



PLANNING FOR RESILIENT SMART ENERGY COMMUNITIES IN ALBERTA

Final Report
December 16, 2020

QUICK ANALYSIS

Time was devoted during the final wrap-up webinar to understand participants' experiences with the project. A webinar was chosen in lieu of a face-to-face meeting due to COVID-19 restrictions. The project team also sent out a final participant survey to gain insights about satisfaction level with the project, how participants plan to use outcomes of the project and opportunities for improvement. Insights from the video conferencing discussion and surveys are as follows:

1) What was the single best thing that happened during the project?

Overwhelmingly participants felt they gained a greater understanding of climate change risks and opportunities for resilience. Some municipalities had only focused on climate mitigation up to this point, so participating in the Alberta Resilience project was informative about municipal climate change adaptation. Participants also said that the project outcomes provided actionable items to improve resilience, rather than just reports that would "sit on a shelf". Participants noted that the involvement of multiple different sectors throughout the process has resulted in the establishment and strengthening of cross-sectoral communication and collaboration.

2) What was the single worst thing that happened during the project?

Canadians felt the impact of the COVID-19 pandemic profoundly starting in March 2020. It resulted in restrictions and layoffs in many Alberta municipalities, which was very challenging for the project given the community portion was intended to start in April 2020. Staffing issues and limited overall capacity of both the participating communities and local stakeholders during the pandemic was easily the worst thing to happen during the project. This resulted in the project team needing to amend the project schedule to accommodate municipal staff. It also prevented in-person workshops and gatherings.

3) What was the single most unexpected thing that happened during the project?

The COVID-19 pandemic was an unexpected challenge during the project. The project team had not anticipated needing to modify tools to accommodate virtual workshops. It required re-designing and re-developing a number of the project tools and materials, as well as the workshop structure.

4) What was the single thing that could have been done to make the project more effective?

Overall there were 2 suggestions for how to make the project more effective. The first was the need to be inclusive of urban and rural contexts. While QUEST had modified existing resilience tools to include an energy infrastructure component and fit the Alberta context, there were still areas where inclusivity between rural and urban communities could be increased. The second way to improve project effectiveness was modifications to the pre-survey. A few municipal participants found some of the questions confusing and would have liked to see more clarity in the wording.

5) What will happen as a result of this project during the next five years?

Excitingly, all participants are either scheduled or intend to schedule a presentation at an upcoming Council meeting to share results and priorities identified through this project. Participants explained that providing their respective Councils with the project reports will be a great benefit and will enable them to pursue action on a number of the recommendations. Additionally, this project gave participants the opportunity to identify areas where a climate risk perspective can be included in ongoing processes and planning decisions. Local utilities that were involved in the project stated that they intend to integrate some of the recommendations into their policies and procedures going forward as well.

6) Is there anything else that is important to say about the project?

Participants that attended the monthly project meetings said they enjoyed networking and learning from each other. As one participant said, “I liked understanding that we’re not alone”. It was also identified that there is value in getting together with other municipal departments, communities and stakeholders (i.e. utilities). Inclusive meetings created a space to have conversations and identify opportunities for collaboration. Many participating municipalities and their corresponding utilities intend to maintain these lines of communication. Finally, all participants recognized that strong communication is critical to get buy-in from Council on adaptation measures.

PROJECT SUMMARY

Part 1: Description

Background

Communities in Alberta, Canada, are vulnerable to the impacts of climate change with more frequent and intense floods, wildfires, droughts, and storms that are damaging energy infrastructure and disrupting energy supply. Adapting energy infrastructure to the impact of increasing extreme events while integrating energy innovations requires close collaboration between municipalities and energy utilities. This is because both municipal and energy systems are essential, interconnected and must work together to maintain the resilience of a community. Extreme weather event adaptation strategies and action plans need to be adjusted to each local reality and consider their geographical, political, economic and energy context. Studies investigating the impacts of climate change on electricity and natural gas infrastructure at the provincial and territorial levels (including Alberta) are mostly limited. Furthermore, most Alberta communities have not completed a resilience assessment nor considered the socio-economic impacts of damaged energy infrastructure. This project, with its focus on Alberta and involvement with four municipalities (Raymond, Black Diamond, Ponoka County and Big Lakes County) of varying sizes and locations in Alberta, along with the project partners and local utilities, attempted to address these gaps.

Project Description

First, the project team adapted QUEST's existing resilience tools and methods to the Alberta context. Next, the community Resilience Assessment process began by collecting and analyzing climate data and projections. Surveys and assessment materials were also sent to participating municipalities to gather baseline information about the current policies and measures in place related to resilience. All of this information informed a workshop that brought together a variety of stakeholder groups to learn about the current state of resilience in the municipality and provide supplementary information. The QUEST facilitators also led the attendees through a facilitated action planning exercise. Based on these data collection methods, QUEST prepared a Community Resilience Assessment report for each community, which included climate data and projections, key strengths and areas of improvement related to risk and resilience as well as community assets that may aid in future resilience work.

The municipality's vulnerability to specific climate hazards and level of resilience to these threats was identified using the Rural Disaster Resilience Portal from the Justice Institute of British Columbia. This led into an Adaptation Recommendations Workshop and subsequent report that allowed the communities to prioritize and actionize measures to increase local resilience. While this community project implementation was underway, research for the Primer on Extreme Weather Events and Energy Infrastructure was also undertaken. An extensive literature review illustrated the energy infrastructure and climate change context in Alberta. This was supplemented by eight interviews and surveys with knowledgeable utility representatives, as well as key insights and lessons learned from the four community-level projects. The Primer Report was sent to project partners for review prior to publication.

Outcomes

This project has enabled participating communities to gain a better understanding of their strengths and vulnerabilities as it relates to climate resilience and prolonged energy outages, as well as to identify measures to building a more resilient community. The project resulted in:

- **Climate Risk and Resilience Assessment Reports (4) and Adaptation Recommendations Reports (4)** - Internal documents intended for municipal use only. Copies of these reports are attached for reporting purposes only.
- **Key Findings Wrap-up Webinar** for participating municipalities and associated utilities
- **Advancing Community Energy Resilience in Alberta Primer Report** - available on the [project website](#)
- A public **Lessons Learned Webinar** - available on the [project website](#)

Opportunities for knowledge sharing and increased collaboration and communication between municipalities and utilities was also an outcome. All municipalities in the community portion of this project are either scheduled to present findings to Council or intend to schedule a presentation at an upcoming meeting. The Primer Report has been shared widely in QUEST's network (Western Newsletter, National Newsletter, social media and through the project team's involvement in Alberta-based resilience programs) and will continue to be featured on the organization's website.

Part 2: Analysis

Successes

1. **Four Community Climate Risk Assessments & Adaptation Recommendations Reports Complete**

Four community-specific Climate Risk Assessments and Adaptation Recommendations Reports were completed using QUEST's proven methods and tools. Municipalities were able to review draft reports in advance to ensure the final deliverable met their needs. Participants expressed gratitude for the holistic assessments, as well as the opportunity to network with other municipalities during monthly meetings.

2. **Primer Report Published**

The user-friendly Primer Report was published on December 10, 2020 on the QUEST website. The report was informed through an extensive literature review, interviews with eight local utilities and key findings from community resilience assessments. Project partners with expertise in energy systems reviewed the report prior to publication in order to ensure accuracy and readability.

3. **Knowledge Sharing & Lessons Learned Dissemination**

Both municipalities and utilities expressed satisfaction that they were able to participate in the project together, as well as interest in maintaining open communication channels and opportunities for collaboration. Key findings across the community resilience assessments were shared with participants during a project wrap-up webinar, which also served as an opportunity to share their greatest takeaway from participating. The public Lessons Learned webinar (hosted on December 15, 2020) shared insights from the Primer Report, including recommendations for ways various jurisdictions can improve resilience. QUEST utilized its network to share the Primer and webinar broadly.

Challenges

The COVID-19 pandemic was the primary challenge the project team encountered:

- Several municipalities were dealing with COVID-19 outbreaks and associated challenges while this project was underway. This meant some staff that wanted to attend workshops or participate in surveys were unable to. The project team kept communication channels open and provided those interested with meeting minutes and presentation slides to keep them informed.
- Provincial gathering restrictions, as well as social distancing recommendations, prevented in-person workshops. This required substantial effort and human resources to adapt all existing workshop tools and techniques to a virtual setting.
- Two of the participating municipalities' were affected significantly by the pandemic and could not meet the initial project schedule. The project team created an alternative schedule for these communities and ensured all assessments were completed by the original deadline.

Lessons Learned

There were three primary lessons learned through the project:

1. Shift from In-Person to Virtual

Significantly more information needs to be collected prior to a virtual session than a conventional in-person workshop. The team needed to devote additional time to developing and adapting tools and techniques to ensure that virtual engagements were equally effective.

2. Inclusivity for Rural and Urban Contexts

Tools and resources must be tailored to both urban and rural municipalities. Certain details (e.g. centralized water and sewer systems, street lights, etc.) are not present in both types of municipality. It is also important to use the correct vernacular. For example, communities may use the term Municipal Development Plan rather than Land Use Plan. Some audiences may feel alienated if the information presented and/or assessed is not relevant to their context. Initial research can provide clarity.

3. The Importance of Communication

Community participants emphasized that being able to articulate the importance of this project will be key in making progress on resilience. Clearly explaining the “big picture” of this project, as well as the purpose and direct deliverables to the communities was important to get municipal leads investing in the project. These items will also be important for staff to communicate when presenting to Council.

Next Steps

QUEST will continue to promote and share the Primer Report and public webinar recording. The resilience assessment tools that were adapted to the Alberta context and virtual approach can be utilized with other communities.

Community participants will present findings from their Climate Resilience Assessments to their municipal Council with the intention of taking action to reduce their risk. Utilities and municipalities both expressed interest in continuing communication and increasing coordination as it relates to risk reduction and resilience. Finally, the Government of Alberta, Alberta Utilities Commission, municipalities and utilities may review recommendations from the Primer Report and take action to improve resilience.

PROJECT EVALUATION

Project Objectives and Work Plan

The final status of the Project Objectives and Work Plan are as follows:

Objective 1	Key Performance Indicator	Status
During the entire project duration, implement sound project management to ensure the initiative is well managed, activities delivered smoothly and as scheduled, and partners engaged and well coordinated	All project deliverables are achieved on time Target: 4 Assessments in 4 Communities	Achieved: Resilience Assessments and Adaptation Recommendations were reviewed by the communities before being finalized, published and delivered.
	Target: Lessons learned report published	Achieved: Primer Report published on December 10, 2020.
	Target: Webinars and knowledge transfer activities are completed	Achieved: Wrap-up webinar with community participants held on December 3, 2020. Public webinar held on December 15, 2020.
	Work Plan is respected Schedule and budget are respected	Achieved: The project has finished on time and on budget despite timeline challenges attributed to COVID-19.

Objective 2	Key Performance Indicator	Status
QUEST's Resilience Assessment tools and methodologies are improved and integrate a sound Local Resilient Energy System/Infrastructure component	Cutting-edge bibliography on resilient energy infrastructure Target: At least 15+ high-quality publications read and referenced in Lessons Learned report	Achieved: An extensive literature review was completed which informed the Primer Report.
	# of interviews Target: Conduct 8 Total Alberta Utility Interviews:	Achieved: Conducted 8 interviews with representatives from the following utilities: <ul style="list-style-type: none"> ● FortisAlberta ● EQUUS ● City of Medicine Electric Utility ● City of Lethbridge Electric Utility ● Alberta Federation of Rural Electrification Associations (AFREA)

		<ul style="list-style-type: none"> ● Blue Mountain Power Co-op ● ATCO ● City of Medicine Hat Gas Utility
	<p>New version of QUEST's Resilience Assessment Tools created</p> <p>Target: All applicable materials and tools updated</p>	<p>Achieved: Tools were successfully updated and utilized throughout the assessment process.</p>

Objective 3	Key Performance Indicator	Status
Conduct four Resilience Assessments in four small Alberta communities by engaging energy utilities and using QUEST's improved tools	<p># of workshops delivered</p> <p>Target: 4 workshops delivered</p>	<p>Achieved: Two virtual workshops were delivered in each participating community (8 workshops in total), starting in June and completed in early November</p>
	<p># of Community Resilience Assessment Reports</p> <p>Target: 4 Reports</p>	<p>Achieved: 4 Climate Hazard and Resilience Assessment Reports and 4 Adaptation Recommendation reports published and delivered to communities on December 9, 2020.</p>
	<p># of stakeholder groups attending each workshop</p> <p>Target: 6 Groups*</p> <p>*Updated Target: 6 Stakeholder Groups attend the workshop and/or engaged independently for each community (due to COVID-19 related restrictions and capacity issues)</p>	<p>Updated Target Achieved: Workshop attendees and independent engagements represented 8 stakeholder groups (municipal staff, elected officials, emergency management, natural gas utilities, electricity utilities, environmental non-profit, local energy developers and provincial agencies).</p>
	<p># of participants per workshop</p> <p>Target: 10+/Workshop</p>	<p>Partially achieved: Workshop attendance ranged from 4 to 10+ across the participating municipalities. This was directly related to COVID-19 restrictions and capacity issues. Those representing key stakeholder groups that were unable to attend the sessions were followed up with directly by the project team. This ensured their involvement.</p>
	<p>Evaluation forms</p> <p>Target: Positive Feedback</p>	<p>Achieved: Post-workshop surveys were sent to each participant following each session. Feedback was overwhelmingly positive (average 4.5/5 satisfaction) indicating that the virtual delivery of the workshops was effective and achieved all of the desired outcomes.</p>

Objective 4	Key Performance Indicator	Status
<p>Develop and implement sound knowledge transfer and dissemination activities that help Albertan communities to learn the key lessons of the initiative and encourage them to conduct Resilience Assessments in their own communities with a focus on Energy Infrastructure by collaborating with energy utilities</p>	<p>User-friendly, accessible and informative Lessons Learned Report published</p> <p>Target: Report reviewed by project partners and published</p>	<p>Achieved: Primer (Lessons Learned) Report published Dec 10, 2020. Prior to publishing, it was reviewed by representatives from EQUUS, MCCAC and the Canadian Energy Research Institute.</p>
	<p># of participants attending the webinar</p> <p>Target: 20+ participants for the webinar</p>	<p>Achieved: Through discussions with participant communities it was deemed most effective to have a separate, closed wrap-up webinar to share findings across the project with the participating communities and partners only (7 attendees).</p> <p>The public Lessons Learned webinar was held on December 15, 2020 and had 28 participants.</p>
	<p># of times the report was downloaded following release date</p> <p>Target: 60 or + downloads</p>	<p>Achieved: Since its release on December 10, 2020, the report has been downloaded at total of 180 times</p>
	<p># of printed copies of the report distributed to key stakeholders</p> <p>Target: 100 copies*</p> <p>*Target Updated: Printed copy delivery of the report was not completed due to COVID-19 restrictions</p>	<p>Delivery to key stakeholders was done digitally and is reflected in the number of downloads (see above)</p>
	<p># of subscribers/followers received information about the project through QUEST, EQUUS and MCCAC's newsletter and social media</p> <p>Target: +4,000 subscribers/followers</p>	<p>Achieved: Information on the project, including the announcement and project launch, as well as the Primer Report release and webinar announcement was shared through the QUEST network. This includes the various regional and national newsletters, social media and supporter network (5000+ recipients). In addition to this, information was shared through the MCCAC's and EQUUS' respective networks as well.</p>
<p>Evaluation Project Form</p> <p>Target: Positive feedback</p>	<p>Achieved: A post-project evaluation survey was sent to project participants and partners, in which all respondents indicated high satisfaction levels and that the project furthered their knowledge and experience regarding local hazards and resilience.</p>	

FINANCIAL REPORT

Note that this report is submitted in Canadian Dollars (CAD).

PART I. PAY PERIOD July 1, 2020 TO December 15, 2020

	Current amount (CAD\$)	Cumulative amount to date (CAD\$)
Advance payment received from the Commission	\$30,000.00	\$112,500.00
Expenses		
Salaries and benefits	\$39,823.97	\$122,833.75
Meetings	\$0.00	\$7.22
Travel	\$610.96	\$610.96
Equipment and supplies	\$1,496.76	\$1496.76
Consultants	\$0.00	\$0.00
Communications/ Publications	\$0.00	\$0.00
Admin expenses	\$51.31	\$51.31
Total Expenses:	\$41,990.72	\$125,000.00
Balance (cumulative advance payment less total expenses)	(\$11,990.72)	(\$12,500.00)

PART II. TOTAL PROJECT COST

Expenses	Amount (CAD\$)
Salaries and benefits	\$122,833.75
Meetings	\$7.22
Travel	\$610.96
Equipment and supplies	\$1,496.76
Consultants	\$0.00
Communications/ Publications	\$0.00
Admin expenses	\$51.31
Total Project Expenses	\$125,000.00
Costs	Amount (CAD\$)
Project Partner (Municipal Climate Change Action Centre) - In-Kind	\$9,375.00
Project Partner (EQUUS) - In-Kind	\$9,625.00
Participating Municipalities - In-Kind	\$27,040.00
Total Costs	\$46,040.00
Total Project Cost	\$171,040.00

PROJECT PRODUCTS

The following products are provided in the attached folder.

Community Reports

Risk and Resilience Assessment:

Big Lakes County Climate Risk & Resilience Assessment Report

Ponoka County Climate Risk & Resilience Assessment Report

Town of Black Diamond Climate Risk & Resilience Assessment Report

Town of Raymond Climate Risk & Resilience Assessment Report

Adaptations Recommendations Report:

Big Lakes County Recommendations Report

Ponoka County Recommendations Report

Town of Black Diamond Recommendations Report

Town of Raymond Recommendations Report

Public Resources

Advancing Community Energy Resilience in Alberta Primer Report

Webinars

Key Findings Communities and Partners Wrap-up Webinar Slide Deck

[Advancing Community Energy Resilience in Alberta](#) Slide Deck