NEW RELATIONSHIP TRUST
Empowering First Nations in British Columbia

BC Indigenous Clean Energy Initiative (BCICEI)

Community Energy Plan Checklist

A Community Energy Plan (CEP) is a long-term plan to meet a community's future energy needs while improving energy efficiency, reducing greenhouse gas (GHG) emissions, and fostering local sustainable and community-supported energy solutions. A CEP – sometimes also referred to as a Community Energy and Emissions Plan (CEEP) – is a tool to document the current landscape of energy use and GHG emissions in a community, as well as chart a path towards achieving the community's energy and emissions goals. An effective CEP identifies opportunities to meet both demand and supply-side objectives while enabling community priorities related to capacity building, economic development, and environmental stewardship.

This CEP checklist has been developed with partners and is based on emerging best practices. While not every item on this checklist is a requirement of all CEPs, there is value in having a comprehensive assessment to develop a strong and actionable plan that can be updated regularly. This checklist represents current best practices that communities and consultants may use to develop a scope of work. The BCICEI Program recommends that CEP development includes, but is not limited to, the following:

Background

This section is to provide an overview of the community, its history as well as its goals and priorities.

1. Executive Summary
2. Community introduction by Council / Advisory Board / Community Champion(s) etc.
3. Review of any existing CEP or other relevant study (CEEP / CCP / etc.)
4. Description of CEP Methodology
5. Community Overview:
    a. Location & Geography
    b. General Description, History, Population
    c. Governance & Public Services
    d. Local Economy
    e. Local environment, Weather, Climate, Potential future climate implications
6. Community Goals & Values:
    a. Sustainable Development Vision & Energy Goals
    b. Objectives
    c. Purpose of CEP

Community Energy Use Overview

This section presents an overview of the community's current energy use. It can be as basic as summarizing the total residential and community building energy consumption and costs, or it can include any to all of the details below. It can also include a summary of any activities to reduce community energy use completed to date.

1. Current Energy Load Profile
    a. Electricity Load baseline:
        i. Data collection methodology (preferably metered)
        ii. Number of metered buildings in community

iii. Demand: residential, commercial and industrial
iv. Statistics: peak, average, low and annual demand

b. Thermal/Heating Load:
i. Data collection methodology
ii. Source of heat (natural gas and other i.e. - diesel, woodstove, heating oil etc.)
iii. Demand: residential, commercial and industrial
iv. Statistics: peak, average, low and annual demand

2. Future Energy Load Forecast (near and long term):
a. Potential growth and associated new construction (residential, commercial and industrial)

Demand Side Management (DSM) and Energy Efficiency – Analysis

Demand side actions tend to be the most economically feasible actions in improving sustainability of energy systems while energy efficiency opportunities can reduce consumption and help lower bills.

3. Identification of DSM opportunities – Residential:
a. Detailed energy assessment of a representative number (10-15%) of community homes
b. Recommendations for upgrades which consider insulation, space and water heating equipment, control & lighting systems, appliances, hot water system measures, ventilation, and energy related safety measures
c. Financial analysis of recommended options (including estimated cost of implementation, estimated energy savings, payback period)
d. Extrapolation from assessed homes to generate and prioritize recommended upgrades for the community based on:
i. Community priorities and vision
ii. Consideration for renewable energy generation supply
iii. Funding availability
iv. Logistical considerations

4. Identification of DSM opportunities - community/commercial buildings:
a. Description of the types of commercial/community buildings
b. Detailed energy assessment (ASHRAE Level 2 where possible) of at least 1 community building
c. Identification of appropriate upgrades to be considered for each type of community building
d. Engagement with community on issues and needs (for example, ventilation concerns, occupancy, future use)
e. Identification of where further analysis may be required

Demand Side Management (DSM) and Energy Efficiency – Planning & Implementation

5. Creation of community-wide implementation scenarios:
a. Consideration of community priorities, funding and other logistical factors to generate planning scenarios for the implementation of community DSM initiatives:
i. Should include: estimated energy savings, load impacts and implementation costs of each scenario
ii. May include recommendation for community-wide implementation of upgrades that require a common piece of equipment, and bundles of upgrades for ‘typical’ homes to be completed in phases
b. Implementation plan: identify the community’s preferred DSM scenario and devise a plan for its implementation:

i. High-level analysis of potential available funding including pertinent information related to funding cycles and intakes, funding gaps, phasing consideration and other logistical issues related to implementation
ii. High-level quotes or bulk purchasing possibilities for preferred DSM activities
iii. Discussion of barriers to implementation & proposed mitigation actions
iv. Identification of opportunities for local hiring and capacity building

Renewable Energy Generation

Communities may be interested in developing their own renewable energy generation projects. If the community is interested in this scope of opportunities, the analyses outlined below are a good starting place in moving towards such projects. If a community has already completed these steps, may use this section of the CEP to summarize the most current feasibility analysis for projects under consideration. Analysis should reflect that opportunities for renewable energy projects will depend on the current clean energy market in BC.

6. High-level overview of grid and infrastructure as it relates to potential project development:
    a. Grid capacity and limitations
    b. Transmission & distribution system overview
7. Summarize any previous studies pertaining to renewable energy in the community
8. Desktop renewable energy pre-feasibility assessment, including hydroelectric, solar PV, wind, bioenergy and geothermal, etc. This list can be adjusted or added to based on the location, needs, and wants of the community. For example, some communities may wish to explore hydrogen, tidal and wave energy using industry software such as HOMER, PVSyst, Windographer, etc. Assessment can include:
    a. Site suitability
    b. Resource assessment (i.e. wind speed data, PV shading analysis, biomass and/or hydrogen feedstock study)
    c. Technological maturity
    d. Financial analysis (including total capital cost, expected lifespan, revenue, Net Present Value (NPV), Payback Period, Levelized Cost of Energy (LCOE), and jobs created etc.)
    e. High-level overview of Operations &Maintenance (including human resources, costs etc.)
9. Analysis of scale and scope of potential projects including consideration of opportunities for load displacement, self-generation, community generation, and selling power to the grid
10. Battery and energy storage analysis
11. Communities may want to consider:
    a. Permitting requirements for renewable energy projects
    b. High-level cost estimate of extending the provincial electricity transmission and/or distribution to bring the community on-grid as per BC First Nations Climate Strategy and Action Plan
    c. Clean Transportation (i.e. Zero Emission Vehicles (ZEVs) and marine electrification)

Renewable Energy Generation – Planning & Implementation

12. Strategy for renewable energy development based on above
13. Implementation timelines and considerations
14. Renewable energy risk assessment
15. Funding opportunities
16. Utility interconnection assessment
17. Alignment of options with community visions identified earlier

Community Engagement, Jobs, and Education

18. On-going Community Engagement:
    a. Community engagement plan
    b. Collaboration with other departments (i.e. housing, land, negotiations, etc.)
    c. Communications plan
    d. Plan for regular updates to CEP and reporting back to the community with each update
19. Capacity building opportunities that may include:
    a. Community employment
    b. Community skill development
    c. Community education & material/resource development (i.e. energy literacy, website)
20. Description of site visits that may include:
    a. Community-wide kick-off meeting
    b. Data collection
    c. Results presentation

Additional Sections (can be included based on priorities & preferences)

21. GHG emissions inventory
22. Assessing and identifying other infrastructure needs in communities to protect community and ecosystem health, and reduce GHG emissions and reliance on fossil fuels as per BC First Nations Climate Strategy and Action Plan
23. Analysis of energy consumption for transportation
24. Climate Change Adaptation & resilience
25. An exploration of carbon offsets to build sustainable revenue streams for communities

Implementation & Next Steps

26. Recommendations:
    a. Strategy for near/medium/long-term implementation planning of either DSM or REG projects, or both
    b. High level cost/benefit analysis
    c. Actionable Implementation Plan(s) including timeline and high-level budget
    d. Ongoing community engagement plan
    e. Roles & responsibilities for implementation
    f. Timeline for future updates of the CEP and ongoing community engagement