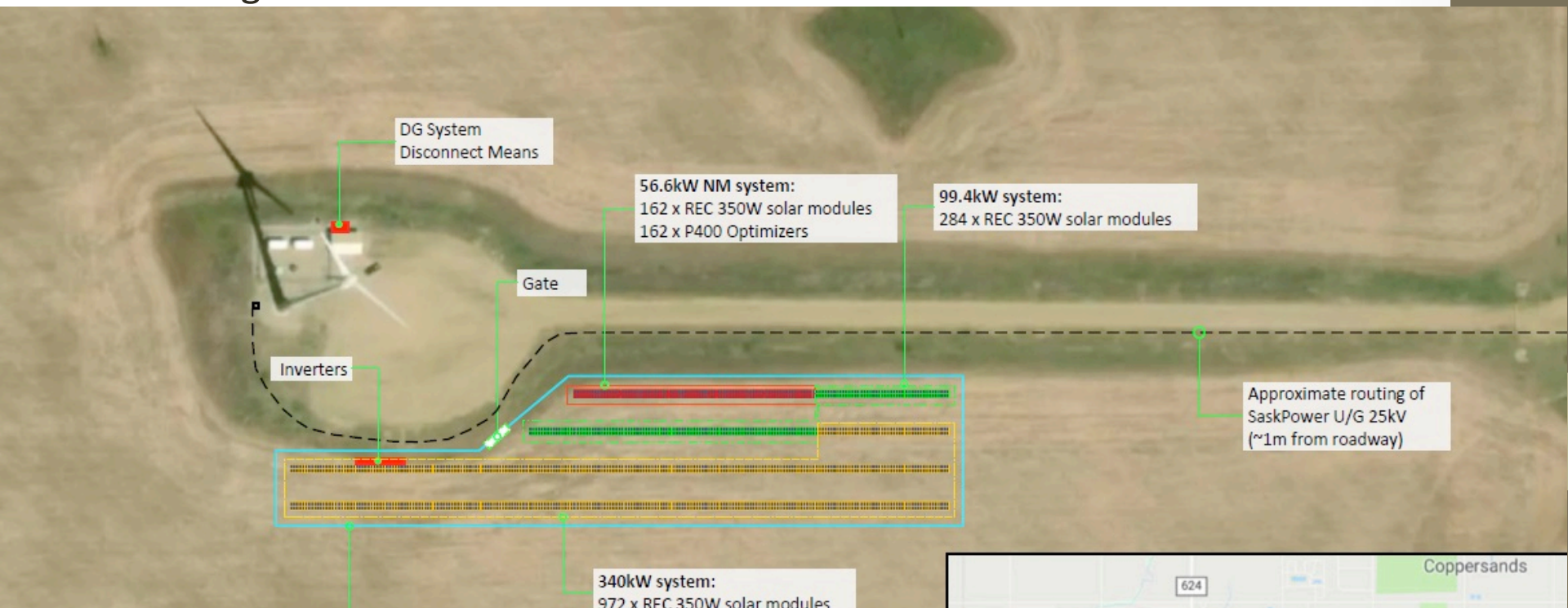
 **SaskPower**



(up to 1 MW) - (800kW @ 32% = 660 kW) = (340kW)

Solar Add On

- Cowessess will add 500 kW of Solar equipment to our wind battery site.
 - 340kW is contracted with SaskPower under existing 1 MW PPA
 - 56 kW is under the Net Metering Program for site offsets
 - 100kW still to be contracted under Small Power Producers Program



Solar Timeline

- January- March 2017 – Funding Proposals
- June 2017 – Project Overview with SaskPower
- August 2017 – Western Diversification Funding Approval
- Aug – Oct 2017 – Defining Project Execution with SaskPower
- Sept – Dec 2017 – Business Planning
- September 2017 – RFP for Solar Supply and Install Contractor
- December 2017 – Award Skyfire Energy contract
- December 2017 – AANDC (LEDSP and CORP) Funding Approval
- March 2018 – Equipment Delivered to Site
- May 2018 – PPA and GIS Agreements signed with SaskPower
- July – August 2018 – Construction
- September 2018 - Commissioning



Project Details

Costs	Total
Solar Supply and Install, Engineering, Business Services	\$1,558,600
Interconnection Costs	\$800,000
Total	\$2,358,600

Funding Sources	Total
Western Diversification, AANDC (LEDSP & CORP)	\$1,710,000
Cowessess Cash Equity/ Debt (First Nations Bank of Canada)	\$648,600
Total	\$2,358,600

- Cowessess is an independent band, we have developed both the wind/ battery and now the solar projects on our own with the support of our trusted consulting team.
- Internally, Project Director of Economic Development manages the project for Cowessess.

Solar Project Collaborators



Cowessess First Nation

Aboriginal Affairs and
Northern Development
Canada



Western Economic
Diversification Canada

Diversification de l'économie
de l'Ouest Canada

Canada



Solar Add On Hurdles

- Identifying how our existing contract could be amended to include solar.
- Relaying the immediacy of project funding deadlines and getting SaskPower to move quick enough for us to meet funding deadlines.
- Lack of small Solar Procurement Contracts by SaskPower, to utilize all of our available funding and equipment.
- Late in the game \$800,000 Interconnection Upgrade required by SaskPower.
- Pulling together funding sources and meeting aggressive delivery dates.
- **KEY TO SUCCESS:** *Same Internal Project Team from Wind Installation*

Next Steps

- Requirement for Skyfire to hire qualified band members for construction.
- Confirming Balance of Plant subtrades.
- On site Project Execution, Management and Reporting
- Solar press announcement, mid-summer while construction is underway.
- Commission and turn on the revenue meter – September.



Other Renewable Initiatives

- *Our Leadership's goal is to become one of the greenest First Nation Communities in Saskatchewan.*
- Other developments in planning stages:
 - 200 MW Wind - SaskPower RFP (in evaluation)
 - Submitted a RFP Response on March 1, 2018 with EDP Renewables Canada and Elemental Energy.
 - 10 MW Solar - First Nation Power Authority RFI (in evaluation)
 - Submitted a RFI Response on March 19, 2018 with Elemental Energy.
 - Low Carbon Economy Challenge (in evaluation)
 - Submitted a funding request, May 14, 2018, for 800kW of Community Installed Solar on the home reserve. Goal is to receive 75% federal funding to Net Meter 7 band owned buildings.

Questions/ Comments

