

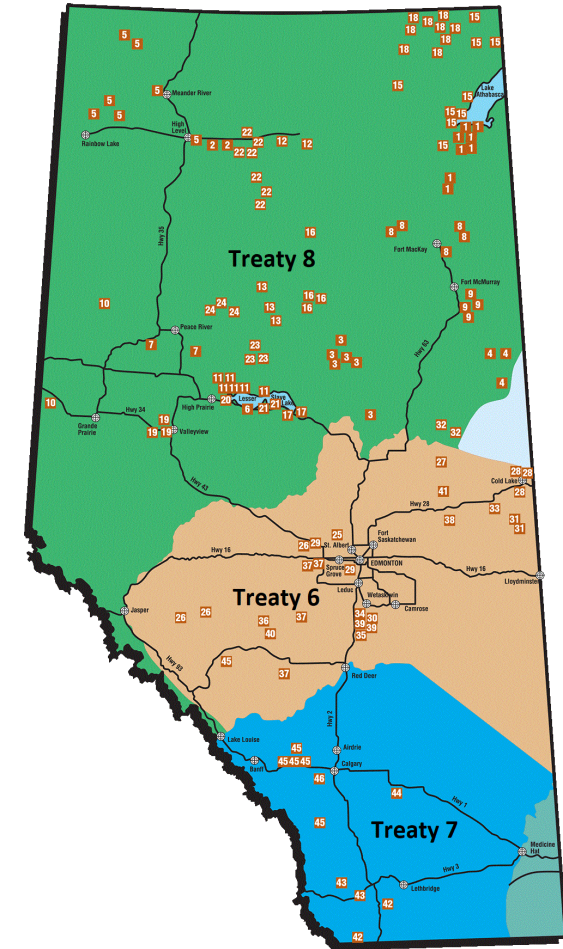
Municipal Community Generation Challenge

Full Project Proposal Webinar
November 7, 2019

ACKNOWLEDGEMENT

We would like to respectfully acknowledge that this webinar is being presented to you from Treaty 6 territory, and reaching you in Treaty 6, 7, and 8 territories; all traditional lands, meeting grounds, and travelling routes of First Nations and Métis people.

We acknowledge all the many First Nations, Métis, and Inuit whose footsteps have marked these lands for centuries, and whose presence continues to enrich our vibrant communities.



AGENDA

HOUSEKEEPING

CHALLENGE OVERVIEW

APPLICATION OVERVIEW

REQUIREMENTS

GHG QUANTIFICATION

REGULATORY CONSIDERATIONS

QUESTION PERIOD

HOUSEKEEPING

- Please mute microphones to avoid echo
- If joining by phone, please enter your Conference ID when prompted
- Submit questions through the chat messaging box, located on the bottom left corner

MUNICIPAL CLIMATE CHANGE ACTION CENTRE

Assisting municipalities across Alberta to see real savings and real change by reducing their greenhouse gas emissions through energy efficiency and renewable energy solutions.



ALBERTA INNOVATES

Aims to diversify Alberta's economy, improve our environmental performance and enhance the well-being of Albertans through research and innovation

C-FER
Technologies



InnoTech
ALBERTA

EQUITY, DIVERSITY AND INCLUSIVITY

We believe the Alberta Research and Innovation ecosystem is stronger and more sustainable when it is broadly representative of the overall **diversity** of our community

We strive to ensure that all interested and qualified parties have an **equitable** opportunity to participate and contribute to the ecosystem and that our processes are inclusive

Municipal Community Generation Challenge

CHALLENGE PROGRESSION



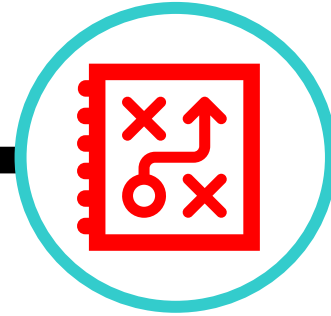
STAGE 1

Municipalities
Submitted
Letters of
Interest



STAGE 2

Expressions of
Interest
Reviewed and
Approved



STAGE 3

**Full Project
Proposal Due
by Jan 8, 2020
(4:00 PM MST)**



STAGE 4

**Project
Completion by
September 20,
2022**

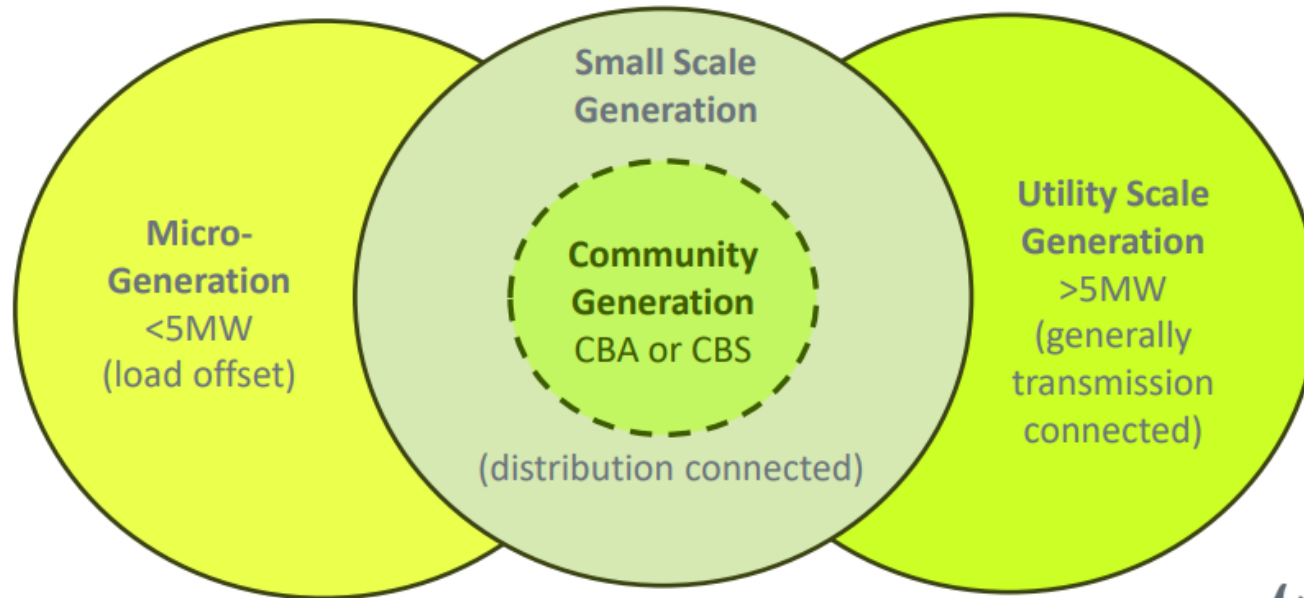
WHAT IS COMMUNITY GENERATION?

Distribution-connected renewable or alternative energy system that provides community benefits

Allows communities to participate in energy projects through full or partial ownership

Gives Albertans access to renewable energy and generate revenue by selling electricity to the grid

WHAT IS COMMUNITY GENERATION?



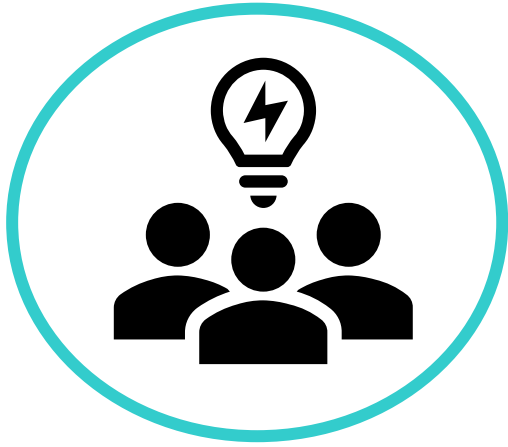
Alberta

ELIGIBLE TECHNOLOGIES

- ✓ **Solar photovoltaics (PV)**
- ✓ **Fuel cells**
- ✓ **Wind**
- ✓ **Small-scale hydro**
- ✓ **Biomass**
- ✓ **Geo-thermal**
- ✓ **Any other eligible technology per SSGR**

**Multiple technologies can be combined*

ELIGIBLE PARTICIPANTS



LEAD PARTNER

**Alberta
Municipality**



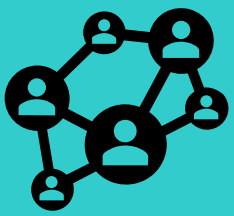
MANDATORY PARTNER

**Alberta Small to
Medium-Sized
Enterprise (SME)**



1 OTHER PARTNER

**Regional
Co-benefit or Other**



CHALLENGE OUTCOMES

- Replicable community generation model for Alberta
- Knowledge Transfer (KT) Activities
- Alberta Utilities Commission (AUC) approved Community Benefits Agreement (CBA) or Community Benefits Statement (CBS)
- Technology to adhere to all safety codes, legal and regulatory requirements
- Meet the definition of a “community generating unit” as per the *Alberta Small Scale Generation Regulation*

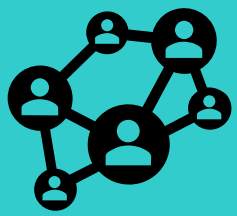
FUNDING AVAILABLE



\$7 Million

The project network (municipality/SME/partners) is required to contribute a minimum of **10% of the total funding requested towards the project (cash, in kind, or combination).**

FPP Application Overview

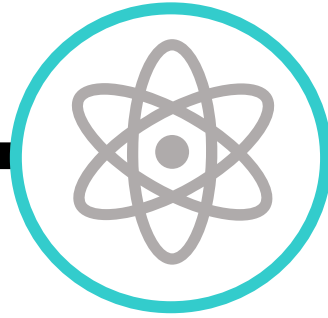


STAGE 3: FPP APPLICATION



STEP 1

Read the
Program Guide



STEP 2

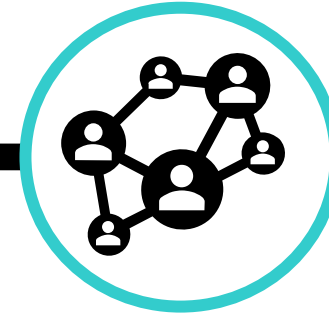
Attend FPP
Webinar



STEP 3

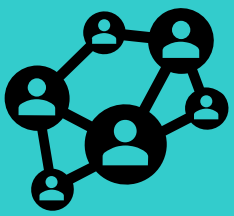
Contact GHG Consultant
for GHG template
assistance

Contact Regulatory
Consultant for Section 95
assistance



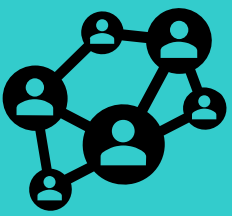
STEP 4

Submit FPP by
Jan 8, 2020
(4:00 pm MDT)



EVALUATION CRITERIA

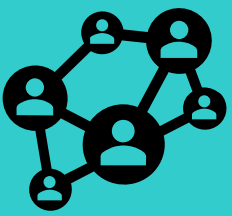
| A. EXCELLENCE/INNOVATION | B. FEASIBILITY | C. OUTCOMES |
|---|---|--|
| Knowledge, Technological, or System Opportunity | Objectives, Work Plan and Risk Analysis | GHG Emission Reduction Impacts |
| Comparative Analysis | Budget, ROI, and Project Funding | Environmental Benefits |
| Knowledge Transfer | Project Ownership | Economic Benefits |
| | Project Team, Network and Resources | Social Benefits |
| | | Community Benefit Agreement or Statement |



NEW REQUIREMENTS

LOCATION

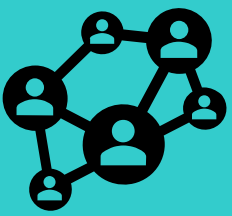
- **Secured Project Site Information**
 - Identify the location and name of the secured site for the development of the project.
- **System Interconnection Details**
 - Indicate the interconnection point on the distribution system the project will connect to, as well as the hosting capacity available at this location.



NEW REQUIREMENTS

ANALYSIS

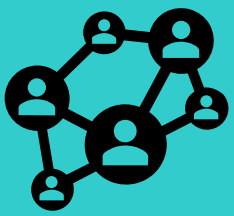
- **Comparative Analysis**
 - Compare the strengths and weaknesses of the proposed renewable energy technology for your project relative to competitive/alternative technologies.
- **Risk Analysis & Mitigation**
 - Identify the key risks that have the potential to adversely affect the project achievability.



NEW REQUIREMENTS

BUDGET AND ROI

- See attachment [“MCGC FPP Workplan and Budget.xlsx”](#)
 - Summarize the work plan schedule, deliverables, and budget by task.
- **Project Return on Investment (ROI)**
 - Describe in detail the expected Return on Investment (ROI) for all parties contributing financially to the project.
- Note any changes to Project Network partners.



WORKPLAN TABLE

1. Modify only the **white** cells in tables
2. Provide task specific performance indicators (if applicable)
3. Copy/Paste to add additional tasks as necessary

| Project Title | Project timeline (months) | Estimated start date | Estimated end date | Total project costs |
|---------------|---------------------------|----------------------|--------------------|---------------------|
| | 18 | | | 0 |

Task 1: Title = e.g. Project Feasibility Study

| Task description and methodology | Deliverable | Performance metrics | Estimated start date | Estimated end date | Timeline (months) | Percentage of total timeline | Lead and time allocation | Estimated Cost | Percentage of project costs |
|---|---|--|-------------------------|----------------------|-------------------|------------------------------|---------------------------|----------------|-----------------------------|
| <i>e.g. feasibility study including assessment of technical, financial,</i> | <i>e.g., concept design for 5 MW solar farm</i> | <i>e.g., IRR>8%, model output which recommends optimum scenario, cultural resources</i> | <i>e.g., March 2020</i> | <i>e.g. May 2020</i> | 2 | 11% | <i>e.g. Green Fleaper</i> | \$ 125,000 | 0% |



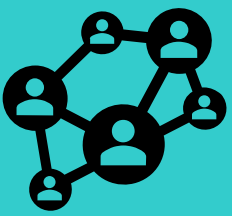
BUDGET & FUNDING SOURCES TABLE

Project Costs

| Activity | Estimated Costs (Total) | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 |
|--------------------------------------|-------------------------|-----------|-----------|-----------|-----------|
| Infrastructure/equipment (Capital) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Personnel (Actual Salary & Benefits) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Operating Materials & Supplies | \$ - | \$ - | \$ - | \$ - | \$ - |
| Contractors & Key Vendors | \$ - | \$ - | \$ - | \$ - | \$ - |
| Travel | \$ - | \$ - | \$ - | \$ - | \$ - |
| Contingency (if any) | \$ - | \$ - | \$ - | \$ - | \$ - |
| SUBTOTAL | \$ - | \$ - | \$ - | \$ - | \$ - |

Funding Sources

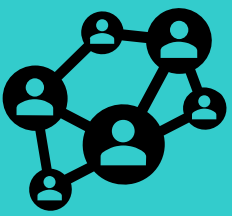
| Name | Type of entity | Status of Funding | Cash | In-kind | Subtotal |
|------------------------|----------------|-------------------|------|---------|----------|
| MCGC CHALLENGE REQUEST | | Applied For | \$ - | | \$ - |
| APPLICANT | | Confirmed | \$ - | \$ - | \$ - |
| | | | \$ - | \$ - | \$ - |



NEW REQUIREMENTS

OWNERSHIP

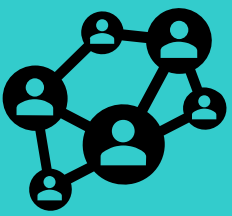
- **Project Ownership**
 - Describe the ownership structure of the project considering Section 95 of the *Electric Utilities Act*.
 - Provide details on the discussions with Regulatory Consultant, Chris Perret.



NEW REQUIREMENTS

COMMUNITY BENEFITS

- **Community Benefits or Statement**
 - Describe the process which will be undertaken to integrate the environmental, economic, and social benefits described above into a Community Benefits Agreement (CBA) or Community Benefits Statement (CBS).



COMMUNITY BENEFITS

Include an overview of your projects Community Benefits:

The municipality owns
the generating unit

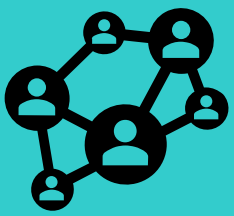


**Community Benefits
Statement**

The municipality does not own
the generating unit (3rd party)



**Community Benefits
Agreement**



HOW TO SUBMIT

- Read the Program Guide
 - Check MCCAC website for latest version
- Complete the FPP Application Form and Attachments
 - Appendix 1 – GHG Quantification
 - Appendix 2 – Workplan and Budget

Submit via email to: inbox_grants@albertainnovates.ca



SUCCESSFUL SUBMISSIONS

Additional Funding Information

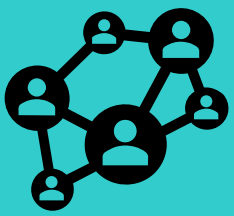
- Include all information about other funding being leveraged outside of the Challenge

Signatures

- Ensure you have all the relevant signatures as per your governance structure

Attachments

- Ensure you follow naming conventions as directed



SUCCESSFUL SUBMISSIONS

- Use clear and concise language
- Define the problem the project is trying to solve
- Answer all questions in the application
- Don't wait until the final day(s) to submit
- **Use available resources**
 - GHG Consultant, Christine Schuh
 - Regulatory (Section 95) Consultant, Chris Perret

Greenhouse Gas Quantification

INTRODUCING DR. CHRISTINE SCHUH

Internationally known expert in GHG Verification involved in developing ISO 14064-3 and ISAE 3410

- Led Canadian climate change practice for PricewaterhouseCoopers (PwC) for a decade and has conducted hundreds of validations and verifications.
- Holds two degrees in engineering, a doctorate in performance indicators, and forced emersion in financial audit theory.
- Valuable resource in the Challenge.

PURPOSE OF GHG ACCOUNTING

- Reporting to Albertans
- Reporting to Program Leads
- Reporting internally to Government of Alberta

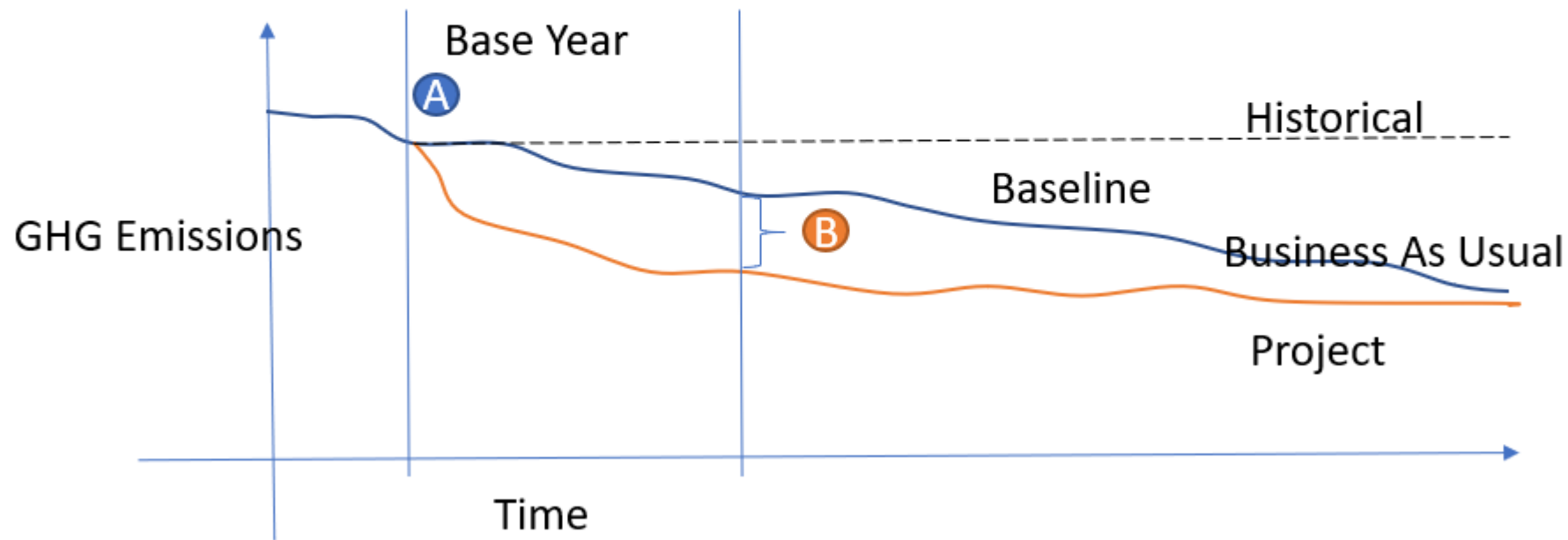
ASSESS THE EFFECTIVENESS OF PUBLIC FUNDING IN
ACHIEVING GHG EMISSION REDUCTIONS

BASICS OF GHG ACCOUNTING

- A calculation based on the comparison, or difference, between what the project does and what would have happened without the project.
- Every calculation must have a baseline.
- The baseline is the most difficult aspect of the emission reduction/removal enhance because it is hypothetical or not real.

BASICS OF GHG ACCOUNTING

GHG Project



A. PROJECT INFORMATION

1. Copy and paste your project description from the Full Project Proposal or Expression of Interest application.

2. What are the start and end dates of your project?

| Project Start Date (month, year) | Project End Date (month, year) |
|----------------------------------|--------------------------------|
| Select | Select |

3. Will this project be used to generate Alberta carbon offsets, credits, or other tradeable environmental attribute (carbon fuel standard, renewable electricity program, credits in another GHG scheme, renewable electricity credit, voluntary credit, etc.)? If so, what environmental attribute?

4. Will this project be used at a facility regulated by Alberta's current climate change regulations?

5. Will the commercial application of the technology be significantly different than the project? If so, how?

6. What is the service life of your technology in a commercial application?

7. Are there proposed laws or regulations (e.g., low-carbon fuel standards, methane regulations) that affect your technology? If so, please describe the law/regulation and its effect.

Alberta Innovates Technology Readiness Levels (TRL) Definition

B. TECHNOLOGY READINESS LEVEL (TRL) SELF ASSESSMENT

1. Identify your technology's estimated TRL at the project start and end date. The TRL definitions are provided at the end of this form.

| TRL at Project Start | TRL at Project End |
|----------------------|--------------------|
| Select | Select |

➤ Note: Generally, we do not expect an increase of more than three TRL levels during the project.

Use of NASA 9 level TRL as classification system source

| # | Title | Description |
|-------|--|---|
| TRL 1 | Basic principles observed and reported | A technology's basic properties is explored. Basic principles observed and reported. Scientific research begins to be translated into applied research and development (R&D). An example includes paper studies of a technology's basic properties. |
| TRL 2 | Technology concept and/or application formulated | Invention begins. Once basic principles are observed, practical applications can be invented or identified. Applications are speculative, and there may be no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies and publications, or other references that outline the application being considered and that provide analysis to support the concept. |
| TRL 3 | Analytical and experimental critical function and/or characteristic proof of concept | Active R&D is initiated. Components are not yet integrated or representative. Examples include analytical studies to set the technology into an appropriate context and laboratory studies to physically validate that the analytical predictions of separate elements of the technology are correct. |
| TRL 4 | Component validation in laboratory environment | Basic technological components are integrated to establish that they will work together. Activities are devised to support the concept that was formulated earlier and should also be consistent with the requirements of potential system applications. This is relatively "low fidelity" compared with the eventual system. Example includes integration of "ad hoc" hardware in the laboratory. |
| TRL 5 | Component validation in relevant environment | Fidelity of technology significantly increases. The basic technological components are integrated with reasonably realistic supporting elements so that the total applications (component-level, sub-system level, or system-level) can be tested in a 'simulated' or somewhat realistic environment. An example includes laboratory integration of components. |
| TRL 6 | System/subsystem model or prototype demonstration in a relevant environment | Representative model or prototype system, beyond TRL 5, is tested in a relevant environment. Represents a major step-up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment. |
| TRL 7 | System prototype demonstration in an operational environment | Prototype is near or at planned operational system. Represents a significant step-up from TRL 6 by requiring demonstration of an actual system prototype in an operational environment (e.g., in an aircraft, in a vehicle, or in a facility). An example includes prototype field testing. |
| TRL 8 | Actual technology/system completed and qualified through test and demonstration | Technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development. An example includes developmental test and evaluation of the system in its intended system to determine if it meets design specifications. |
| TRL 9 | Actual technology/system proven through successful operations | Actual application of the technology in its final form and under real-life conditions, such as those encountered in operational tests and evaluations. Examples include using the innovation under operational conditions, or in a competitive manufacturing environment. |

C. CURRENT PRACTICE (BASELINE SCENARIO)

1. Describe the current practice that results in the same product and/or service as your technology.
 - Please contact AI GHG Advisor if your technology is accessing new markets or resources.

■
2. Is there a difference between your technology's products and/or services and the current practice in terms of quality, lifespan, or function?

■

D. GHG EMISSION REDUCTION PREDICTION

If there is an applicable Alberta Project Quantification Protocol, please apply this protocol in calculating your GHG emission reductions. Emission factors and global warming potentials (GWP) used in the quantification should be consistent with Alberta’s Carbon Emission Factors Handbook, which also prescribes the electricity grid intensity.

If you or a third-party has calculated the project’s GHG emission reductions, please attach the full documentation to this form and then this section does not need to be filled out.

1. Illustrate or explain the mass and energy balance for the project including production or service amounts.
2. Identify the material sources and sinks for the project and baseline scenario using the table below. Show the calculations (e.g., amounts, emission factors, emissions/removals) used to estimate the material emissions and removals for the project and baseline scenario using the table below. Include all units.

Project

| Source/Sink/Reservoir | Amount | Emission Factors | | | | Emissions/Removals |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | | CO2e | CO2 | CH4 | N2O | CO2e |
| GWP | | | 1 | 25 | 298 | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Add additional rows as needed

Baseline Scenario

| Source/Sink/Reservoir | Amount | Emission Factors | | | | Emissions/Removals |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | | CO2e | CO2 | CH4 | N2O | CO2e |
| GWP | | | 1 | 25 | 298 | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Add additional rows as needed

3. Estimated annual emission reductions/removal enhancements from the project for the years 2025, 2030, and 2040 using the table below. Include any assumptions used in your estimate.

| Annual Project Emission Reductions (tonnes CO2e/year) | | |
|--|--------------------------|--------------------------|
| 2025 | 2030 | 2040 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

E. ALBERTA MARKET ESTIMATES

- A. Identify all potential Alberta markets for your technology by completing the table below. If you cannot define the technology's current market or if you will be accessing new markets, please contact the AI GHG Advisor.

| Market Name | Alberta Market Size (yyyy) <i>In production units</i> | Expected Market Penetration (%) | Year of Commercialization (yyyy) |
|-------------|--|---------------------------------|----------------------------------|
| | | | |
| | | | |
| | | | |

Add additional rows as needed

- Note: We do not expect any project to have 100% market penetration.
- B. Please provide any additional information to support your estimates above, including any references.

- C. Estimated annual emission reductions/removal enhancements from commercialization of the technology for each Alberta market for the years 2025, 2030, and 2040 using the table below.

| Market Name | Annual Market Emission Reductions <i>(tonnes CO₂e/year)</i> | | |
|-------------|---|------|------|
| | 2025 | 2030 | 2040 |
| | | | |
| | | | |
| | | | |

Add additional rows as needed

- D. Please provide any additional information to support your estimates above, including any references.

Regulatory Considerations

INTRODUCING CHRIS PERRET

- Chartered Business Valuator (CBV) and Accredited Appraiser of the Canadian Institute (AACI).
- Completed fairness opinions to advise stakeholders whether a transaction proposal is in their best interest from a financial point of view.
- Acted as the Independent Assessors on behalf of the Minister on several occasions - proposals by Municipal-Owned Entities to hold an interest in a new electrical generating unit (coal, natural gas, biomass, wind, methane, solar) under Section 95(10) of the Electric Utilities Act

REGULATORY CONSIDERATIONS

- Section 95 of the *Electric Utilities Act*
 - Approval of municipal ownership of generating units considering FEOC.
- Consultant to assist with navigating legislation and implications of specific project structures
 - It is mandatory that you meet with Chris Perret.
 - Contact Chris early to ensure your FPP moves towards a favorable project structure.
 - A compliance assessment will be required as part of your first funding milestone if successful.

REGULATORY CONSIDERATIONS

Electric Utilities Act (Section 5)

- Section 5(a) “to provide an **efficient Alberta electric industry structure**”
- Section 5(b) “to provide for a **competitive power pool so that an efficient market for electricity based on fair and open competition can develop**” “where all persons wishing to exchange electric energy through the power pool may do so on non-discriminatory terms and may make financial arrangements to manage financial risk associated with the pool price”
- Section 5(c) “to provide for rules so that an efficient market for electricity based on fair and open competition can develop in which **neither the market nor the structure of the Alberta electric industry is distorted by unfair advantages of government-owned participants or any other participant**”
- Section 6(1) “Electricity market participants are to conduct themselves in the electricity market in a manner that supports the fair, efficient and openly competitive operation of the electricity market”
- Section 6(2) “Capacity market participants are to conduct themselves in the capacity market in a manner that supports the fair, efficient and openly competitive operation of the capacity market”

REGULATORY CONSIDERATIONS

Electric Utilities Act – Generation (Section 95)

- Section 95(1) “No municipality and no subsidiary of a municipality may hold, directly or indirectly, an interest in a generating unit except in accordance with any or all the provisions of this section and the regulations”
- Section 95(8) “A municipality or subsidiary of a municipality may hold an interest in a generating unit located within the boundaries of the municipality of the generating unit is part of a process that is carried out on the property of which the municipality or subsidiary is the owner or tenant and the ***electric energy produced by the unit is incidental to the main purposes of that process***” [emphasis added]
- Section 95(9) “A municipality or subsidiary of a municipality may hold an interest in a generating unit located within the boundaries of the municipality on property of which the municipality or subsidiary is the owner or tenant ***if a majority of the electric energy produced annually by the unit is used by the municipality or subsidiary on that property***” [emphasis added]

REGULATORY CONSIDERATIONS

Electric Utilities Act – Generation (Section 95)

- *Section 95(10) “A municipality or a subsidiary of a municipality may, with the authorization of the Minister, hold an interest in a generating unit if the arrangement under which the interest is held is structured in a manner that prevents any tax advantage, subsidy or financing advantage or any other direct or indirect benefit as a result of association with the municipality or subsidiary”*
- Ownership Structure (tax)
- Capital – source of capital and cost of capital (financing)
- Development (services, water, land, etc.)
- Level Playing Field - fair, efficient and openly competitive operation market
- Would a non-government owned participant undertake the project? (fair return expectation consistent with the risk inherit)

OBJECTIVE

- Avoid triggering a Section 95(10) Independent Assessment.
- Have a good chance of success in receiving approval should a Section 95(10) Independent Assessment be triggered.



Questions?

www.mccac.ca

DEADLINES



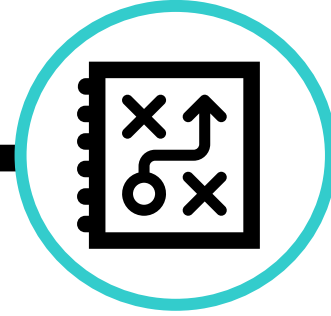
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STAGE 2

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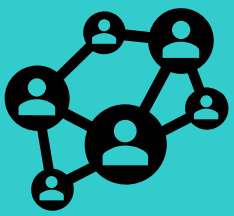
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by Jan 8, 2020
(4:00 PM MST)**

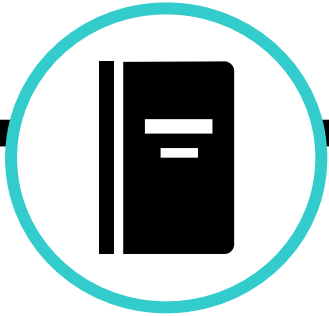


STAGE 4

**Project
Completion by
September 20,
2022**

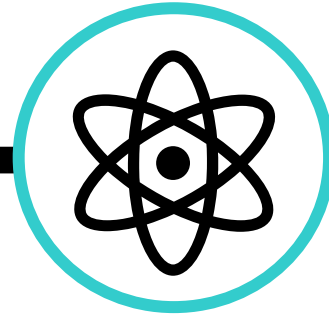


FPP REVIEW PROCESS



1

**Submit FPP by
January 8, 2020
(4:00 pm MDT)**



2

**Applicant
Presentations
Jan 29-31, 2020
(TBD)**



3

**Results
Notification
February 2020**

CONTACTS

Michael Kerr, Program Lead

AI Network Program

Phone: 430-210-5365

Email: michael.kerr@albertainnovates.ca

Christine Schuh, GHG Consultant

Alberta Innovates

Email: ghgmanager@albertainnovates.ca

Marc Baxter, Program Lead

Municipal Climate Change

Action Centre

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