RENEWABLES FRAMEWORK:

POLICY INTENTION

BCER

BRITISH COLUMBIA **ENERGY REGULATOR**

Our Regulatory Framework

- The BCER regulatory framework provides for rigorous oversight of the full lifecycle of energy resource activities to ensure public safety, protect the environment, support reconciliation with Indigenous peoples and foster a sound economy and social well-being.
- The framework includes BCER regulations with supporting policies and guidance documents, and relevant provincial legislation and regulations.
- The framework is administered through issuance of permits and authorizations with legally enforceable conditions, orders and through inspections and audits.
- The framework incorporates the use of management systems and professional reliance, where appropriate.
- The framework considers efficiency and seeks to avoid regulatory overlap where risks are managed through existing regulations.

Context for Initial Engagement

Our mandate requires robust oversight across several thematic areas.

The slides that follow contain information regarding specific policy issues associated with each of these themes.

For each policy issue, the slides provide an overview of possible impacts, articulate the BCER's policy intention, and outlines potential options to meet this intent.

Note these possible impacts and options are intended to spur conversation and gather feedback regarding additional impacts and options to address them.

We welcome input and feedback from all interested parties.

Please reach out to info@rep-spa.ca with feedback.

THEME 1

Environmental Assessment and Protection

THEME 2

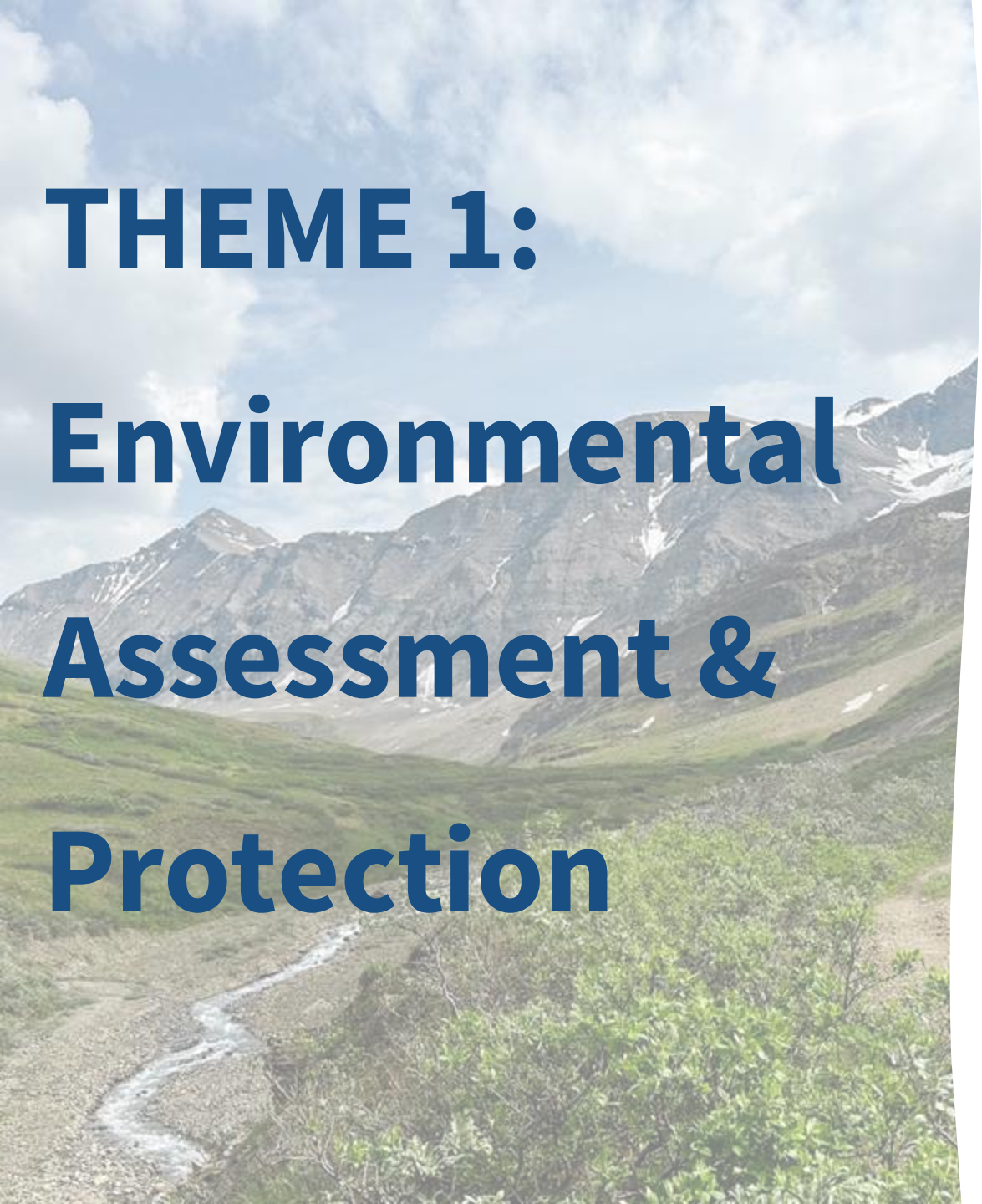
Supporting Reconciliation

THEME 3

Foster Social Well-being

THEME 4

Protecting Public Safety



THEME 1: Environmental Assessment & Protection

The regulatory framework will ensure operators minimize and mitigate risks to the environment throughout the lifecycle of the activity, while ensuring government's environmental objectives are met.

Examples of government's environmental objectives include those related to water, riparian values, wildlife and wildlife habitat, old growth management areas, resource features, and cultural heritage resources.

While subsequent slides detail key, broad environmental values to be managed, the BCER will consider regional differences and manage the unique impacts of each proposed project.

WATER & LAND

POTENTIAL IMPACTS

- Utility-scale renewable energy activities require large numbers of wind turbines or solar arrays that may be distributed across a large area of land.
- Construction activities and permanent infrastructure may impact lands, soils, natural waterways, wetlands, and drainage patterns.
- Impacts to water and land may also affect wildlife and wildlife habitat.

WATER & LAND

POTENTIAL IMPACTS

POSSIBLE IMPACTS

- Construction activities may impact waterflows, fish passage and contribute to soil erosion.
- Construction may require earthworks, forest and vegetation clearing.
- Acid rock drainage from certain bedrock types can impact water and soil quality.

BCER POLICY INTENT

BCER's regulatory framework will require proponents to identify and manage potential impacts to soil, wetlands and waterways.

POSSIBLE OPTIONS

- Require proponent to perform suitable geological and hydrological assessments and implement necessary mitigations based on the mitigation hierarchy and assessment results.
- Require siting and design of infrastructure to minimize risk.
- Require emergency response plans to address incidents e.g. floods or landslide.

BIRDS & BATS

POTENTIAL IMPACTS

- The height and operational nature of wind turbines poses unique risk to birds and bat species compared to other industrial activities.
- The impacts to bird and bat species are largely due to the rotating turbine blades which pose a physical barrier and create disturbances in the air.
- The likelihood and severity of these risks are dependent on the siting, location and time of operation for individual turbines, species type, and habitat.

BIRDS & BATS

POTENTIAL IMPACTS

POSSIBLE IMPACTS

- Wind and solar projects can impact bird and bat species through:
  - Direct impacts with turbine blades.
  - Effects of low air pressure zones (barotrauma).
  - Vegetation clearing and habitat loss.

BCER POLICY INTENT

The regulatory framework will avoid or minimize impacts on bird and bat species by requiring proponents to have robust assessments and surveys of populations and habitat to inform turbine siting and to develop appropriate management plans for operation.

POSSIBLE OPTIONS

- Require proponent to conduct initial identification of bird and bat species to inform site design.
- Design and siting of turbines based on modelling of species behaviour.
- Suspend or slow turbine operations during specific “high traffic” periods.

CUMULATIVE EFFECTS MANAGEMENT

- Cumulative effects are changes to environmental, social and economic values caused by the combined effect of past, present and potential future human activities and natural processes.
- Cumulative effects management considers both environmental effects of an activity and cultural, social and health impacts on the land base.
- The BCER must consider potential cumulative impacts to values related to Aboriginal and treaty rights and interests.
- The BCER recognizes the importance of cumulative effects assessments in natural resource management. BCER staff bring experience in this area and are continuing to build expertise to support effective implementation of cumulative effects considerations within regulatory processes.

CUMULATIVE EFFECTS MANAGEMENT

POSSIBLE IMPACTS

- Wind and solar projects may be distributed over large areas.
- Projects include generation and support facilities, roads, and transmission lines.
- Development may disrupt access to fishing, hunting or cultural sites.
- Cumulative effects can result from individually minor but collectively significant actions taking place over time.

BCER POLICY INTENT

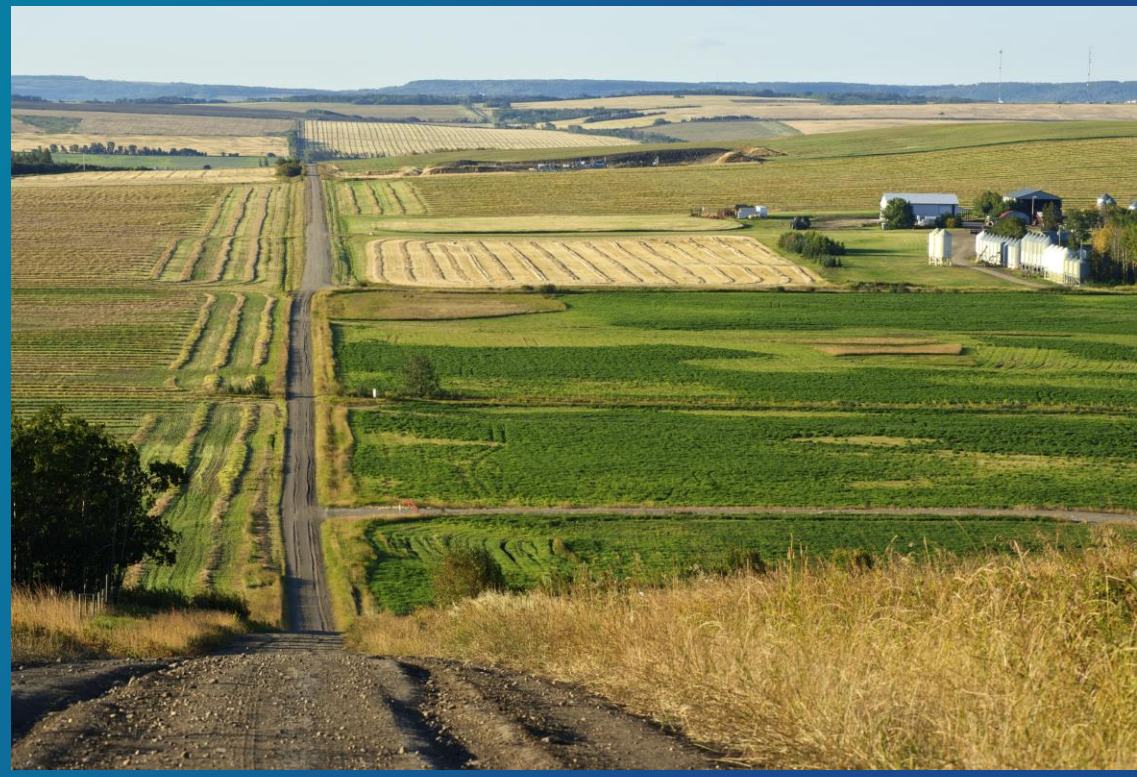
The regulatory framework will prioritize the consideration of cumulative effects in permitting decisions.

POSSIBLE OPTIONS

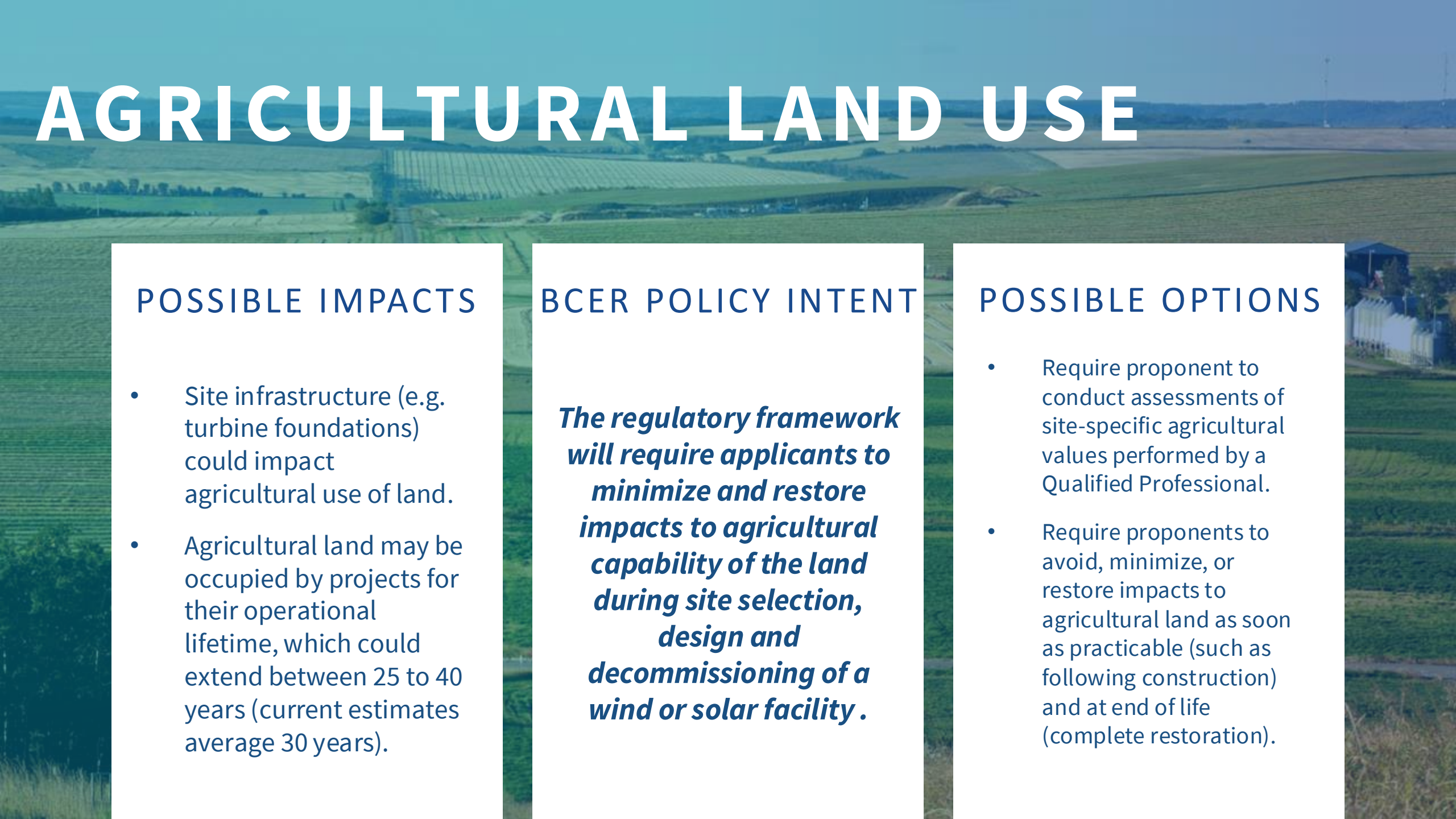
- Require proponent to assess potential environmental effects of a project.
- Require proponent to identify measures to avoid or mitigate those impacts.
- BCER considers the cumulative impacts of the project in the context of other activities.

AGRICULTURAL LAND USE

- Wind and solar projects may be proposed on agricultural land.
- This may include land located within the Agricultural Land Reserve (ALR), which is land designated for priority agricultural uses.
- The BCER is intended to have authority to approve non-farm use of ALR lands (e.g. for wind and solar projects) but cannot approve the removal of land from the ALR.



AGRICULTURAL LAND USE



POSSIBLE IMPACTS

- Site infrastructure (e.g. turbine foundations) could impact agricultural use of land.
- Agricultural land may be occupied by projects for their operational lifetime, which could extend between 25 to 40 years (current estimates average 30 years).

BCER POLICY INTENT

The regulatory framework will require applicants to minimize and restore impacts to agricultural capability of the land during site selection, design and decommissioning of a wind or solar facility .

POSSIBLE OPTIONS

- Require proponent to conduct assessments of site-specific agricultural values performed by a Qualified Professional.
- Require proponents to avoid, minimize, or restore impacts to agricultural land as soon as practicable (such as following construction) and at end of life (complete restoration).

DECOMMISSIONING & RESTORATION

- Once a project has completed its operational life, all project infrastructure (e.g. turbines, foundations, solar arrays, buildings) must be responsibly removed or otherwise decommissioned (such as burying foundations).
- Restoration should be considered in early project plans and performed throughout the project as is practicable.
- Decommissioning and restoration efforts will return all land to its pre-activity state.
- Proponents must have operational and financial responsibility for the decommissioning and restoration of project sites.

DECOMMISSIONING & RESTORATION

POSSIBLE IMPACTS

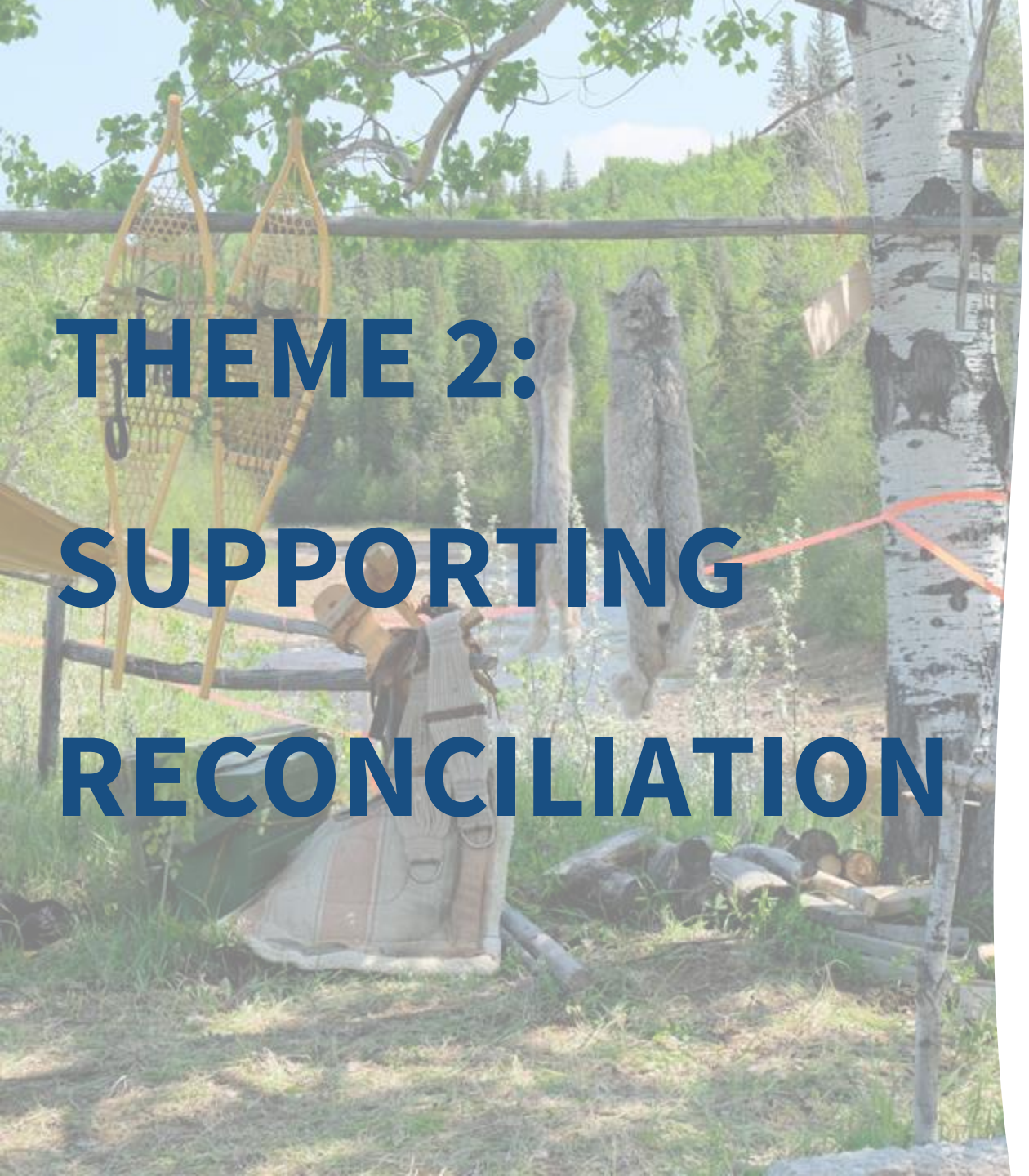
- Future uses of Crown land could be compromised if land is insufficiently restored.
- This includes potential impacts to productivity of ALR land if farmland not restored adequately.
- Treaty & Aboriginal rights could be impacted if land is insufficiently restored.

BCER POLICY INTENT

The regulatory framework will ensure restoration is considered during project planning and both interim and end of life restoration are conducted as soon as practicable.

POSSIBLE OPTIONS

- Require proponent to plan for decommissioning and restoration when siting and designing projects.
- Require progressive restoration over the life of the project.
- Require financial security for costs to decommission and restore sites.
- Implement timelines and standards for restoration.



THEME 2: SUPPORTING RECONCILIATION

The BCER is committed to mutually-beneficial, collaborative working relationships with First Nations and Indigenous governments and recognizes the Declaration on the Rights of Indigenous Peoples Act as the framework for reconciliation.

The regulatory framework will ensure the interests of First Nations are understood, respected and considered in BCER decisions and the delivery of our mandate.

The BCER upholds all legal requirements under section 35 of the Canadian Constitution Act (1982) and applicable case law.

PRE-ENGAGEMENT

- Pre-engagement requires proponents to plan projects with early and proactive collaboration with First Nations.
- The process considers environmental, social, cultural and other impacts to proactively identify mitigations prior to application.
- Currently, the BCER requires pre-engagement for most activities, focusing on building strong relationships, setting clear expectations and tailoring the engagement process to develop more meaningful and collaborative interactions.

PRE-ENGAGEMENT

POSSIBLE IMPACTS

- Thoughtful pre-engagement provides clear expectations for proponents, First Nations and the BCER, and builds understanding between parties.
- Insufficient pre-engagement may increase the likelihood applications are not accepted, and the likelihood of disputes at permit adjudication or operational phases.
- Such disputes are disruptive, costly, and time-consuming for all interested parties.

BCER POLICY INTENT

The regulatory framework will require proponents to engage with impacted First Nations prior to application submission (pre-engagement). The extent and results of this pre-engagement will be submitted with a permit application.

POSSIBLE OPTIONS

- Require pre-engagement by regulation with associated reporting.
- Require pre-engagement and associated reporting by policy.

CONSENSUS-SEEKING & DECISION MAKING

- Engagement and consultation with First Nations are core components of the BCER's regulatory oversight.
- The BCER upholds all legal requirements under section 35 of the Canadian Constitution Act (1982) and applicable case law.
- The BCER recognizes the Declaration on the Rights of Indigenous Peoples Act as the framework for reconciliation with First Nations.
- The BCER seeks consensus with impacted First Nations regarding permitting decisions and management of issues that impact Treaty & Aboriginal rights.
- The BCER has considered concerns regarding exemption of wind projects from the *Environmental Assessment Act*. We invite conversations regarding our approach to consensus-seeking in decision making.

CONSENSUS-SEEKING & DECISION MAKING

POSSIBLE IMPACTS

- Clear consensus regarding management practices ensures projects are well-integrated with communities and respect Treaty and Aboriginal rights.
- Lack of consensus on management of project impacts reduces certainty for First Nations, proponents and the BCER.
- The lack of a clear process to seek consensus in decision-making may impact permitting timelines.

BCER POLICY INTENT

The regulatory framework will facilitate agreement and seek consensus with impacted First Nations regarding project decisions and the resolution of issues.

POSSIBLE OPTIONS

- Implement policy guidance outlining pathways for input on permitting decisions.
- Implement discrete consultation agreements with impacted First Nations defining the process to seek consensus.
- Require submission of proponent pre-engagement records, to include a summary of key issues and whether consensus was reached.

CAPACITY FUNDING

- Consultation and permit review require substantial resourcing from First Nations.
- Capacity funding may assist First Nations in deploying the necessary resources to meaningfully participate in these processes and conversations.

CAPACITY FUNDING

POSSIBLE IMPACTS

- Lack of available capacity funding may reduce the ability of impacted First Nations to meaningfully participate in permit review.

BCER POLICY INTENT

The regulatory framework will support impacted First Nations involved in permit review through consideration of available capacity funding.

POSSIBLE OPTIONS

- Capacity funding may be outlined in agreements with impacted First Nations.
- Capacity funding may be included in calculation of application fees.
- Capacity funding may be part of agreements between proponents and impacted First Nations.

PROTECTING CULTURAL HERITAGE SITES

- Construction of utility-scale renewable projects involves clearing and excavating lands to construct roads, generating facilities and transmission lines.
- The BCER has specified permitting authorities for inspections and permits under the *Heritage Conservation Act* through the *Energy Resource Activities Act.*
- Section 7 of the *Environmental Protection and Management Regulation* requires the BCER to consider objectives respecting conservation and protection of cultural heritage resources before issuing a permit.

PROTECTING CULTURAL HERITAGE SITES

POSSIBLE IMPACTS

- Construction of wind or solar projects may impact sites with cultural significance.
- Insufficient archeological investigations may result in damage to sites with cultural significance.

BCER POLICY INTENT

The regulatory framework will identify potential impacts to cultural sites or practices and require appropriate mitigations.

POSSIBLE OPTIONS

- Apply specified provisions of the *Heritage Conservation Act* for which BCER is proposed to have authority.
- Review and update the BCER's Archaeology Audit Program and "Heritage Conservation Program Guidelines" to reflect the unique dynamics of construction for renewables and how these may impact sites with cultural significance.

INCORPORATION OF INDIGENOUS KNOWLEDGE

- The BCER is committed to the consideration of Indigenous Knowledge in evaluating project impacts when this knowledge is shared by First Nations.
- Indigenous Knowledge may be provided during pre-engagement, permit review, or at other stages of the project life cycle.
- The BCER recognizes the importance of managing Indigenous Knowledge appropriately, including ensuring Nations maintain control of this knowledge when shared.

INCORPORATION OF INDIGENOUS KNOWLEDGE

POSSIBLE IMPACTS

- Relying solely on Western science to assess project impacts may present “blind spots” to decision makers that could be illuminated with Indigenous Knowledge.
- Insufficient guidance to proponents regarding management of Indigenous Knowledge may result in inappropriate use of such knowledge.

BCER POLICY INTENT

The framework will ensure the BCER and proponents, if provided with Indigenous Knowledge, protect and handle the knowledge appropriately while considering it in environmental, social and cultural effects assessments.

POSSIBLE OPTIONS

- Require consideration of Indigenous Knowledge in effects assessments, when available and offered by First Nations.
- Provide guidance, including to proponents, regarding appropriate management of Indigenous Knowledge.

THEME 3: SOCIAL WELL-BEING

Promoting community well-being is a core component of the BCER's regulatory mandate. The BCER has well-established policies regarding community engagement, which will be adapted for renewables.

The regulatory framework will ensure proponents consider and minimize impacts on how people and communities interact with their social, cultural and biophysical surroundings.

ASSESSMENT OF COMMUNITY IMPACTS

- Impacts may include noise, visual, traffic and access to public land, among others.
- Impacts will vary based on the nature of the renewable development, its proximity to communities and the unique dynamics of those communities.
- Decision makers require clarity regarding the nature and extent of impacts local communities will face.


Stock image

ASSESSMENT OF COMMUNITY IMPACTS

POSSIBLE IMPACTS

- Local communities may face impacts from renewable energy activities.
- Impacts vary, but may include noise, visual, traffic and access to public land.
- The extent and nature of any such impact must be assessed to inform decision makers and impacted persons.

BCER POLICY INTENT

The regulatory framework will ensure proponents assess potential impacts of renewable energy projects on communities and inform local communities of those impacts.

POSSIBLE OPTIONS

- Prescribe a list of impacts that must be assessed in all cases.
- Require proponents to assess all potential impacts to communities.
- Require mitigation of impacts as appropriate.

SHADOW FLICKER

- Spinning turbine blades can cause intermittent shadows that appear as a persistent flicker that may be a nuisance to observers inside nearby buildings.
- Shadow flicker is typically limited to a distance equivalent to roughly 10x the rotor diameter.
- Shadow flicker may occur with different intensities in different locations depending on time of day.

SHADOW FLICKER

POSSIBLE IMPACTS

- Shadow flicker can disturb the enjoyment of nearby properties and frustrate occupants of nearby buildings.
- Impacts of shadow flicker are only relevant if nearby receptors are present.

BCER POLICY INTENT

The regulatory framework will ensure wind turbine operations minimize the impacts of shadow flicker by requiring proponents to assess and mitigate shadow flicker effects.

POSSIBLE OPTIONS

- Require a shadow flicker assessment and technical review if receptors are within a specified distance.
- Set threshold limits for maximum allowable shadow flicker durations.
- Proponent consultation with landowners impacted by shadow flicker.

SOLAR PANEL GLARE

- Utility-scale solar projects may cause visual disturbance due to the reflection of light from the panels.
- For PV solar panels this effect is best categorized as *glare*, which is a short but sustained bright reflection (not a flash).
- Glare may be a minor nuisance to those in the vicinity of a solar project and may pose safety concerns if it impacts transportation.

https://ases.org/wp-content/uploads/2017/05/glare1.jpg

SOLAR PANEL GLARE

POSSIBLE IMPACTS

- Glare can be disruptive to those in the immediate vicinity of solar projects.
- In some areas, visual effects could present safety risks to transportation networks.

BCER POLICY INTENT

The regulatory framework will require proponents to assess glare impacts and implement appropriate management plans.

POSSIBLE OPTIONS

- Require glare assessments for nearby residences, roadways, railways and aerodromes.
- Require implementation of mitigations (screening, positioning, etc.) as per assessment results.
- Require submission of glare assessment and mitigations for BCER technical review if receptors are within a specified distance.

NOISE

- Noise can be disruptive to both humans and wildlife, particularly when sustained.
- There are widely-accepted limits for noise from wind turbines, and the Province has existing guidance incorporating such limits.
- Noise from both construction and operations of wind developments can impact local communities and wildlife.

NOISE

POSSIBLE IMPACTS

- Operation of turbines and electrical equipment (substations, transformers) generates sustained, low-frequency noise.
- Construction of utility-scale wind developments requires temporary periods of noise.
- Noise presents a nuisance to nearby receptors and may impact wildlife behaviour.

BCER POLICY INTENT

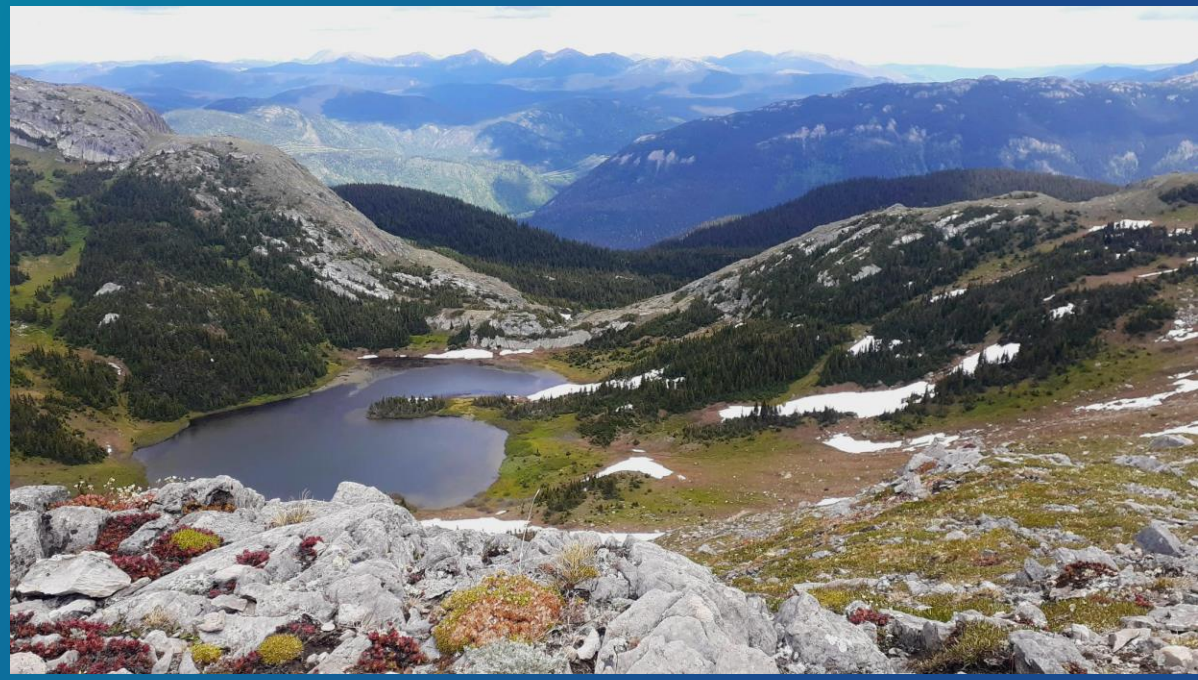
The regulatory framework will ensure wind projects do not create excessive noise by requiring proponents to assess project compliance with specified noise limits.

POSSIBLE OPTIONS

- Implement a prescriptive noise limit to apply from receptors or within a specified distance.
- Require a noise impact assessment (including low frequency). Require submission and technical review of the assessment if receptors are within a specified distance.
- Require consideration and minimization of construction noise.

CROWN LAND ACCESS

- Renewable energy projects may be sited on private or Crown land.
- Projects sited on Crown land may be in areas with overlapping tenures or used by the public.
- Access to such areas will be restricted during construction, and some ongoing restrictions may be required to ensure public safety and physical security of the project.



Crown land, British Columbia

CROWN LAND ACCESS

POSSIBLE IMPACTS

- Access to Crown land immediately adjacent to the project may be restricted.
- Rights holders with overlapping tenures may be impacted by such restrictions.
- Access may be restricted for specified periods or, in certain areas, indefinitely.

BCER POLICY INTENT

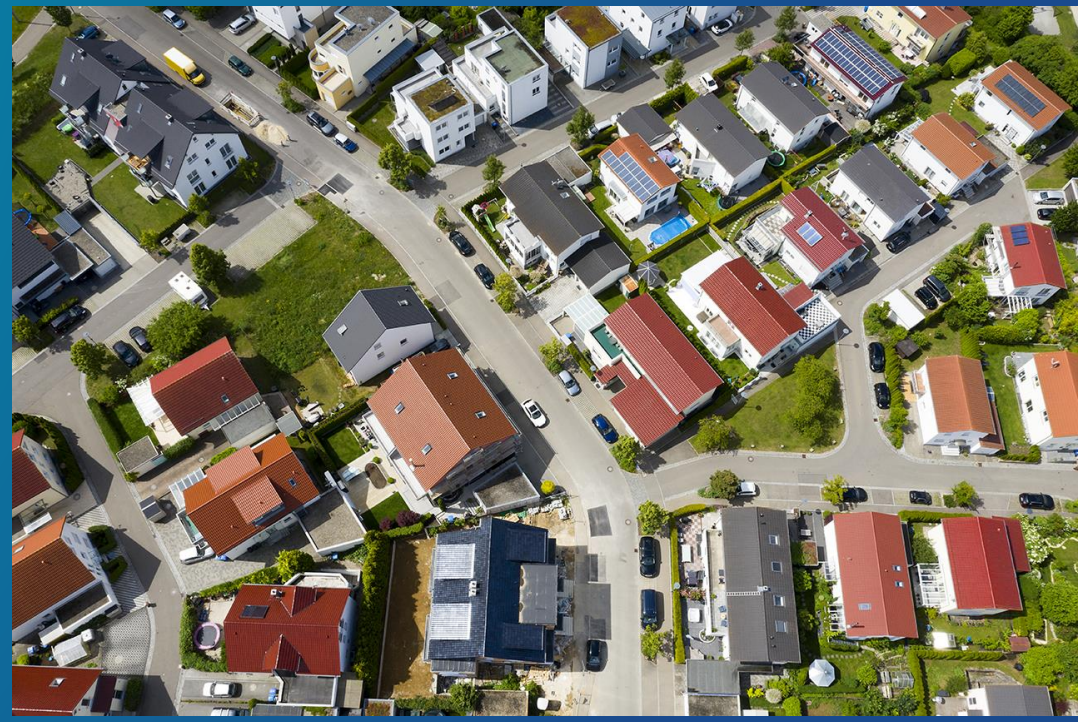
The regulatory framework will ensure projects sited on Crown land appropriately accommodate other uses while maintaining public safety.

POSSIBLE OPTIONS

- Require consultation with rights holders whose tenures may be impacted.
- Require submission of a management plan regarding public access in the project vicinity.

COMMUNITY ENGAGEMENT

- Local communities within the vicinity of renewable energy activities may face impacts to quality of life.
- Impacts will generally be limited to noise, visual, traffic and access to public land.
- Transparency and engagement regarding such impacts should be afforded to local communities.
- Local authorities should be afforded input on permitting decisions that impact their communities.



COMMUNITY ENGAGEMENT

POSSIBLE IMPACTS

- Local communities may face impacts from renewable energy activities.
- Impacts vary but may include noise, visual, traffic, worker impacts during construction and access to public land.
- Insufficient notification and engagement regarding such impacts negatively affects community acceptance.

BCER POLICY INTENT

The regulatory framework will ensure parties impacted by the development are notified of anticipated impacts and parties who face significant impacts are given an opportunity to consult with the project proponent prior to permit adjudication. The framework will ensure local authorities are consulted on proposed renewable energy projects.

POSSIBLE OPTIONS

- Require proponent to assess community impacts and notify affected persons.
- Require proponent to consult with the most affected persons and notify others.
- Affected persons can be defined using radii or based on assessment of the extent of impacts.

THEME 4:

PROTECTING PUBLIC SAFETY

The risks and hazards associated with renewable energy activities are well understood, but unique to the characteristics of individual projects.

The regulatory framework will ensure operators implement a systematic approach in managing and reducing risks.

Proponents will be expected to anticipate, manage, monitor and mitigate the effects of all potential hazards and risks throughout the life cycle of a project.

TECHNICAL HAZARDS & RISKS

- Renewable energy projects include electrical equipment, mechanical components, and elevated structures.
- Appropriate design, construction, and maintenance is required to minimize public safety risks associated with this infrastructure.

TECHNICAL HAZARDS & RISKS

POSSIBLE IMPACTS

- Structural or mechanical failure, including turbine collapse.
- Damaged blades or components being thrown.
- Accumulated ice thrown from turbine.
- Hazards from high voltage electrical equipment and batteries.
- Presence of hazardous fluids or materials.

BCER POLICY INTENT

The regulatory framework will ensure proponents consider and plan mitigations for all identified hazards and all equipment is appropriately constructed and maintained.

POSSIBLE OPTIONS

- Adopt suitable standards and codes to ensure sound design and construction.
- Require proponents to develop and implement detailed maintenance plans aligned with industry best practices.
- Prescribe appropriate setbacks to minimize risk to the public.

NATURAL HAZARDS & CLIMATE RISKS

- Wind and solar projects may be exposed to natural hazards such as flooding and wildfires.
- Natural hazards such as extreme weather, earthquakes and wildfire can pose risks to renewable energy facilities.

NATURAL HAZARDS & CLIMATE RISKS

POSSIBLE IMPACTS

- High winds, ice storms, or lightning strikes could increase risk of mechanical failure.
- Failure of electrical components may pose a wildfire risk.
- Remote facilities may experience longer response times in the event of an emergency.

BCER POLICY INTENT

The regulatory framework will ensure projects are designed, constructed and operated to minimize the risks of natural hazards and extreme weather events and appropriate response plans are in place.

POSSIBLE OPTIONS

- Adopt suitable standards and codes to ensure structures are climate resilient.
- Require assessment of potential natural hazards or extreme climate related risks.
- Require proponents to develop and implement suitable emergency response plans and coordinate with local authorities.

OTHER CONSIDERATIONS

IMPACTS TO AVIATION & RADAR

- Wind turbines may impact flight paths and aerodrome operations.
- Wind turbines may interfere with radar systems including those used for navigation, meteorology and airspace monitoring.
- The degree and nature of interference depends on the location of the wind turbine and characteristics of the rotor blades.
- Federal bodies such as the Canadian Armed Forces, Environment & Climate Change Canada and NAV Canada have established processes to mitigate the risks of such interference.

IMPACTS TO AVIATION & RADAR

POSSIBLE IMPACTS

- Wind turbines may be obstacles to aircraft which can affect flight paths or aerodrome operations.
- Interference may disturb critical communications, navigation and weather radars.
- Radar and aerodromes support core public priorities, including those related to public safety and national defence.
- Insufficient coordination between proponents and radar/aerodrome operators may result in risks to public safety.

BCER POLICY INTENT

The regulatory framework will ensure proponents coordinate effectively with operators of critical radar and telecommunications infrastructure. The framework will ensure applicants coordinate with aviation authorities and operators to evaluate and minimize risks to local aircraft.

POSSIBLE OPTIONS

- Require proponent to consult with any radar/aerodrome operators within a prescribed distance.
- Require proponent to consult all federal authorities who operate core radar systems in Canada.
- Require submission of “consent letter” (commonly provided by such authorities) at time of application.

COST RECOVERY

- The BCER operates as a cost-recoverable organization. Regulated parties fund regulatory oversight through payment of levies and fees.
- This cost recovery model has long-standing precedence in the BCER's oversight of other energy resource activities, such as oil and gas.
- A cost recovery model minimizes costs for taxpayers while ensuring robust regulatory oversight.
- The BCER closely evaluates fee and levy amounts to ensure they accurately reflect the costs of regulatory oversight and are fairly apportioned amongst permit holders.

COST RECOVERY

POSSIBLE IMPACTS

- Project proponents will be subject to fees and levies on both a one-time and ongoing basis.
- Fee and levy amounts can impact the competitiveness of individual proponents and the industry at large.
- Insufficient fee and levy amounts impact the BCER's ability to operate.

BCER POLICY INTENT

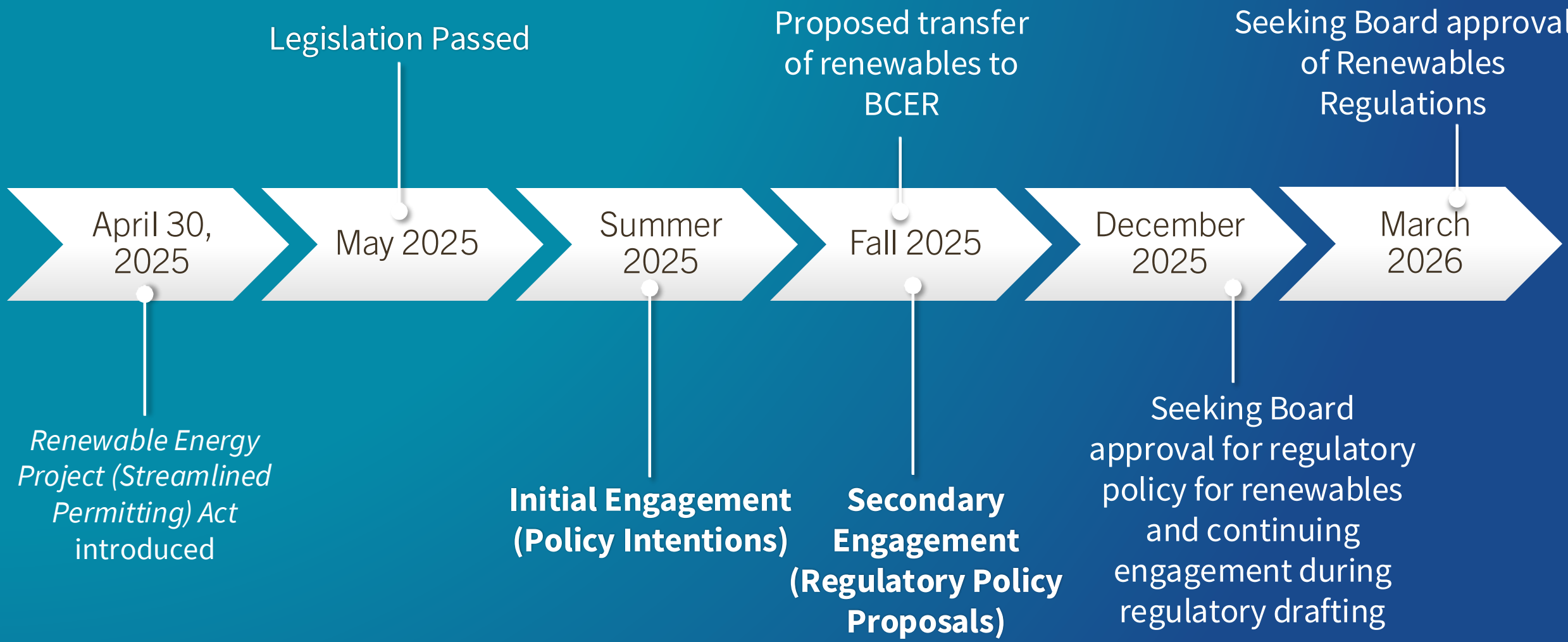
The regulatory framework will ensure cost recovery allows for robust oversight of renewable energy projects, including review and enforcement of authorizations under Provincial legislation.

MECHANISMS FOR COST RECOVERY

- Implement "application fees" to recover the cost of authorizations and permit review.
- Implement "operational levies" to recover the cost of ongoing regulatory oversight.
- Implement "service fees" for regulatory services provided, such as inspections.

THE PATH FORWARD

LEGISLATIVE & REGULATORY TIMELINE



Summary

- Wind and solar energy projects may have impacts on the environment and communities around them.
- Risks associated with these activities are well understood and a range of options to avoid, mitigate or repair these impacts are available.
- As a full lifecycle regulator for energy activities, BCER intends to develop a regulatory framework that will ensure projects meet a high standard of environmental protection, public safety and supporting community well-being and reconciliation.

We welcome input and feedback from all interested parties.

Please reach out to info@rep-spa.ca

BCER
BRITISH COLUMBIA ENERGY REGULATOR

Scan here to see our Strategic Plan on a Page (S-PoP)