ALBERTA INNOVATES

CLEAN RESOURCES

CLEAN TECHNOLOGY

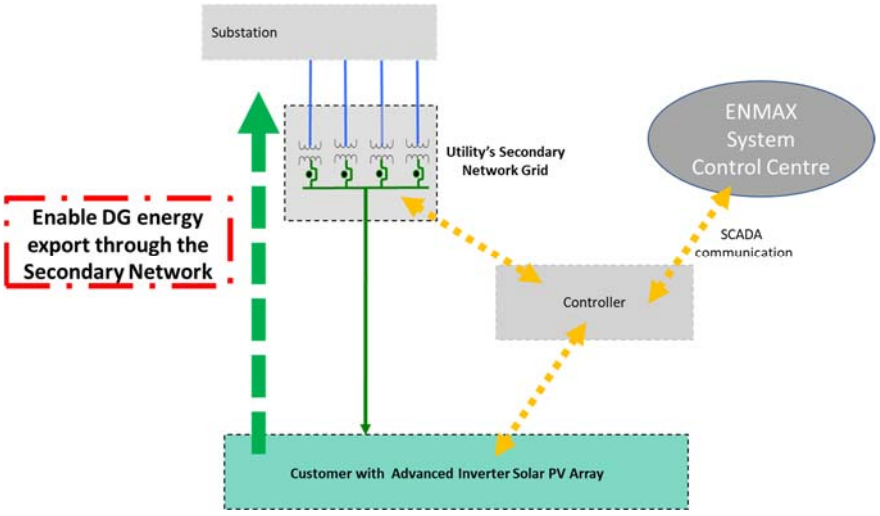
RENEWABLE AND ALTERNATIVE ENERGY – GRID MODERNIZATION

FUNDING DETAILS

Integrating Distributed Generation into Secondary Networks in Large Urban Centres

In large cities like Calgary, electricity distribution companies use secondary networks to supply electricity to high density communities requiring high reliability, such as the downtown core. For reliability reasons, customers who own electricity generation in these areas are not able to export excess electricity back to the grid which creates a strong financial barrier to adopting distributed generation. Through this project, ENMAX is developing a new approach to allow export in secondary networks that is safe and sustainable.

This project includes the development of a protection and control solution, system modelling and testing, interconnection of solar PV, system monitoring, and data acquisition and analysis. Full-scale demonstration, in a real-time environment, will form the basis of a proven solution to support wide-spread deployment.



RECIPIENT:
ENMAX Power Corporation

PARTNERS:
Natural Resources Canada
Cadillac Fairview

TOTAL BUDGET:
$5,787,735

AI FUNDING:
$998,293

PROJECT DATES:
DEC 2018 – JUN 2023

PROJECT TRL:
Start: 6
End: 10

APPLICATION

ENMAX is developing this solution to enable customer-owned generation to export unused electricity into secondary networks within Calgary. The Project will use a combination of advanced monitoring and controls as well as protective relay configuration changes in order to demonstrate how energy from distributed generation can be safely integrated into secondary networks. This solution could be deployed by other utilities within North America to enable exporting of electricity into secondary networks.

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PROJECT GOALS

Improve Asset Utilization and Increase Efficiency

- Demonstrate the ability to monitor and control distributed generation devices on a secondary network, enabling energy export and increased generation capacity. This will improve grid utilization and efficiency.

Increase Reliability and Resiliency

- Increase generation capacity in the secondary network to improve overall system resiliency by more efficiently restoring electricity after outages.

Increase System Flexibility and Renewable Energy Penetration

- Demonstrate how improved flexibility and increased generation hosting capacity will enabling more deployment of customer-owner generation in secondary networks.

BENEFITS TO ALBERTA

- Enable broad deployment of distributed generation on secondary networks to reduce peak electricity demand with renewable generation and enable GHG emission reductions.
- Provide an additional revenue stream for customers with a distributed energy resource connected to the secondary network by enabling them to size the system to support building needs and sell additional electricity back to the grid.
- Successful demonstration of ENMAX Power's solution of distributed generation on secondary networks will have a significant impact on enabling the deployment in other major cities throughout North America with Alberta seen as a leader.

Targeting 6 Personnel Trained

TBD Project Jobs

TBD Future Jobs

0.6 kT/yr Project GHGs Reduced

Enabler of Future GHG Reductions

CURRENT STATUS

DEC 2021

ENMAX Power is on-site and completing construction of the utility work which will allow the project's site host, Cadillac Fairview, to produce power back into ENMAX Power's secondary network. Cadillac Fairview has completed building their on-site Solar PV array which will be producing the renewable energy for this project. Commissioning of the site is targeted to be completed in Q1, 2022.