

# INDUSTRY REPORT

## SOUTHEAST ALBERTA RENEWABLE ENERGY STRATEGY



**Brooks Solar Project – Elemental Energy**  
Photo courtesy of Elemental Energy

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**An initiative of the Southeast Alberta Energy  
Diversification Strategy (SEEDS) group**

# INDUSTRY REPORT

## SOUTHEAST ALBERTA RENEWABLE ENERGY STRATEGY

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The **Southeast Alberta Energy Diversification Strategy (SEEDS)** group is focused on engaging with the renewable energy industry to determine how we can support the industry to grow and thrive in Southeast Alberta.

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The SEEDS group is comprised of the following organizations in Southeast Alberta:

**Alberta Labour**  
**APEX Regional Innovation Network of Southeast Alberta**  
**City of Brooks**  
**City of Medicine Hat**  
**Community Futures Entre-Corp**  
**County of Newell**  
**Economic Development Alliance (EDA) of Southeast Alberta**  
**Medicine Hat College**



Strategy reports prepared for the SEEDS group by:  
**Sandra Moore Consulting**



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## EXECUTIVE SUMMARY

The **Southeast Alberta Renewable Energy Strategy** will support the growth of the renewable energy industry in SE AB. Based on stakeholder input, this strategy provides a framework for coordinating activities, collaborating with other stakeholders and partners, raising awareness and education, providing resources and support, marketing and promoting, and fostering further development and innovation for the renewable energy industry in Southeast Alberta (SE AB).

The **Southeast Alberta Renewable Energy Strategy** is comprised of the following four reports released by SEEDS in 2018 focused on the renewable energy industry, workforce, and related economic development in SE AB:

1. **Industry Report**
2. **Workforce Report**
3. **Innovation and Supply Chain Report**
4. **Moving Forward Report**

This first report – the **Industry Report** – focuses on opportunities and challenges identified by the renewable energy industry and community stakeholders in SE AB, organized into the following four priority themes:

1. Advocacy, Networking, and Promotion
2. Community Awareness and Readiness
3. Industry Regulation and Workforce Development
4. Innovation and Investment

Based on this information, this report provides five recommendations:

1. **Establish the SE AB Energy Diversification (SEEDS) group as a regional industry coalition** comprised of regional renewable energy industry and community stakeholders.
2. **Develop a plan to market and promote renewable energy in SE AB** to communities and the renewable energy industry.
3. **Support the development of the renewable energy workforce and build local expertise and capability** in the renewable energy industry to support and promote careers in renewable energy to traditional and non-traditional pools of labour.
4. **Provide resources and support to develop a better understanding of the renewable energy industry in SE AB** and the impact it has on regional businesses and economic development.
5. **Foster a renewable energy market in SE AB** that supports and attracts both large-scale and small-scale renewable energy development, innovation, investment, and research.



## FOREWORD

The **Southeast Alberta Renewable Energy Strategy** will be comprised of four reports focused on the renewable energy industry, workforce, and related economic development in SE AB. These will include:

1. Industry Report
2. Workforce Report
3. Innovation and Supply Chain Report
4. Moving Forward Report

This first **Industry Report** is focused on the renewable energy industry in SE AB and was developed from facilitated group discussions and one-on-one discussions from June to September 2017.

The author and the SEEDS group would like to thank the following representatives from the renewable energy industry, training institutions, government, and economic development organizations in SE AB who participated in these discussions<sup>1</sup>.

### INDUSTRY STAKEHOLDERS

- Action Land and Environmental Ltd.
- Advanced Energy Advisors
- Canadian Solar
- CanSIA
- CanWEA
- CarbonBite Innovations
- CHINT
- City of Medicine Hat
- EQUUS Rural Electrification Association
- Elemental Energy
- Green Cat Renewables Canada
- Global Raymac Surveys
- Industrial Research Assistance Program
- K-Line Maintenance and Construction
- Medicine Hat Construction Association
- Moore Energy Solutions
- QuickWay Electrical
- RES
- Scott Land
- SITE
- Solagra
- Temporis Development
- Terralta
- Thurber Engineering Ltd.

### COMMUNITY STAKEHOLDERS

- Alberta Apprentice & Industry Training
- Alberta Economic Development & Trade
- Alberta Innovates
- Allen McClelland
- APEX RIN
- Canadian Home Builders Association
- City of Brooks
- City of Medicine Hat
- Community Futures Entre-Corp
- County of Forty Mile
- County of Newell
- Cypress County
- Cypress-Medicine Hat Constituency Office
- Destination Marketing Organization
- Economic Development Alliance of SE AB
- Invest Medicine Hat
- Medicine Hat College
- Medicine Hat Constituency Office
- Palliser Economic Partnership
- Special Areas
- Town of Bow Island

<sup>1</sup> Some stakeholders who participated in consultations may not be listed above.

## BACKGROUND

**ALBERTA IS ENERGY.** Over the past century, the fossil fuel energy industry has significantly impacted Alberta's economic growth and prosperity. Fossil fuels are a vital component of the Canadian economy and essential for heating and cooling homes, powering industrial manufacturing, providing residential and commercial electricity, and fueling ground, air, and sea transportation.

Globally, 94 billion barrels of oil are required daily to fulfill society's energy demand<sup>2</sup>. Alberta's oil sands can meet only 2.5 billion barrels of this demand daily<sup>3</sup>. **As global energy demands continue to increase, additional sources of energy will be required.** Currently, throughout the world, most energy is produced from non-renewable fossil fuels (oil, coal, gas). However, the burning of these fuels contributes to climate change and increased greenhouse gas emissions.

In Canada, federally and provincially, climate change policies are being enacted to decrease greenhouse gas emissions and encourage the use of alternative sources to meet increasing energy demands. This has led to an increased focus on investing in renewable or clean energy sources - such as biomass, geothermal, solar, and wind - and increased energy efficiency for industrial, commercial, and residential applications.

**Over the next decade, renewable energy will provide new opportunities for diversifying Alberta's energy sources, workforce, and economy.** Growing energy demand in Alberta can be met by a combination of non-renewable and renewable energy sources. **Alberta, specifically SE AB, has some of Canada's best solar and wind resources.** In recent years renewable energy capital costs have decreased drastically, and as the Canadian Wind Energy Association (CanWEA) illustrates, wind energy "... provides consumers with a hedge against fluctuating natural gas prices and rising carbon costs<sup>4</sup>".

Diversifying Alberta's energy workforce is beneficial for helping workers displaced by recent global downturns in the fossil fuel energy industry. Skills obtained in non-renewable energy industries are often transferable to renewable energy industries; electricians are needed for solar panel installations, welders for wind turbine construction, and drilling engineers for geothermal. Renewable energy projects in SE AB will not only create employment opportunities, but will also increase municipal tax bases and provide extra income to landowners.

## SEEDS History

The SEEDS group began in 2016 as a collaboration between three organizations – **Alberta Labour, Economic Development Alliance (EDA) of SE AB,** and **Medicine Hat College** – to better understand the impacts the emerging renewable energy industry would have on economic development and the labour force in SE AB. In late 2016, the SEEDS group commissioned the *Southeast Alberta Energy Diversification Report: Our Region, Our Jobs, Our Communities*<sup>5</sup> report.

As the report illustrates, 35 out of 85, or **41%**, of **proposed large-scale** (over 1MW) solar and wind energy projects on the Alberta Electric System Operator (AESO) in Alberta as of December 31, 2016 **are in the SE AB region.** Renewable energy developers are attracted to SE AB because of the region's

<sup>2</sup> International Energy Agency (2016). World Energy Outlook 2016. ISBN Print: 978-92-64-26494-6

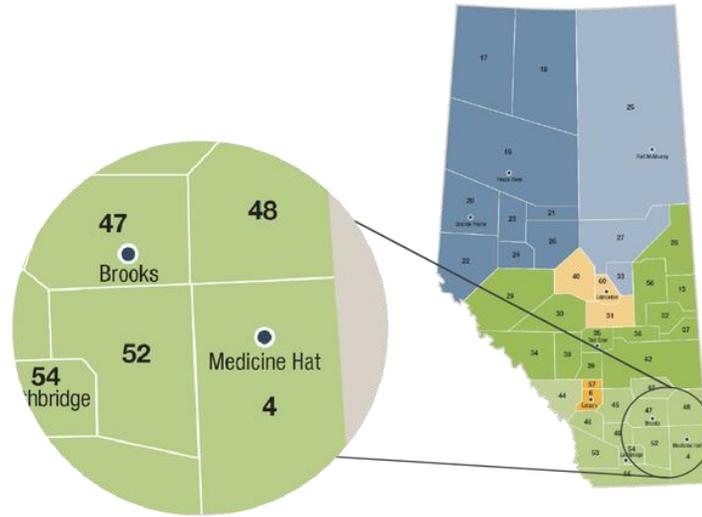
<sup>3</sup> Alberta Energy (2017). About Oil Sands: Facts and Statistics. <http://www.energy.alberta.ca/OilSands/791.asp>

<sup>4</sup> CanWEA (2017). Wind Energy in Alberta. <https://canwea.ca/wind-energy/alberta/>

<sup>5</sup> Moore, Sandra. (2017). Southeast Alberta Energy Diversification Report: Our Region, Our Jobs, Our Communities. Economic Development Alliance of Southeast Alberta: Medicine Hat, Alberta.

[http://www.seedsalberta.ca/uploads/1/0/9/3/109320257/southeast\\_alberta\\_energy\\_diversification\\_report\\_march\\_2017.pdf](http://www.seedsalberta.ca/uploads/1/0/9/3/109320257/southeast_alberta_energy_diversification_report_march_2017.pdf)

abundant solar and wind resources and its lengthy history as an energy region. Many in SE AB are familiar with energy development procedures (e.g. lease payments) and are skilled energy workers from the oil and gas industry, with skills that are transferable to the renewable energy industry.



**Figure 1.** SE Alberta region – comprised of four planning areas identified by AESO<sup>6</sup>.

Using formulas developed by the **Canadian Solar Industry Association (CanSIA)** and the **Canadian Wind Energy Association (CanWEA)**, the *estimated* impact of these 35-proposed solar and wind projects in SE AB, over the next two decades, could result in<sup>7</sup>:

- Over **\$7 billion** in investment.
- Over **10,000 temporary** full time equivalent jobs in development and construction.
- Close to **400 permanent jobs** in operations and maintenance.
- Close to **\$6 million in lease payments** to rural landowners.
- Over **\$7.5 million in property tax payments** to rural municipalities.

The impacts identified in this report and the recommendation that a formal group be developed in the region to proactively support and grow the renewable energy industry in SE AB, contributed to the SEEDS group expanding to include the **City of Brooks, City of Medicine Hat, County of Newell, APEX Regional Innovation Network, and Community Futures Entre-Corp.**

## Renewable Energy in Alberta

Currently, renewable energy industries are in rapid growth mode in Alberta. In the recently released *Climate Leadership Plan*, the Alberta government has committed to 30 percent of the provinces' energy production being produced by renewables by 2030<sup>8</sup>. This includes the Renewable Electricity Program (REP), implemented and administered by the Alberta Electricity Systems Operator (AESO). Through a

<sup>6</sup> AESO (2016). AESO Transmission Planning Areas <https://www.aeso.ca/assets/Uploads/PlanningRegions-Nov26-PRINT.pdf>. SE AB includes the following four planning areas: **Area 4** includes Medicine Hat, Schuler, Seven Persons; **Area 47** includes Brooks and Bassano;; **Area 48** includes Jenner and Oyen; **Area 52** includes Vauxhall, Burdett, and Bow Island.

<sup>7</sup> Moore, Sandra. (2017). Southeast Alberta energy diversification report: Our region, our jobs, our communities. *Economic Development Alliance of Southeast Alberta*: Medicine Hat, Alberta. <http://www.seedsalberta.ca/region.html>

<sup>8</sup> Alberta Government (2015). Climate Leadership Plan will protect Albertans' health, environment, and economy. <https://www.alberta.ca/release.cfm?xID=38885E74F7B63-A62D-D1D2-E7BCF6A98D616C09>

series of competitions, this program is intended to encourage the development of 5,000 megawatts (MWs) of renewable electricity generation capacity connected to the Alberta grid by 2030<sup>9</sup>.

The Alberta *Climate Leadership Plan* also outlines strategies to reduce greenhouse gas emissions including carbon pricing with revenues invested directly to green energy research and innovation, pollution reduction, green infrastructure, and energy efficiency programs for Albertans to reduce their energy consumption. These strategies will reduce emissions, grow Alberta’s economy, and introduce new employment opportunities for Albertans.

**Renewable Energy in SE Alberta**

On December 13, 2017 the Government of Alberta announced the first round of REP projects. This first REP round set a record in Canada for the lowest renewable electricity pricing; nearly 600 MW of wind energy generation in southern Alberta from three companies at a weighted average bid price of \$37/MWh<sup>10</sup>. Two of the successful wind energy projects are in SE AB; the Capital Power 201 MW wind farm in Whitla, and the EDP Renewables 248 MW Sharp Hills wind farm in the Oyen area.

Using formulas developed by CanWEA, the estimated impacts for these two REP wind projects in SE AB could result in<sup>11</sup>:

	<b>Capital Power - Whitla Wind Farm</b>	<b>EDP Renewables – Sharp Hills Wind Farm</b>	<b>Total for both projects</b>
<b>Investment</b>	\$423,440,000	\$522,453,333	<b>\$945,893,333</b>
<b>Full-time equivalent temporary construction jobs</b>	188	232	<b>420</b>
<b>Permanent operations and maintenance jobs</b>	13	17	<b>30</b>
<b>Lease payments to landowners over 20 years</b>	\$22,780,000	\$28,106,667	<b>\$50,886,667</b>
<b>Property tax payments to the municipality over 20 years.</b>	\$41,540,000	\$51,253,333	<b>\$92,793,333</b>

Additionally, the supply chain of the wind industry in Alberta is comprised of over 65 industries including various trades, engineering, transportation, and logistic industries<sup>12</sup>. As with any capital project, these two projects will create temporary construction jobs, approximately 420, that will benefit many trades

<sup>9</sup> AESO (2016). Renewable Electricity Program. <https://www.aeso.ca/market/renewable-electricity-program/>

<sup>10</sup> AESO (2017). REP Round 1 Results. <https://www.aeso.ca/market/renewable-electricity-program/rep-round-1-results/>

<sup>11</sup> Sandra Moore (2017). Welcoming the Wind Energy Industry to SE Alberta. <https://www.linkedin.com/pulse/welcoming-wind-energy-industry-se-alberta-sandra-moore/>

<sup>12</sup> Delphi Group (2017). Alberta Wind Energy Supply Chain Study. Prepared for CanWEA <https://canwea.ca/wp-content/uploads/2017/09/Delphi-AB-Wind-Supply-Chain-Study-Final-Report.pdf>

industries in SE Alberta. Furthermore, upwards of 30 permanent, good paying, quality, local jobs will be created in operations and maintenance from these two wind energy projects.

Currently, the 6MW *Box Springs Wind Farm*, consisting of three wind turbines, is the only wind energy project in the SE AB region. In 2014, the City of Medicine Hat installed these three turbines through a 20-year public-private partnership with the Box Springs Wind Corporation<sup>13</sup>. The Corporation built and maintains the wind farm, while the City purchases all the electricity generated and receives the carbon credits from the project to offset emissions from their municipally-owned power plant. The City has the option to take over the wind farm after the 20-year period of the partnership.

Beyond the wind energy industry, the solar energy industry is also developing in SE AB. Elemental Energy's 15MW *Brooks Solar Farm* is the first utility scale solar project in Western Canada<sup>14</sup>. The 50,000 solar panels in this project, adjacent to the westbound lanes of the TransCanada Highway, will be able to provide power to over 3,000 homes<sup>15</sup>. In a CBC news article describing the project, Elemental Energy's Graeme Millen states, "This area is agriculture and oil and gas, but it's really just resources. [Solar] is just another resource... With the shared uses on this property between oil and gas, fibre optic, agricultural irrigation — it's a fantastic showcase for diverse resource development on Alberta land<sup>16</sup>."

Small-scale solar is also being developed in the region. In 2016, as part of the Alberta Municipal Solar Program, the City of Medicine Hat added 4.5kW to the 1kW solar PV system on the Medicine Hat Public Library's roof<sup>17</sup>. In 2009, the City also commissioned a 6.2kW solar PV system for the Family Leisure Centre, which was upgraded in 2014<sup>18</sup>. Since 2008, through the City of Medicine Hat's award-winning municipal energy conservation incentive program *Hat Smart*, residential City of Medicine Hat Electric and Natural Gas Utility customers have had access to rebates for energy upgrades to their homes<sup>19</sup>. In 2017 these items included attic insulation, drain water heat recovery, and solar electric panels.

Additional large-scale solar projects are proposed throughout SE AB. C&B Alberta Solar Development ULC has numerous solar projects planned in the region near the communities of Tilley, Duchess, Suffield, Jenner, and Hays<sup>20</sup>. Additionally, the Medicine Hat College is working to develop a micro-grid "... that will provide a space for clean tech entrepreneurs to develop and test their products" and the College also received funding in late 2017 from the Alberta Government Community and Regional Economic Support (CARES) program "... to create an adaptable solar canopy with electric vehicle charging capabilities".<sup>21</sup>

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<sup>13</sup> City of Medicine Hat (2017). Box Springs Wind Farm. <https://www.medicinehat.ca/government/departments/utility-sustainability/hat-smart/city-initiatives/box-springs>

<sup>14</sup> Elemental Energy (2017). Projects. <http://elementalenergy.ca/projects/>

<sup>15</sup> Kyle Bakx (2017). Alberta renewable revolution begins with launch of largest solar project in Western Canada. <http://www.cbc.ca/news/business/brooks-solar-newell-elemental-energy-1.4458277>

<sup>16</sup> Kyle Bakx (2017). Alberta renewable revolution begins with launch of largest solar project in Western Canada. <http://www.cbc.ca/news/business/brooks-solar-newell-elemental-energy-1.4458277>

<sup>17</sup> City of Medicine Hat (2017). Medicine Hat Public Library Solar Electric. <https://www.medicinehat.ca/government/departments/utility-sustainability/hat-smart/city-initiatives/medicine-hat-public-library>

<sup>18</sup> City of Medicine Hat (2017). Family Leisure Centre Solar Electric. <https://www.medicinehat.ca/government/departments/utility-sustainability/hat-smart/city-initiatives/family-leisure-centre>

<sup>19</sup> City of Medicine Hat (2017). Hat Smart. <https://www.medicinehat.ca/government/departments/utility-sustainability/hat-smart>

<sup>20</sup> C & B Alberta Solar Development ULC (2017). <http://www.jennersolar.com/CBA.html>

<sup>21</sup> Tracy Stroud (2017). Business Beat: Wins for the region are wins for local entrepreneurs. <http://medicinehatnews.com/life/careers/2017/11/29/business-beat-wins-for-the-region-are-wins-for-local-entrepreneurs/>

## Southeast Alberta Renewable Energy Strategy

The seeds are being planted for the renewable energy industry to become a reliable and efficient way to diversify Alberta's energy supply and workforce. Abundant solar and wind resources, a federal government focus on clean energy, new Alberta government incentives, regulations, and programs, and decreasing costs for renewable energy development are driving the rapid development of the renewable energy industry in Alberta.

Since SE AB has some of Canada's best solar and wind resources, it makes sense that this region would be ideal for both large and small-scale solar and wind energy projects. The SEEDS group aims to engage with the renewable energy industry to determine how SEEDS can support the industry to grow and thrive in SE AB. The first step identified by SEEDS was to gather feedback from the renewable energy industry and relevant community stakeholders in SE AB to develop a **Renewable Energy Strategy** for the region.

Based on feedback from stakeholders, we know that the renewable energy industry in SE AB is currently focused on solar and wind. Communities within SE AB have been approached by companies working in geothermal and bio-energy. However, the validity of geothermal in our region has been questioned<sup>22</sup> and bio-energy projects, like Saskatoon's *Landfill Gas Collection & Power Generation System*<sup>23</sup>, are just beginning to be explored in SE AB. Hence, this strategy will focus primarily on the solar and wind industries in SE AB.

The **Southeast Alberta Renewable Energy Strategy** provides an overview of the opportunities and challenges of the emerging renewable energy industry in SE AB. It also aims to provide a framework - from renewable energy stakeholders in SE AB, primarily industry stakeholders - for growing a thriving renewable energy industry in SE AB.

This **Industry Report** is the first report in a series of four reports included in the **Southeast Alberta Renewable Energy Strategy**. It focuses on identifying opportunities, challenges, and priorities for the renewable energy industry in SE AB.

The second report – the **Workforce Report** – focuses on renewable energy careers and workforce development in SE AB. The third report – the **Innovation and Supply Chain Report** - focuses on innovation and regional economic development impacts from the emerging renewable energy industry in SE AB. The final report in the strategy – the **Moving Forward Report** – summarizes the three preceding reports and provides an analysis of proposed renewable energy projects in SE AB and their related economic impacts.

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<sup>22</sup> Kalinowski, Tim. (2017). Geothermal Alberta a real possibility, says expert. Medicine Hat News. <http://medicinehatnews.com/news/local-news/2017/09/28/geothermal-alberta-a-real-possibility-says-expert/>

<sup>23</sup> City of Saskatoon. (2017). Clean Power Generation Initiatives. <https://www.saskatoon.ca/services-residents/power-water/saskatoon-light-power/clean-power-generation-initiatives>

## STAKEHOLDER FEEDBACK

Between June and September of 2017, the SEEDS group hosted stakeholder engagement sessions in Medicine Hat. The industry stakeholder engagement session was held on June 22<sup>nd</sup> and a community stakeholder engagement session was held on September 21<sup>st</sup> at Medicine Hat College. The author of this report also conducted individual discussions with stakeholders who were unable to attend these sessions.

These stakeholders identified **opportunities** associated with renewable energy development in SE AB including;

- the abundance of strong solar and wind resources (some of the best in Canada) and land opportunities,
- the opportunity to diversify the region's energy industry with the available skilled oil and gas workforce in SE AB,
- the opportunity to attract new renewable energy related development and investment,
- the opportunity for renewable energy training programs in our region,
- provincial focus and incentives for renewable energy projects,
- increased interest from communities for renewable energy projects,
- opportunity to explore renewable energy partnerships with other industries (agriculture, oil and gas, waste management),
- the region's well-developed energy transmission and distribution infrastructure,
- as a rural region electricity demand is not as high as metro areas, this means excess capacities are available for industry development.
- the opportunity for the region to emerge as Alberta's energy region – focused on excellence and innovation in both renewable and non-renewable energy.

Stakeholders also identified **challenges** associated with renewable energy development in SE AB including;

- cost and financing for developers of renewable energy projects,
- limited networking and support services for the industry,
- government policy and decision-making that may not take industry needs and realities into consideration,
- lack of clear definitions and timelines for approval processes,
- limited public/community/landowner awareness and understanding of renewable energy projects and development timelines, and
- underdeveloped or non-existent guidelines and regulations for people working in the industry,

After engaging with stakeholders from the renewable energy industry and communities within SE AB, the following **four priority themes** emerged as a focus for this **Industry Report**:

1. **Advocacy, Networking, and Promotion**
2. **Community Awareness and Readiness**
3. **Industry Regulation and Workforce Development**
4. **Innovation and Investment**

These four priority themes focus on capitalizing on the opportunities and mitigating the challenges identified by stakeholders. Each of the four stakeholder identified priority areas are expanded on in the following sections.

## Advocacy, Networking, and Promotion

Stakeholders identified a need for/to:

INDUSTRY STAKEHOLDERS	COMMUNITY STAKEHOLDERS
<ul style="list-style-type: none"> <li>• Incorporate <b>regional perspectives and feedback</b> on renewable energy projects in SE AB.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Increased understanding of energy in general</b> – transmission lines, generating capacity, storage.</li> </ul>
<ul style="list-style-type: none"> <li>• Advocacy for <b>alignment between municipal, provincial, and federal programs</b>, policy sustainability, and a more consistent and transparent approach to planning and development decisions.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Increased awareness of the renewable energy industry</b>, its technologies, and timelines for projects (approval processes for decommissioning and reclamation).</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Decreased barriers to developing renewable energy projects.</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Greater provincial regulations</b> for the renewable energy industry from development to workforce to decommissioning.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Ensure that the right climate exists in the region</b> for more renewable energy projects to be built.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Increased understanding of the carbon footprint of renewable energy projects.</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>One point of contact</b> for the renewable energy industry in the region.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased understanding of <b>how the renewable energy industry complements or impacts other industries</b> (e.g. agriculture).</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Document in one location</b> proposed, developing, existing, and decommissioned renewable energy projects and companies in SE AB.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Share best practices and resources</b> in one central location and offer opportunities for community stakeholders to engage with one another and other renewable energy stakeholders.</li> </ul>
<ul style="list-style-type: none"> <li>• Increased <b>opportunities for involvement in government consultation processes</b> on renewable energy regulations, permitting, incentives, programs, etc...</li> </ul>	<ul style="list-style-type: none"> <li>• Increased understanding that <b>renewable energy power is not stand-alone</b>, but complementary to other sources for increased power generation.</li> </ul>
<ul style="list-style-type: none"> <li>• Increased <b>opportunities for renewable energy stakeholders to network and explore partnerships</b> – both within the industry and with other industries (oil and gas, agriculture, etc...).</li> </ul>	<ul style="list-style-type: none"> <li>• Increased <b>understanding of renewable energy and changing technologies for community leaders and elected officials.</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>Share best practices and success stories.</b></li> </ul>	<ul style="list-style-type: none"> <li>• A <b>long-term vision</b> for renewable energy in SE AB.</li> </ul>
<ul style="list-style-type: none"> <li>• Create a <b>network of champions</b> to promote and support the renewable energy industry in SE AB.</li> </ul>	<ul style="list-style-type: none"> <li>• Address perceptions of the renewable industry as a competitor with other energy industries; <b>create a level playing field</b> for all forms of energy to thrive in SE AB.</li> </ul>

## Community Awareness and Readiness

Stakeholders identified a need for/to:

INDUSTRY STAKEHOLDERS	COMMUNITY STAKEHOLDERS
<ul style="list-style-type: none"> <li>Increased awareness of the <b>need and potential for renewable energy projects in SE AB</b> among decision makers, landowners, etc...</li> </ul>	<ul style="list-style-type: none"> <li>Increased understanding of <b>how communities and landowners can benefit from, or be impacted by, renewable energy</b> during all phases of development.</li> </ul>
<ul style="list-style-type: none"> <li>Communities and landowners to better understand their <b>capacity to take on large-scale renewable energy projects</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Assessing whether communities and local businesses have the <b>resources to accommodate renewable energy projects</b> (e.g. hospitality, service, trades, etc...).</li> </ul>
<ul style="list-style-type: none"> <li>Increased <b>energy literacy</b> for community leaders and landowners to contribute to a holistic understanding of the duration and processes involved before, during, and after renewable energy projects.</li> </ul>	<ul style="list-style-type: none"> <li>Increased understanding of the <b>impacts of renewable energy projects on land values</b>.</li> </ul>
<ul style="list-style-type: none"> <li>Increased understanding that <b>renewable energy projects do not mimic oil and gas projects</b> (e.g. wind and solar projects are voluntary, landowners are not obligated to participate).</li> </ul>	<ul style="list-style-type: none"> <li>Increased understanding of <b>how renewable energy projects vary from oil and gas projects</b> for landowners and communities.</li> </ul>
<ul style="list-style-type: none"> <li>Greater <b>access to education and planning resources</b> for communities and landowners (e.g. bylaws, rezoning, legal).</li> </ul>	<ul style="list-style-type: none"> <li>Increased understanding of <b>logistics required for renewable projects</b> (e.g. setbacks, adjacent land use, road widening, environmental assessments, proximity to irrigation).</li> </ul>
<ul style="list-style-type: none"> <li>Communities to better understand the <b>benefits of community generated energy projects</b> and how to develop these types of projects in their community.</li> </ul>	<ul style="list-style-type: none"> <li>Focus on <b>community renewable energy projects</b> (e.g. neighbourhood solar panels, community property, etc...).</li> </ul>
<ul style="list-style-type: none"> <li>Communities to have <b>action plans/strategies and by-laws/policies</b> in place for renewable energy development.</li> </ul>	<ul style="list-style-type: none"> <li>Need to address the <b>interactions between communities and landowners</b> – communities do not want to be so prohibitive in their land use bylaws that they step on the toes of landowners who want to have renewable energy projects on their properties.</li> </ul>
<ul style="list-style-type: none"> <li>Capitalize on <b>first movers advantage</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Develop <b>tool-kits and community readiness checklists</b> for renewable energy development for communities.</li> </ul>

<ul style="list-style-type: none"> <li>• <b>Market renewables</b> to various groups within the region Hutterites, First Nations, etc...</li> </ul>	<ul style="list-style-type: none"> <li>• Increased <b>collaboration and cooperation</b> between communities in the region.</li> </ul>
<ul style="list-style-type: none"> <li>• List of <b>communities who are prepared and ready</b> to take on renewable energy projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased <b>sharing of best practices and resources</b> among communities (e.g. bylaws, plans, etc...).</li> </ul>
<ul style="list-style-type: none"> <li>• Increased <b>economic analysis of renewable energy project impacts</b> in the region.</li> </ul>	<ul style="list-style-type: none"> <li>• Greater <b>understanding for landowners on how they can supplement their income with renewable energy</b> or decrease their own energy costs.</li> </ul>

## Industry Regulation and Workforce Development

Stakeholders identified a need for/to:

INDUSTRY STAKEHOLDERS	COMMUNITY STAKEHOLDERS
<ul style="list-style-type: none"> <li>• <b>Clear regulations</b> on who is qualified to work on specific renewable energy projects – from land agents to solar installers.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Clear and consistent regulations</b> on who is qualified to develop, install, and maintain renewable energy projects from land agents to solar installers.</li> </ul>
<ul style="list-style-type: none"> <li>• Need for a <b>renewable energy workforce strategy</b> for the SE AB region</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding of <b>what types of jobs exist in the renewable energy industry</b> and the number of people the renewable energy industry will employ in SE AB.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Training providers and career practitioners should engage with the industry</b> to develop training programs for entry-level workers and transition programs for workers with experience in other industries (trades, oil and gas, etc...).</li> </ul>	<ul style="list-style-type: none"> <li>• Greater understanding of <b>what training is required</b> for various careers in the renewable energy industry and where this training can be obtained.</li> </ul>
<ul style="list-style-type: none"> <li>• Interest in the <b>development of mentorship, apprenticeship, or internship programs</b> to help workers become more aware of careers in renewable energy.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Develop renewable energy training programs</b> at Medicine Hat College, expand trades programming to incorporate renewable energy components.</li> </ul>
<ul style="list-style-type: none"> <li>• Develop a <b>skilled, localized renewable energy workforce.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Explore options for encouraging renewable energy developers to use the <b>local workforce.</b></li> </ul>
<ul style="list-style-type: none"> <li>• Increased support for employers to <b>attract and retain local employees</b> and provide training.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased <b>understanding of the timeline</b> required for developing a skilled renewable energy workforce in SE AB.</li> </ul>
	<ul style="list-style-type: none"> <li>• Develop an <b>industry-led association in SE AB</b> to support the renewable energy industry workforce.</li> </ul>

## Investment and Innovation

Stakeholders identified a need for/to:

INDUSTRY STAKEHOLDERS	COMMUNITY STAKEHOLDERS
<ul style="list-style-type: none"> <li>Promote the growth of the renewable energy industry to <b>position SE AB as a leader in renewable energy</b> – provincially and nationally.</li> </ul>	<ul style="list-style-type: none"> <li>Develop <b>SE AB as the provincial and national capital for renewable energy innovation</b>, with Medicine Hat as the central hub for the region.</li> </ul>
<ul style="list-style-type: none"> <li>Greater <b>access for financing specific to the renewable industry</b> (e.g. industry specific funding that takes bankable revenue and carbon offsets into consideration).</li> </ul>	<ul style="list-style-type: none"> <li>Explore <b>opportunities for current industries to capitalize on renewable energy</b> development and technologies (e.g. agriculture, bio-energy).</li> </ul>
<ul style="list-style-type: none"> <li>More large-scale renewable energy projects <b>incorporating local supply-chain industries</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Greater understanding of gaps and <b>how local companies can enter the supply-chain</b> for renewable energy projects.</li> </ul>
<ul style="list-style-type: none"> <li>More <b>public/private partnerships</b> and co-ops for renewable energy projects.</li> </ul>	<ul style="list-style-type: none"> <li>Encourage innovation and <b>provide opportunities for people to collaborate</b> and space for them to be innovative.</li> </ul>
<ul style="list-style-type: none"> <li><b>Additional transmission lines</b> to be built by private contractors.</li> </ul>	<ul style="list-style-type: none"> <li>Explore <b>opportunities for attracting renewable energy manufacturing and distribution</b> facilities in SE AB.</li> </ul>
<ul style="list-style-type: none"> <li>Increased <b>municipal incentives for residents/businesses (Hat Smart) and subdivision development</b> incorporating/promoting renewable energy technology.</li> </ul>	<ul style="list-style-type: none"> <li>Develop <b>energy friendly communities</b> in SE AB.</li> </ul>
<ul style="list-style-type: none"> <li><b>Greener building codes, subdivisions, and industries</b> (e.g. greenhouses).</li> </ul>	<ul style="list-style-type: none"> <li>Explore potential for <b>additional renewable energy development in the region beyond wind and solar</b>.</li> </ul>
<ul style="list-style-type: none"> <li>Develop better <b>distribution and transportation channels</b>.</li> </ul>	<ul style="list-style-type: none"> <li><b>Improved roads and border crossings</b> to attract renewable energy development projects to the region.</li> </ul>
<ul style="list-style-type: none"> <li>Increased <b>demonstration and hybrid projects</b>. (e.g. wind/solar, combined heat and power, microgrids).</li> </ul>	<ul style="list-style-type: none"> <li>Support for <b>increased research and development</b> in the region (Medicine Hat College).</li> </ul>
<ul style="list-style-type: none"> <li>More <b>opportunities for small-scale companies</b> to interact with larger companies.</li> </ul>	<ul style="list-style-type: none"> <li>Increased understanding of the <b>renewable energy industry supply chain</b> and promotion of opportunities for current businesses in the region to</li> </ul>

	diversify into renewable energy (e.g. local machine fabrication shops).
<ul style="list-style-type: none"> <li>• Explore the <b>supply chain of the solar and wind industries, and the economic boost these chains could provide to regional businesses</b> involved in the supply chain.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Market SE AB's abundant resources (sun, wind) and unique assets</b> (city owned utility, located on 2 major highways and a rail line, low grid saturation) to attract further renewable energy investment.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>List of regional suppliers</b> applicable to the renewable energy industry.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased <b>integration with oil and gas</b> industry.</li> </ul>
<ul style="list-style-type: none"> <li>• Develop <b>standardized process</b> for permitting and clarity around government policy for investors.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a <b>renewable energy business retention and expansion toolkit</b>.</li> </ul>
<ul style="list-style-type: none"> <li>• Increased <b>opportunities for behind the fence<sup>24</sup> and combined heat and power</b> industrial projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Exploration of <b>innovative co-generation projects</b> for new and existing projects (e.g. livestock, waste, greenhouses).</li> </ul>
<ul style="list-style-type: none"> <li>• Increased <b>small-scale</b> development.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Work together as a region to attract investors</b>.</li> </ul>
<ul style="list-style-type: none"> <li>• Increased <b>feasibility assessments</b> (e.g. roof top solar, etc...)</li> </ul>	<ul style="list-style-type: none"> <li>• Explore <b>best practices</b> from other areas doing innovative renewable energy projects (e.g. Saskatoon land fill methane project).</li> </ul>
<ul style="list-style-type: none"> <li>• Develop <b>land plan for renewables</b> (brownfield focus, solar mapping).</li> </ul>	<ul style="list-style-type: none"> <li>• Explore <b>opportunities for utilizing current or decommissioned oil and gas sites</b> for renewable energy projects.</li> </ul>
<ul style="list-style-type: none"> <li>• Better understanding of <b>what the renewable energy industry in SE AB needs as it grows</b> and how regional entrepreneurs can capitalize on these needs.</li> </ul>	<ul style="list-style-type: none"> <li>• Need for <b>increased buy-in of the renewable energy industry from established companies</b> that prefer the status quo of energy in SE AB.</li> </ul>
<ul style="list-style-type: none"> <li>• Increased <b>community generation projects</b>.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a <b>long-term vision</b> for the renewable energy industry in SE AB.</li> </ul>

## RECOMMENDATIONS AND SUGGESTED ACTIONS

This **Industry Report** aims to provide a framework to accelerate the development of a vibrant and innovative renewable energy industry in SE AB. It is also inclusive, driven by consultation with stakeholders from industry, businesses, communities, landowners, and training institutions, within SE AB. It is anticipated that this group of interested stakeholders will continue to grow and contribute to the development of the renewable energy industry in SE AB.

<sup>24</sup> From AESO website - Behind the fence (BTF) projects include those projects requiring work to an existing site currently connected to the Alberta Interconnected Electrical System (AIES). There is no physical change or upgrade to the transmission system required as a result of this project. [https://www.aeso.ca/downloads/Behind\\_the\\_Fence\\_Guidelines.pdf](https://www.aeso.ca/downloads/Behind_the_Fence_Guidelines.pdf)

Based on the stakeholder identified opportunities, challenges, and priorities the author identified the following five recommendations and suggested actions.

RECOMMENDATIONS	SUGGESTED ACTIONS
<p><b>1. Establish the SE AB Energy Diversification (SEEDS) group as a regional industry network or committee comprised of regional renewable energy industry and community stakeholders.</b></p>	<p>The current SEEDS group should play a key leadership role in developing a formalized network or committee, with renewable energy industry stakeholders in SE AB.</p> <p>The <b>SEEDS Association</b>, under the leadership of a director and elected board of directors, will:</p> <ul style="list-style-type: none"> <li>• <b>Use the SEEDS developed strategies as a framework for moving forward</b> and creating additional long-term action and communication plans.</li> <li>• Serve as the main point of contact for industry stakeholders, communities, businesses, individuals, and government interested in learning more about the emerging renewable energy industry in SE AB.</li> <li>• Act as an advocate for the renewable energy industry in SE AB.</li> <li>• Provide an opportunity for regional industry stakeholders to meet regularly to collaboratively identify needs, share information, and discuss opportunities and challenges pertaining to the industry.</li> <li>• Provide learning opportunities for community stakeholders.</li> <li>• Contribute to the development of industry guidelines, standards, and ethics.</li> <li>• Organize industry and community networking events.</li> <li>• Share best practices and promote renewable energy projects in SE AB.</li> <li>• Identify opportunities and pursue funding and collaborations to conduct activities identified within the strategy and from the SEEDS membership.</li> </ul>
<p><b>2. Develop a plan to market and promote renewable energy in SE AB to communities and the renewable energy industry.</b></p>	<ul style="list-style-type: none"> <li>• Create dedicated social media channels to target and share renewable energy information and resources with regional businesses, communities, landowners, governments, and investors (e.g. website, Twitter, etc...).</li> <li>• Provide up-to-date resources and tools for diverse stakeholders (industry, communities, landowners) to help them understand and navigate the renewable energy industry.</li> <li>• Raise community awareness and understanding of the impacts of renewable energy projects through awareness campaigns and social media, work with local media as well.</li> <li>• Participate in community events to raise awareness of RE in SE AB (e.g. Pecha Kucha, trade shows, etc...).</li> <li>• Develop and provide resources to help communities create individual strategies, bylaws, and policies for attracting and working with renewable energy project developers.</li> <li>• Create an online directory of companies looking to work in the region and communities that are ready for renewable energy development.</li> </ul>

	<ul style="list-style-type: none"> <li>• Develop an interactive online map showing where all proposed, planned, current, and decommissioned renewable energy projects are in SE AB.</li> <li>• Encourage strategic community partnerships and planning for renewable energy projects.</li> <li>• Showcase renewable projects in SE AB to help the region gain recognition as a leader in renewable energy both provincially and nationally.</li> </ul>
<p><b>3. Support the development of the renewable energy workforce and build local expertise and capability in the renewable energy industry to support and promote careers in renewable energy to traditional and non-traditional pools of labour.</b></p>	<ul style="list-style-type: none"> <li>• Create occupational profiles for the renewable energy industry.</li> <li>• Make recommendations and advocate for formalized standardization or certification of workers in the renewable energy industry.</li> <li>• Explore labour market demand and supply forecasts for the renewable energy industry.</li> <li>• Build SE AB’s capacity as provincial education and training hub for renewable energy by creating pilot training programs to create a highly-qualified, regionally-based workforce for the renewable energy industry.</li> <li>• Create tools and resources that help attract, develop, and retain qualified workers (occupational profiles, career maps, labour market data, marketing materials, online employment and training, etc...).</li> <li>• Share these tools with job seekers, employers, career practitioners from schools to employment agencies, job fairs, and training institutions.</li> </ul>
<p><b>4. Provide resources and support to develop a better understanding of the renewable energy industry in SE AB and the impact it has on regional businesses and economic development.</b></p>	<ul style="list-style-type: none"> <li>• Conduct a supply chain analysis for the wind and solar industries in SE AB to contribute to a greater understanding of complementary industries and services required by the renewable energy industry.</li> <li>• Provide relevant renewable energy data for business planning support.</li> <li>• Conduct industry-specific feasibility studies for the region (e.g. land-use, solar roof mapping potential, etc...).</li> <li>• Conduct regional mapping to highlight major energy projects in our region, display these projects on an interactive on-line map on the SEEDS website.</li> <li>• Support small business innovation and growth to address the needs of the renewable energy industry.</li> <li>• Ensure small businesses have information and resources that allow them the opportunity to participate in the supply chain.</li> </ul>
<p><b>5. Foster a renewable energy market in SE AB that supports and attracts both large-scale and small-scale renewable energy development, innovation, investment, and research.</b></p>	<ul style="list-style-type: none"> <li>• Create a plan and invest in promoting SE AB as a renewable energy hub provincially and nationally for renewable energy innovation, investment, manufacturing, and distribution.</li> <li>• Support the development of demonstration projects in the region (e.g. promotion, assistance with development, etc...).</li> <li>• Explore opportunities for developing a center for renewable energy training, research, and development driven by industry needs, focused on attracting students locally, nationally, and internationally.</li> <li>• Showcase complementary industries for the renewable energy industry.</li> </ul>

- Foster collaboration and transfer of knowledge for new research/commercialization partnerships in renewable energy technology.
- Host events (e.g. conferences, seminars, lunch and learns, etc...) to help promote and raise awareness of renewable energy potential and current projects in the region.

## CONCLUSION

**Alberta is energy**, and SE AB is poised to be a leader in both renewable and non-renewable energy development and innovation.

The **Southeast Alberta Renewable Energy Strategy** aims to provide direction for action in supporting the renewable energy industry to grow and thrive in SE AB. Based on what stakeholders identified, this strategy attempts to provide a framework for coordinating activities, collaborating with other stakeholders and partners, raising awareness and education, providing resources and support, marketing and promoting, and fostering further development and innovation for the renewable energy industry in SE AB.

As stated earlier, it is important to note that each of the reports that make up this strategy provide a framework for the renewable energy industry to grow and develop in SE Alberta. This strategy does not account for changes in the SEEDS groups' goals, community needs, or national, provincial, and local policies and, as such, may need to be revised if changes occur.

This first report – the **Industry Report** – of the **Southeast Alberta Renewable Energy Strategy** provides an industry-driven overview of the opportunities and challenges associated with renewable energy development in SE AB. Combined with the feedback from community stakeholders, **this report provides a framework for accelerating the development of a vibrant and innovative renewable energy industry in SE AB.**

Implementation of the recommendations, and suggested actions, in this report are dependent on stakeholder interest, available funding, and available resources. Hence, the first suggestion of formalizing the SEEDS group to be an industry coalition is helpful for ensuring the **Southeast Alberta Renewable Energy Strategy** is utilized as a resource to help guide the growth of renewable energy in SE AB.