


HARVEST SKY REGION
LEAD GENERATION & INVESTMENT ATTRACTION PLAN

Submitted to:
Harvest Sky Economic Development Corporation

Submitted by:
SUMMIT72
Quantitative Strategy Experts

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1 Acknowledgements

SUMMIT72 led the development of this report with the support of the following team members.

Enrique Sobalvarro
Provided support on research of producer led co-op and inland ports. Participated in/contributed to stakeholder engagement.

Maggie Hanna
participated in stakeholder engagement related to hydrogen opportunities and as subject matter expert contributing insight and expertise related to hydrogen opportunities and carbon capture and storage.

Dr. Sven Anders
Provided insight and direction on agriculture related opportunities and content for Section 3.2 – Wind and Solar Production.

2 Opportunity Review and Next Steps

The original response to the RFP proposed that the preliminary analysis would create a shortlist of opportunities that have merit. The preliminary analysis was reviewed with the Harvest Sky EDC Manager and while there was agreement that some areas are not worth pursuing further, most of the sectors identified show enough promise to warrant further investigation.

SUMMIT72's response to the Harvest Sky Lead Generation and Investment Attraction RFP proposed a framework for advancing the economic interests of the region, while also noting that the plan should not be overly rigid either. Business development is often a dynamic process which brings to light new opportunities or potential partnerships not previously considered. The proposal stated that SUMMIT72 would work collaboratively with the Harvest Sky EDC Manager in order maintain a level of flexibility and at the same time ensure alignment with the expectations of the Harvest Sky EDC.

The Harvest Sky EDC Manager and SUMMIT72 agreed to an approach that includes three categories of lead generation and investment attraction activities, with varying degrees of effort allocated to each. Descriptions of each category are as follows:

Type A

These are the top-ranking opportunities with the highest perceived likelihood of success – the areas that warrant the most lead generation and investment attraction effort. This includes the following:

- Creation of an opportunity pitch sheet.
- Business intelligence and research as required.
- Business development activities to engage businesses, industry associations, and other related organizations in order to promote the Harvest Sky Region as a destination for the specified type of investment.
- Where practical, produce the information required for inclusion in the Invest Alberta Opportunity Book.

SUMMIT72 will also work collaboratively with the Harvest Sky EDC's marketing consultants to ensure alignment between business development efforts.

Type B

These are opportunities that may not qualify for Type A level of effort, but for which the team believes that additional business development effort is warranted. The activities may include the following:

- Engaging industry associations and individuals within the specific sector, with the intent of raising awareness of the specific benefits which the Harvest Sky Region has to offer (the Sheerness Industrial Park, low cost of land, transportation corridors, etc.).
- Collaborate with Harvest Sky EDC's marketing consultants to include the opportunity in regional marketing and communication efforts.
- In the case of certain opportunities, further research and investigation into regional suitability may be justified. The purpose of this investigation would be to determine if there is a case to be made for these Type B opportunities to be moved to the Type A category.

Type C

These include lower priority opportunities that the team will continue to monitor and support low-level marketing and communications efforts. Opportunities could be labelled as Type C because they have a low probability of success, or because the industry does not require additional business development work. For instance, the natural attributes of the region are already leading to success attracting wind projects. Therefore, additional business development efforts are likely better directed elsewhere.

The following sections of this document provide a detailed description of each opportunity, and include the results of stakeholder interviews, background research, and market assessments. For each opportunity SUMMIT72 has recommended a suggested level of effort that could be directed at the sector (Type A, B, or C). A table summarizing the results is provided in section 4. These recommendations have been reviewed with the Harvest Sky EDC Manager and a mutually agreed upon path forward has been identified.

Based on new information that has been acquired over the course of the project, SUMMIT72 has also identified a number of areas that would benefit from additional investment attraction activities. These have been labelled with the header ***Additional Business Development*** and are simply ideas for economic development and/or investment attraction efforts that Harvest Sky EDC could pursue if desired.[1]

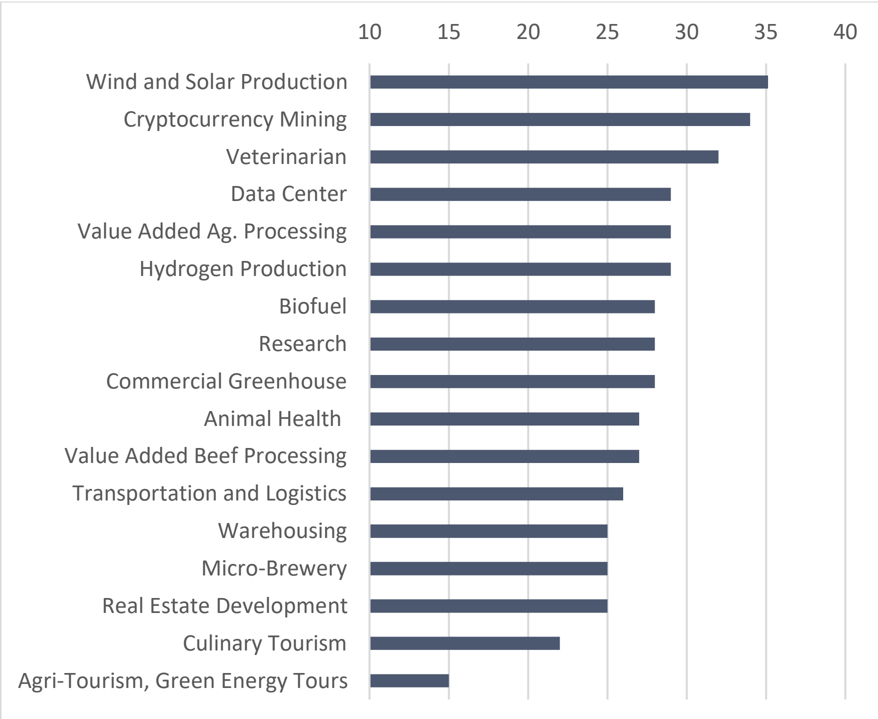
3 Opportunity Overview

An opportunity overview has been completed to identify the areas of focus and prioritize lead generation and investment attraction activities. In each case the team looked to identify the regional assets that could be leveraged to promote the opportunities as well as the challenges to attracting investment. For each

[1] If additional scope is acceptable to Harvest Sky EDC, SUMMIT72 can provide detailed work plan and budget.

opportunity a number of factors were evaluated empirically, this includes financial viability, GDP impact, job creation potential, and income potential.[2] The full analysis is provided in Appendix A and Figure 1 provides the overall ranking of opportunities from highest to lowest.

Figure 1: Opportunity Ranking by Sector



It is important to note that there is a relatively small variation between the top 9 ranking opportunities. The following sections will provide further detail on each opportunity and outline additional qualitative considerations that underscore the final recommendations.

3.1 Wind and Solar Production

With higher-than-average solar intensity and wide-open prairie with strong and reliable wind, Special Areas is well suited for both solar installations and wind farms. There are currently a number of renewable energy projects in various stages of development within the Harvest Sky Region. Representatives of Special Areas have stated that renewable power project developers are approaching local administrations and there has been little need to actively market the region. In order to build off of this success, the project team investigated strategies that would help the Harvest Sky Region capture greater economic value from renewable projects and identify a more equitable distribution of benefits.

Repeated public surveys have shown that Western Canadians welcome the new economic opportunities of investment in renewable energy (despite various pockets of opposition, especially to wind turbines).

[2] The analysis included a high-level financial analysis of each sector of interest that was based on industry data (provided by Industry Canada) and adjusted based on professional judgement in order to account for specific Harvest Sky regional attributes. Other analysis categories (GDP, income, jobs) are based on empirical data produced by Statistics Canada.

Moreover, expected municipal tax revenues, ample jobs during construction, and ongoing employment for maintenance professionals are welcome in the rural communities where many renewable projects are located. That said, research by John Parkins and colleagues at the University of Alberta (Dept. of REES) has shown that farmers and ranchers whose private land is essential to wind and solar infrastructure are especially concerned about the controversies that can arise due to the large turbines on their land.

In North America and Europe, opposition to wind farms is typically focused on the effects they can have on the landscape, wildlife, and community relations. Across studies and community cases, the unequal distribution of the economic returns from renewable energy production and their very visible effects are the main bone of contention. Those hosting turbines receive lease payments and tax revenues go to the municipality, but the vast majority of people in the community only get to live with the many perceived negative effects that wind turbines and to some extent, solar parks may cause.

In order to combat this inequality, renewable energy developers, power companies, and communities in Canada and the US are increasingly crafting innovative investment and ownership agreements. These arrangements can consider many aspects of energy supply chain functions, including energy infrastructure development, generation, demand management, distribution and system management, and retailer services by locally based service providers. For instance:

Cooperative Ownership

Co-op ownership of renewable energy infrastructure offers members across the community with direct economic returns on energy projects. Different forms of existing co-op ownership models can range widely in terms of the percentage ownership share the co-op (individuals, landowners, etc.) takes on. Examples in Europe have shown that restrictions to the private ownership of energy infrastructure may force local co-ops and/or investor groups to incorporate (create a legal entity, e.g., Ltd.) before engaging with project developers.

Examples of energy cooperatives in Alberta:

- Consumer/retail co-op
  - https://www.acenergy.ca
- Rural electrification association (transmission)
  - http://www.afrea.ab.ca
- Energy production
  - https://www.bvgreenenergy.org
- Energy investment
  - https://joinspice.ca

Community or Stakeholder Trust

This arrangement which is aimed at enabling co-ownership of energy infrastructure, can be used as a vehicle for bundling individual community and/or stakeholder investment contributions (including land trusts) and the subsequent distribution of project proceeds to (community) members.

Direct Municipal Ownership

Municipal ownership of energy infrastructure can take various forms such as public private partnerships or joint ventures with energy project developers. The municipality might take an equity stake in the project and as an owner would then have input in project development (siting) and would also benefit from economic returns. It should be noted that some forms of direct municipal ownership may not be feasible under current Alberta regulations but an acceptable option could include creating an entity to act on behalf of the municipality.

Through recent changes, Alberta has created the underlying regulatory and other necessary conditions to allow non-traditional entities to generate and produce electricity and supply it to the grid. In some ways the regulatory framework for renewables deviates significantly from more commonly understood oil & gas developments. One example is the current lack of a landmen system for the acquisition of land for the siting of renewable energy projects. Anecdotal evidence suggests that this gap has and is raising concern over the transparency of the renewable energy development process and has eroded trust especially among some landowner, farmers and ranchers. Moreover, given the size and scope of commercial (as opposed to private) energy infrastructure, several barriers to forms of renewable energy ownership remain in Alberta. Research results from a survey of municipal leaders across Alberta completed by John Parkins and colleagues at the University of Alberta (Dept. of REES) summarizes these as follows:

Economic Barriers

- High capital costs are ranked as the largest by barriers by roughly 44%.
- Long payback periods are a particular concern to 24% of responding municipal leaders.

Environmental/Technical

- Renewable energy projects are perceived to be too risky of an investment and the number one barrier for 26 % of respondents.
- Renewable energy technology is not advanced enough to be economically feasible was ranked high by 21 % of respondents.

Planning

- Prioritizing of municipal objects is a key barrier that was raised by 32 % of leaders
- Grants and loans are too difficult to access and was listed as a barrier for 24 % of respondents.

Many existing cases of successful community/municipal level co-ownership of renewable energy infrastructure highlight process related factors as being as important as the legal or contractual factors. This is particularly the case for wind farm projects. Consultation and the ongoing engagement of relevant community members, stakeholders, and other groups is important to maintaining support and trust in renewable projects. Transparency allows individuals the opportunity “to stay on top of” what is happening in their municipality or county.

Conclusion

The ability to attract energy projects is a positive development for the Harvest Sky Region that brings economic impact related to local tax revenue, land lease payments, construction and maintenance jobs. However, co-ownership models are one way that local municipalities and residents can look to extract additional value from the activities taking place in their region.

Recommendations

Type C Opportunity.

Renewable energy project developers have been approaching the region, with little need to actively market Harvest Sky. Even though this opportunity scored very high on the opportunity ranking, it is not believed that further work is required other than to continue to raise awareness about the region as a destination for renewables. This can be done through ongoing marketing efforts.

Additional Business Development

Discussions with a representative from Special Areas underscored the desire to identify ways in which the region can benefit further from activities in the renewable sector. Research to date and discussion with local officials have not included disclosure of the terms or conditions of the agreements with power developers. So, assuming that the approaches identified above are not already being taken, there might be the potential for the region to optimize the wind and solar opportunities by pursuing community/municipal level co-ownership options that will allow them to increase the economic benefits from projects in the region.

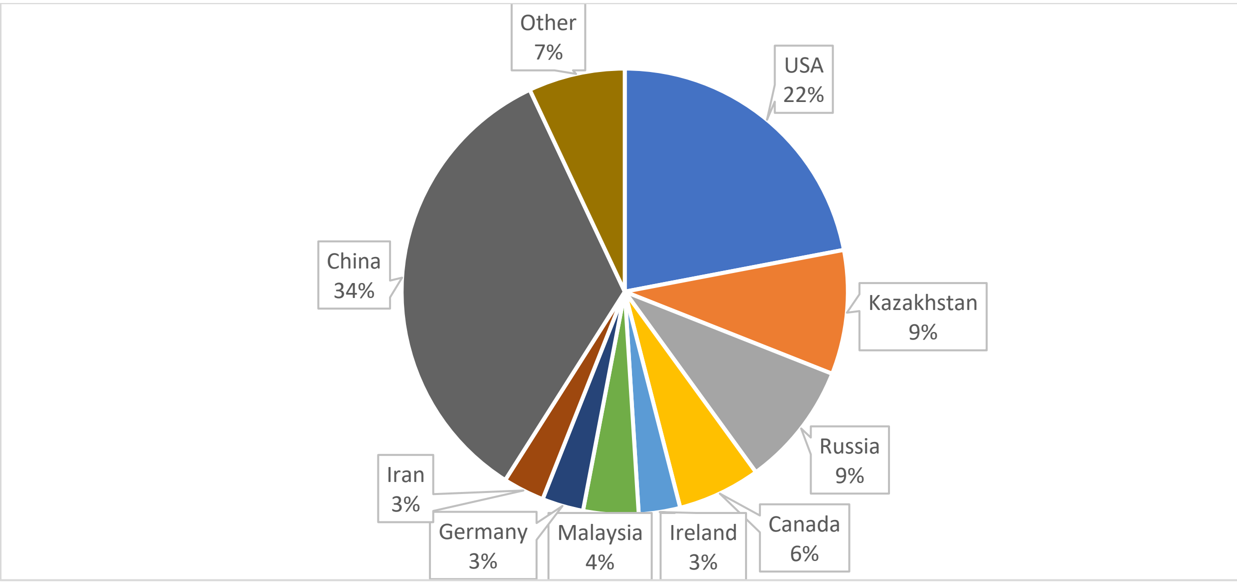
If there is interest in investigating these possibilities, SUMMIT72 can provide further details related to the co-ownership models listed above, along with advisory support. For instance, Darren Huculak with SUMMIT72 has 20 years of experience in the power development industry with a specific focus on renewable energy, economic analysis, and deal structuring. Additionally, Dr. Sven Anders, who has been enlisted on the project team as a subject matter expert, has co-authored a number of research papers related to wind generation development projects.[3]

3.2 Cryptocurrency Mining

Mining of cryptocurrency involves the process of solving extremely complex computational math problems in order to release new digital currency into circulation. Figure 2, illustrates the countries where cryptocurrency mining is taking place. In the first half of 2021, the majority of cryptocurrency mining took place in China. However, in August of that year China's government banned cryptocurrency transactions and mining operations within the country. This has allowed other countries around the world to attract the facilities that formerly housed Chinese cryptocurrency servers and mining operations.

[3] https://www.researchgate.net/scientific-contributions/Sven-Anders-2138291634

Figure 2: Estimated Cryptocurrency Mining by Country



Statista, 2022

The cryptocurrency mining process requires sophisticated computer systems that consume significant amounts of energy. Therefore, energy costs are a primary concern for mining operations. Additionally, the source of electricity is another concern. It is estimated that worldwide cryptocurrency mining operations consume as much energy as the Netherlands and produce 37 megatonnes of CO2 (equivalent with New Zealand).[4] The massive power consumption inherent in cryptocurrency mining operations have led to negative attention for the sector. While low-cost energy is a primary concern for mining operations, an increasing amount of focus is being placed on ways that renewable energy can be utilized in mining operations. As wind and solar generation become more prevalent in the Harvest Sky Region, those activities may present additional incentives for miners to locate in the area.

Natural gas is another energy source that can be used to power mining operations - natural gas fuels a generator that produces electricity. Of specific interest to the Harvest Sky Region are operations that can be configured in a modular system, which is transported to a natural gas well site and the system is powered directly by the well. This type of operation is particularly applicable to situations where production companies drill a gas well but do not tie it into their pipeline system (due to well economics or strategic business decisions). This is referred to as a stranded gas well. Utilizing stranded gas wells creates a win-win opportunity for a mining operation to purchase gas from the production company who otherwise would not be generating any income from the well.

There is currently at least one cryptocurrency mining company that is operating within Special Areas with fuel from a stranded gas well. SUMMIT72 also spoke with representatives from other companies who expressed interest in opportunities in the region.

[4] https://www.cnbc.com/2021/02/05/bitcoin-btc-surge-renews-worries-about-its-massive-carbon-footprint.html

Economic impact associated with cryptocurrency mining relates to the initial construction period (connecting the mining rig to the gas well and configuring computer systems), as well as ongoing sustainment and maintenance activities. The latter presents a potential employment opportunity for local residents. If demand for these services increases there could be an opportunity for the Hanna Learning Center to support skills training for local residents that would like to work in this field.

Conclusion

Questions persist about the future of digital currencies and how prevalent cryptocurrency will become, but regardless of the outcome, the region has assets that are currently in demand by mining companies. More work needs to be completed in this area in order to understand the scale of the opportunity and the number of suitable stranded gas wells available in the region.

Recommendations

Type A opportunity.

The fact that cryptocurrency mining is already taking place in the region supports the notion that it is a viable opportunity. SUMMIT72 believes it is worthwhile moving forward with lead generation and investment attraction efforts with the intent to raise the profile of the region and attract more mining companies.

The team will work to identify the number of stranded gas wells in the region (using the Alberta Energy Regulator's well database or if sufficient data is not available, by contacting well owners directly). If the number of wells in the region is adequate, this information will be used to further promote this opportunity.

It is likely that these opportunities exist beyond Special Areas No. 2 as well, so there may be a first mover advantage that can be exploited in order to ensure that related jobs (installation and maintenance) are located in Hanna. By developing the labour expertise locally, then it may be possible for similar developments outside Harvest Sky Region to also be serviced by Hanna businesses as well.

Additional Business Development

If the outcome of the well assessment indicates that there are a significant number of well assets that are suitable for mining operations, then it may be worthwhile to pursue lead generation and investment attraction activities internationally. In this case, it may also be prudent to complete a well assessment of areas adjacent to Special Areas No. 2 in order to indicate the scale of the opportunity to potential mining companies.

3.3 Rural Community Practice

The third highest ranking opportunity is veterinarian practices which are an important component of a project that has been proposed for the region as part of the Harvest Sky Agricultural Center Business Case project completed in 2021. The project proposed a rural community practice (RCP) that builds upon local agricultural strengths, specifically regional cattle production. The business case begins with a made-in-

Hanna idea for a veterinarian focused livestock hub and expands on that concept to propose a facility that not only includes animal health services, but also educational opportunities, and research prospects.

The proposed approach to exploring RCP opportunities involves picking up where the business case left off and continuing the following business development activities:

- Engaging independent veterinarians and veterinary practices in order to identify opportunities to attract professionals to the RCP.
- Engaging other animal health professionals that were included within the original business case.
- Develop relationships with research organizations in order to investigate the potential for partnerships and opportunities to attract research projects.
- Investigating opportunities to coordinate research efforts in other sectors such as biofuels.
- Investigating grant opportunities such as the federally funded Living Labs grant programs
- Developing relationships with academic institutions in order to identify opportunities for education partnerships that could include activities such as animal health practicums.

Conclusion

Extensive work was completed in the development of the Agricultural Center Business Case to validate the value proposition for the RCP. While animal health services and research facilities rank lower on the opportunity ranking list, they are considered a key component of the RCP because of the synergies associated with co-locating all these services within one facility.

Recommendations

Type A opportunity.

The project team will work to advance the RCP concept by pursuing the business development ideas listed above.

3.4 Data Centers

Every time a person sends an email, uploads a picture or downloads a file, they are most likely using a data center located somewhere in the world. In order to maximize performance, it is optimal to locate data centers relatively close to large populations. However, in some cases, centers are being set up in rural areas, particularly those regions that have low costs of electricity. The low cost of land in the Harvest Sky Region is a definite attractor, but a few of the challenges to attracting this type of industry is the lack of appropriately skilled labour, distance from highly populated areas, and in some cases, the lack of IT infrastructure.

As mentioned, data centers are typically located close to large populations, however, one exception to this is in the case of geographic redundancy. This is where a company creates a replica of all its data at a second (and sometimes, even a third) site. Companies use geographic redundancy to ensure that even when disasters happen, critical applications and data remain available. Typically, companies look to set up redundant systems at least 150 km away from their existing operation. In this way, the Harvest Sky Region is well positioned for companies in both Calgary and Edmonton. Another benefit is the low risk of natural disasters such as floods, earthquakes, tornados, etc.

Conclusion

Data centers, particularly the type related to redundant systems, scored well within the ranking process. However, there are questions as to whether companies will consider a remote area such as Harvest Sky. It may also be the case that successfully attracting cryptocurrency mining operations to the region, would help to develop the technical expertise and knowledge in the area that could help to attract a data center in the future.

Recommendations

To be co-investigated with Type A opportunity Cryptocurrency Mining.

Data centers, particularly those related to geographic redundancy are an opportunity that has potential in the region. There is also significant overlap with the previously discussed cryptocurrency mining opportunity. Further consultation with industry is recommended in order to better understand the specific requirements of this sector and opportunities to attract this type of investment.

3.5 Value Added Agricultural Processing

Many people in the Harvest Sky Region recognize the potential to broaden the economic base by expanding manufacturing and processing sectors. In order to understand the opportunities in the region, SUMMIT72 completed a review of the regional strengths, existing economic assets and competitive advantages.

Secondary agricultural production includes many manufacturing and processing activities which convert primary agricultural products like grains, oilseeds, and pulses into ingredients used in food manufacturing. The canola crushing sector is one of the most significant components of the grain and oilseed milling sector and includes processing facilities like Cargill’s 850,000 metric tonne operation in Camrose, Alberta. Traditional canola crushing has seen healthy growth over the past decades, but the food manufacturing industry is changing with the establishment of new products and markets.

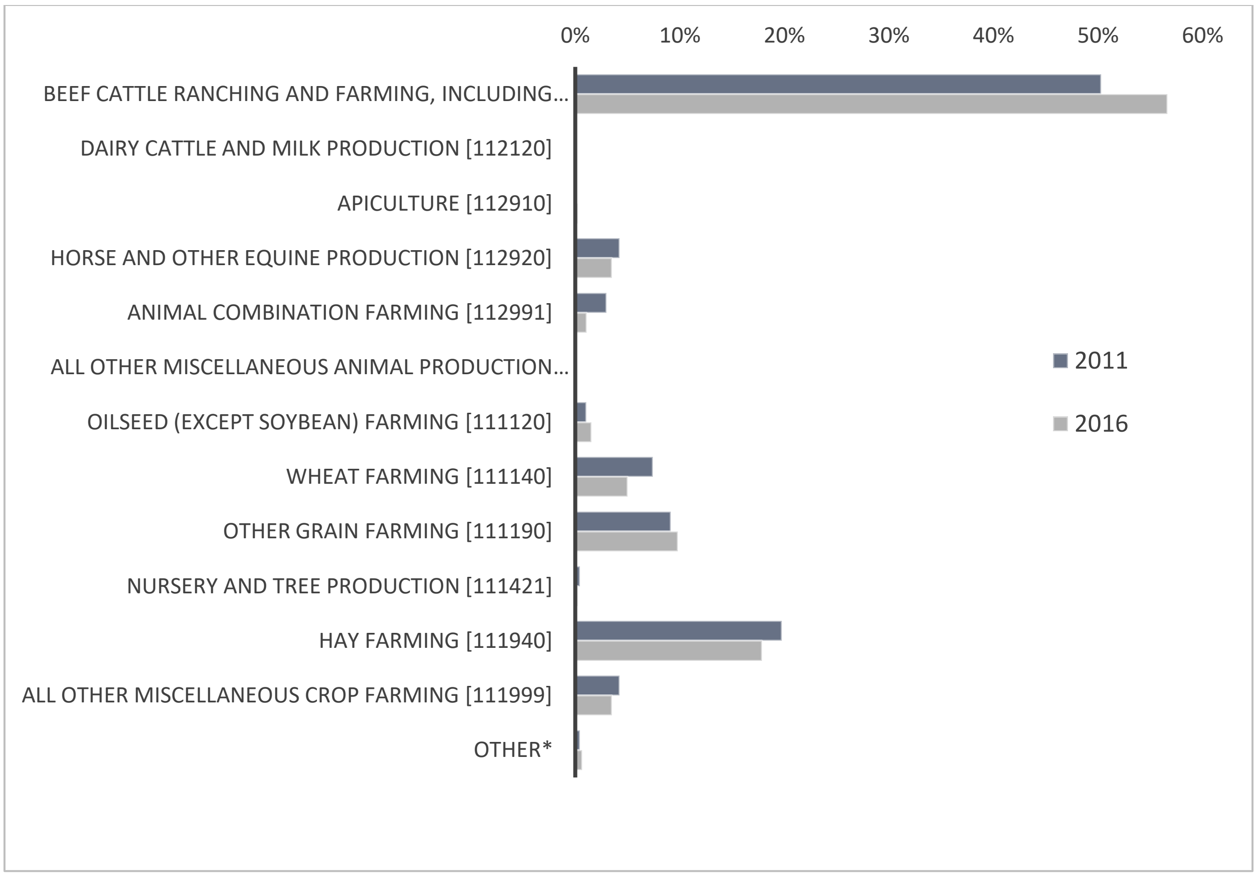
Industry experts identify the growing demand for value-added, plant-based ingredients that are fractionated, extracted, or isolated. Some examples of commercial operations meeting this demand are as follows:

- In 2019, Agrocorp International completed work on Phase 1 of a pea protein plant project in Cut Knife, Saskatchewan. The plant can handle up to 50,000 metric tonnes of pulses (peas, lentils, and chickpeas) to produce food ingredients such as protein, starch, and fiber. Plant proteins produced at the facility can be used to produce meat alternatives and health food snacks.
- Protein Industries Canada recently funded a $11.3 million dollar project to process pea, lentil, and faba bean proteins to be used in various products such as meat replacements, dairy replacements, tofu, and pasta.
- Lovingly Made Ingredients, with locations in Edmonton and Calgary uses Canadian grown pulse products to produce textured plant proteins for use in meat replacement products, snacks, and cereals.

According to Allied Market Research, the global pea protein market was valued at $32 million in 2017, and is projected to reach $176 million by 2025.[5] Pea protein isolate was the largest segment of the pea protein industry in 2018, due to its application as a food supplement in the sports nutrition industry and its use as a texturizing agent in meat products. As these products gain increased visibility, agriculturally based regions are looking for new opportunities. Harvest Sky residents are no different, and during the stakeholder engagement process opportunities in the area of agricultural product processing were mentioned on a number of occasions. Potential products identified include flour and oilseed milling, protein fractionation (from pulse crops), packaging (grains, oil seeds, and pulse crops), animal feed pellets (from hay), and hemp processing.

An important consideration in the evaluation of any form of secondary agricultural production is a strong supply chain, comprising of nearby agricultural production. Figure 3 provides a view of the type of farm operations in Special Areas No. 2 by 6-digit NAICS code. This data from the 2016 Census of Agriculture, illustrates the breadth of agricultural production taking place in the region.

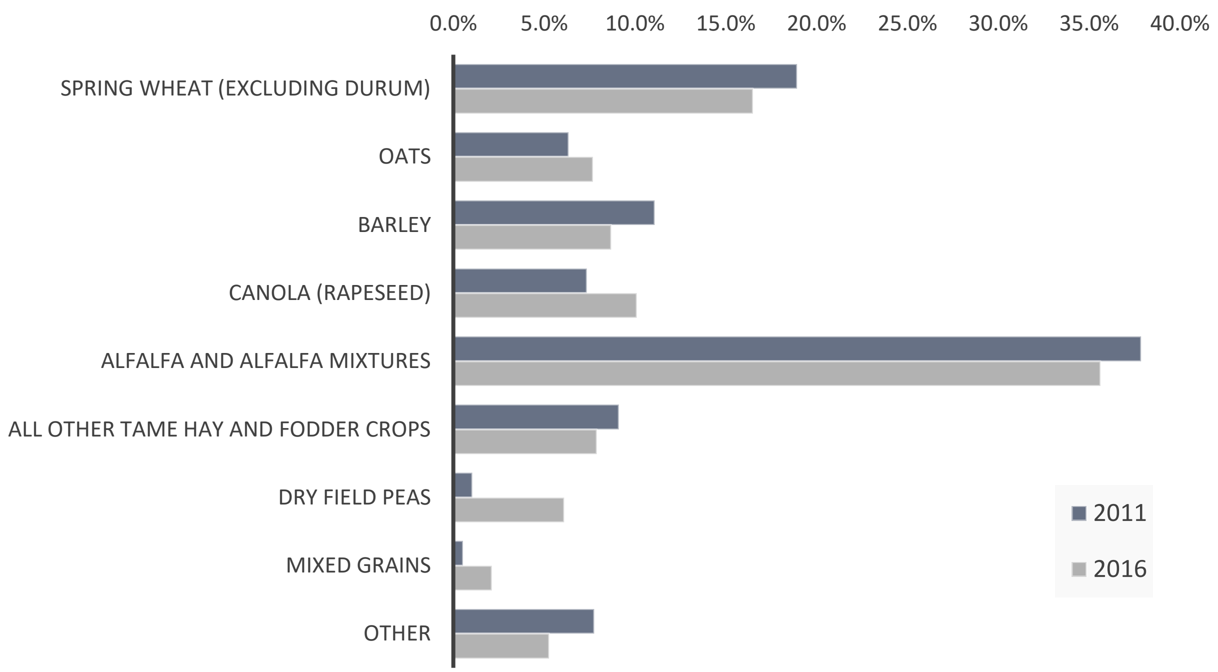
Figure 3: Special Areas No. 2 - Agricultural Production by Farm Type



[5] Pea protein market: North America and Europe. Retrieved from: https://www.agr.gc.ca/eng/international-trade/market-intelligence/reports/customized-report-service-pea-protein-markets-north-america-and-europe/?id=157253828766.

In 2016, over half of the farms in the region stated that beef production was their primary form of agriculture production. Likewise, just under 20% identified primarily as hay producers. This means that over 75% of the farms in Special Areas No. 2 are primarily focused on either livestock production or livestock related crop production (specifically hay). For additional insight, Figure 4 focuses on crop production acreage data from the 2016 Census of Agriculture.

Figure 4: Special Areas No. 2 - Crop Types by Acreage Produced



Statistics Canada. Table: 32-10-0416-01

Considering the previous two sets of agriculture data, it is evident that producers in the region are primarily focused on livestock production and growing crops which feed that livestock (hay and alfalfa). Furthermore, many of them are also utilizing the land available to them for various other forms of crop production that in many cases might also be used for animal feed, such as wheat, oats and barley (typically used to finish cattle to market weight). These three crops make up over 30% of crop acreage.

Assessing the available data raises questions as to whether the Harvest Sky Region has the critical mass of agricultural crop production to feed the supply chain that value added processing will require. However, the case could be made that the regions outside of Special Areas No. 2 should be considered as well. For instance, the Starland Seed Cleaning plant in the village of Delia. The facility provides cleaning services for cereal, grains, peas, and flax. Considering that these agricultural products are already being aggregated in one location presents the opportunity to complete further value-added processing. This could occur in Starland County or potentially in the adjacent Harvest Sky Region.

Conclusion

Special Areas No. 2 has a strong agricultural base that is primarily focused on cattle production and growing crops which feed those cattle. While crop production volumes do not support a large-scale processing facility, there may still be opportunities to attract smaller scale, or niche type of value-added production. Food manufacturing ranked reasonably high in the opportunity screening stage of this project, but more work is required to understand the levels of crop production in the region that would be available to enter the secondary production supply chain.

Recommendations

Type B opportunity

As noted above, value added opportunities may be limited due to insufficient crop production in the region. However, there may be value in investigating local opportunities further. The project team recommends initiating talks with the Starland Seed Cleaning Plant to better understand their business model and the customers that are using the facility. From there it can be determined whether there is a sufficient supply chain to attract value added processing. If the opportunity were validated, then the opportunity could be promoted to Type A and lead generation and investment attraction activities would be recommended.

Additional Business Development

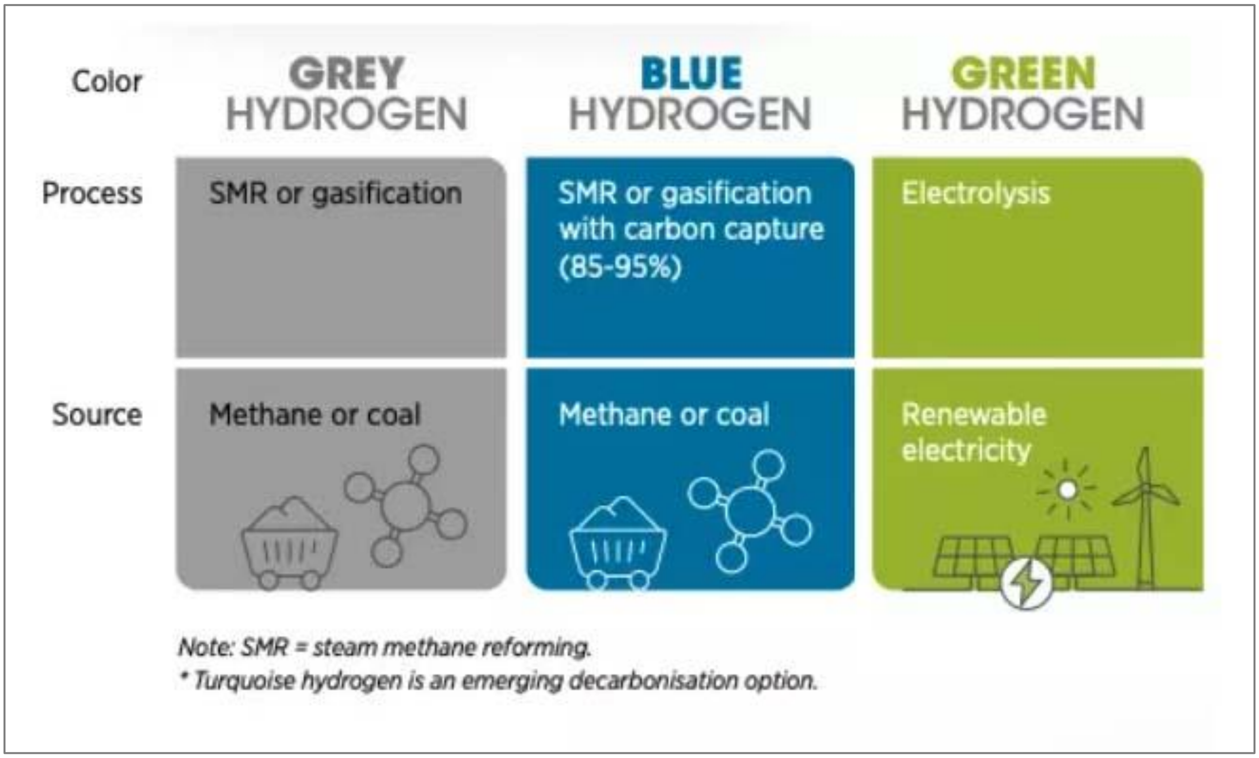
The preliminary background review, research, and stakeholder engagement has not uncovered a sufficient supply chain to support value added production (other than the one opportunity in Starland County noted above). Nevertheless, a more detailed supply chain assessment could uncover regional characteristics not obvious in the available data. A supply chain assessment could include identifying the areas within Special Areas No. 2 where crop production is clustered or instances where production is already aggregated with a few very large producers. Also of interest would be the production in surrounding municipalities that may also constitute the supply required to support secondary crop production.

During the engagement process on this project as well as the Agricultural Center project, the case for value added agricultural production has been made repeatedly. However, questions still remain as to whether there is a sufficient supply chain. Furthermore, if upstream supply was available, another important consideration would be whether it would redirect feed away from cattle, and risk negatively impacting livestock producers. In order to evaluate agricultural production levels and agricultural product flows, SUMMIT72 would rely on the experience of Dr. Sven Anders to evaluate these types of supply chain systems and the team would develop a plan for evaluating the types and volume of agricultural production to determine whether the Harvest Sky Region can support processing facilities.

3.6 Hydrogen

Alberta is the largest hydrogen producer in Canada.[6] The province is hoping to capitalize on the existing infrastructure and expertise which serves the oil and gas sector and expand to meet growing worldwide demand for Hydrogen. The following illustration outlines the existing opportunities.

Figure 5: Hydrogen Production Processes



Source: World Economic Forum
https://www.weforum.org/agenda/2021/07/clean-energy-green-hydrogen/

Interestingly, the Harvest Sky Region has a number of the key assets required to produce hydrogen. Coal deposits are present at the existing mine site, as well as other areas within the region. There is likely little appetite for grey hydrogen production, but depleted oil and gas wells in the region could be used to store the carbon produced during gasification, allowing for the production of blue hydrogen. According to the Alberta Hydrogen Roadmap, underground gasification has the potential to emerge as a viable clean hydrogen production method in Alberta.[7] Furthermore, a number of renewable energy projects are in various stages of development within the Harvest Sky Region. While green hydrogen is the most preferable option in terms of sustainability, it can be more costly to produce and is not as reliable (in terms of 24/7 production). It is possible that a blue/green hybrid approach can be implemented to address the

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[6] https://www.alberta.ca/hydrogen-roadmap.aspx

[7] https://open.alberta.ca/dataset/d7749512-25dc-43a5-86f1-e8b5aaec7db4/resource/538a7827-9d13-4b06-9d1d-d52b851c8a2a/download/energy-alberta-hydrogen-roadmap-2021.pdf

reliability issues of renewables and at the same time, reduce the carbon by-products produced by blue hydrogen.

As the province of Alberta pursues the development of a hydrogen strategy, questions remain around the cost competitiveness of hydrogen as a fuel source and the future hydrogen economy landscape. That said, opportunities in this space persist and as stated above, the region has a number of the components required for production. If the Harvest Sky Region wants to participate in the future hydrogen economy, now may be the time to position themselves accordingly. The project team spoke with Randy Litun, who is coordinating efforts on the South East Alberta Hydrogen Hub and Foundational report. See Appendix C.

It is the opinion of the project team that the Hydrogen Hub is focusing efforts on the regions that have the highest likelihood of successful large scale hydrogen production in the near future. This being the Medicine Hat region where hydrogen is already being produced as part of the methanol industry. Looking further into the future though, it is very possible that heavy transport vehicles and farm equipment will be powered by hydrogen fuel cells. This means that there would be local demand for hydrogen in the Harvest Sky Region – possibly for a fueling station at or near Cactus Corner, as well as hydrogen for farm equipment. The Harvest Sky Region has the assets (coal deposits and renewable energy) available that could allow it to, at a minimum, produce hydrogen that would be consumed locally.

Green hydrogen is produced by splitting water molecules into component hydrogen and oxygen. For this reason, one of the challenges to hydrogen production in the region could be water consumption. Certainly, water is an important consideration, but it is also true that the hydrogen industry is developing techniques to address water concerns. Subject matter experts that provided input on hydrogen opportunities for this project believe that there are water sourcing options that will be able to address the water requirements of future hydrogen production in the region.

Although hydrogen production is already part of the oil refining process occurring in the province, in many cases, it is grey hydrogen production. The possible transition to a hydrogen economy will need to focus on blue and green hydrogen processes (due to net zero targets and the increases in the cost of CO_2, i.e. carbon tax). There are numerous technologies and production techniques (both green and blue) that are currently available with many of them in the pre-commercialization stage of development. The Government of Alberta has stated that it believes that demonstration projects, research, and innovation are needed to prove and scale up emerging clean hydrogen technologies.

Conclusion

Due to the uncertainty around the future of the hydrogen economy in the province, it could be argued that it is too early to know how the industry will evolve and that a wait and see approach should be taken. On the other hand, a cautious approach may relegate Harvest Sky to the sidelines. It is the opinion of the project team that the magnitude of possible hydrogen opportunities in the province warrants a level of investigation into ways in which Harvest Sky might position itself within the industry.

It remains to be seen whether coal gasification will prove to be an economically viable hydrogen production process (as compared to other methods). Nevertheless, the existing coal deposits in the region provide Harvest Sky with an asset that can be leveraged in order to initiate discussions with companies developing gasification technology. Early successes might include attracting pre-commercialization pilot projects to the region. Furthermore, renewable energy production in the region can justify discussions with green hydrogen companies.

Recommendations

Type A opportunity.

While hydrogen did not rank as high as other Type A opportunities, SUMMIT72 believes that now is the time to investigate opportunities for the region. This would include the following:

- Additional research into hydrogen production technology and innovation to further understand the opportunities specific to the Harvest Sky Region (i.e. coal gasification, hydrogen from renewables, potential for renewable energy storage using hydrogen, etc.).
- Engage companies in Alberta and beyond which are involved in various types of hydrogen production and in various stages of development (R&D, pre-commercialization, production) in order to understand the opportunities to promote the Harvest Sky Region. Examples include Proton Strategies (gasification start-up), Air Products Canada (an existing hydrogen producer). Innova (hydrogen innovator), and Bighorn Energy Corporation (developer).
- Further engagement with industry groups and strategy developers such as the South East Alberta Hydrogen Strategy, Transition Accelerator, and government of Alberta.
- Further research into carbon capture opportunities using depleted gas wells and whether geological formations in the region can support CCS.
- Identify opportunities for Harvest Sky Region to participate in demonstration projects as well as the potential for commercial development of hydrogen production ventures.

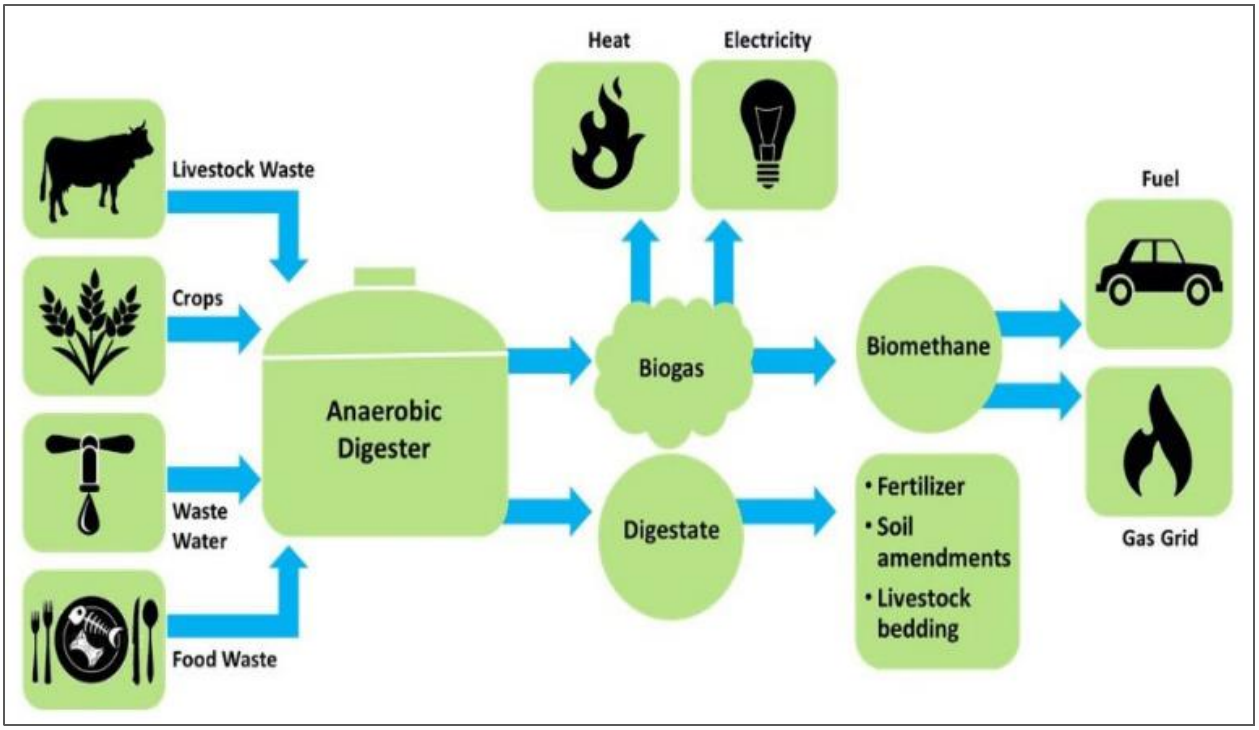
3.7 Biofuels

Biofuels or Renewable Natural Gas (RNG) allows for energy to be produced from biological waste and then transported to end consumers in a cost effective and efficient way. Biofuel is created from the following waste streams:

- Municipal sewage.
- Agricultural waste (both manure and leftover crop biomass).
- Landfill waste.
- Wood waste.
- Business waste (such as organic waste created by breweries).

Without intervention, these waste streams will break down naturally over time and release greenhouse gases such as methane and carbon dioxide into the atmosphere. Biofuel operations seek to accelerate this process in a biodigester and then capture the gases released. Once the gas is purified, the end product is a RNG that can be injected into the existing natural gas pipeline system and used by consumers in the same way as traditional natural gas. Alternatively, the biofuel can be used to produce heat or electricity onsite.

Figure 6: Biodigester Process



Source: Environmental and Energy Study Institute
https://www.eesi.org/papers/view/fact-sheet-biogasconverting-waste-to-energy

There is a growing demand for RNG, and in areas such as British Columbia and California, some customers are willing to pay a premium for this more environmentally friendly product. The key value proposition for biofuels is that the process utilizes a waste product to produce fuel and other valuable byproducts such as fertilizer. Since methane is 25 times as potent as carbon dioxide at trapping heat in the atmosphere, capturing methane and using it for fuel is seen as an important climate change mitigation strategy. In many jurisdictions biofuels qualify for carbon offset credits which can help to improve project economics. That said, industry participants have stated that improvements are needed to reduce capital costs and improve the economics of biofuel systems. One approach that has seen success is increasing the size of a biofuel operation in order to capture economies of scale.

With respect to the Harvest Sky Region, one of the most available waste streams would likely be manure from cattle operations. However, practically speaking, biofuel facilities need to be located within close proximity to the fuel source (e.g. large cattle operations and/or feedlots). In some regions, shared community collection centers are utilized, but it would still require a high concentration of producers within a reasonable distance.

Conclusion

Biofuel opportunities show promise as a viable source of renewable energy but it is a process that is still in the introductory stage of implementation. Availability of animal waste and proximity to the natural gas transmission system are regional assets that could be leveraged in support of this opportunity.

Recommendations

Type B Opportunity.

Considering that this is a relatively new industry, additional research and engagement may be valuable to better understand the opportunities available to Harvest Sky. This could include consulting with industry associations such as the Canadian Biogas Association or subject matter experts. Local producers and feedlots could be interviewed in order to better understand how cattle producers are currently handling manure and whether this waste stream is currently creating problems (e.g. smell or groundwater contamination). The government of Canada's Biomass Inventory Mapping and Analysis Tool can also be utilized to better understand opportunities in the region (although the system does not provide animal waste inventory).[8] If warranted, biofuel could be promoted to Type A.

Additional Business Development

The currently held assumption is that significant scale would need to be reached in order to attract an outside investor. If the outcome of the above recommendations show promise, then further investigation could be justified. This could include one of the following three approaches:

Stage Gate Approach #1

To better understand potential feasibility, SUMMIT72 and Dr. Sven Anders would complete additional market research to identify the areas with the highest concentration of feedstock and determine if sufficient for a biofuel facility. **If** it was determined that a biogas facility was reasonably probable in the region (based on available data), then SUMMIT72 would pursue lead generation and investment attraction efforts.

Stage Gate Approach #2

To better understand potential feasibility, SUMMIT72 and Dr. Sven Anders would complete additional market research to identify the areas with the highest concentration of feedstock and determine if sufficient for a biofuel facility (same process as #1). **If** it was determined that a biofuel facility was reasonably probable in the region, then Harvest Sky EDC could engage BDO Zone in order to acquire the BDO rating and have them engage in investment attraction efforts on Harvest Sky's behalf.

Approach #3

Bypass the proposed work done by SUMMIT72 above and hire BDO Zone to complete a full review.

[8] https://www.agr.gc.ca/atlas/apps/aef/main/index_en.html?emafapp=bimat_ocib&mode=release&iframeheight=800

3.8 Commercial Greenhouse

North American food production and distribution networks are highly efficient. Food is imported when lower costs of production in another region more than offset the transportation costs. In the past, importing vegetables into many parts of Canada was a necessity during the winter months. However, it is becoming more common to see Alberta greenhouse grown tomatoes, cucumbers, and peppers in the grocery store. Another growing area of interest is the production of leafy greens (salad greens, pot herbs, vegetable greens), traditionally imported from California and Mexico.

Appendix B provides an excerpt from a commercial greenhouse industry analysis completed by SUMMIT72 in 2021. In summary, the market data shows that vegetable consumption in Alberta has increased in the past 10 years, but the level of imports has not increased to the same degree (both international and inter-provincial). This indicates that local greenhouse producers are having success replacing vegetable imports from the US and Mexico. The value proposition of this import substitution strategy is as follows:

- Supply chain reliability of local production (i.e. closer proximity to production reduces the risk of supply chain disruption).
- Lower transportation costs.
- Local production is preferable for perishable products (high quality product with longer shelf life).
- There is a segment of the population who prefer to buy local.

For the most part, commercial greenhouses are clustered in specific regions of the province. Almost 55% of greenhouse vegetable production in the province takes place in Medicine Hat, with Red Deer and Lethbridge falling second and third (at 16% and 10% respectively).[9] The Harvest Sky Region has many of the same favorable attributes as these regions but it lacks similar levels of marketplace exposure and may face challenges attracting the attention of potential investors in a field dominated by established producers.

Water is another consideration that has been raised. However, modern greenhouses are highly efficient in terms of water conservation and covered growing structures will allow producers to take advantage of the high levels of sunshine, while also avoiding the dry climate conditions by protecting from evaporation. There may be a number of viable sources of water in the region which include the Sheerness reservoir, groundwater accessed by wells, or future irrigation initiatives in the region. That said, any future greenhouse development will need to consider available water and ensure the existing resources are not overtaxed.

The benefits that the Harvest Sky region has to offer greenhouse operators are proximity to large consumer markets in both Calgary and Edmonton, high levels of solar radiation, quality of the groundwater, and low cost of land. Another possibility is that a commercial greenhouse could be located adjacent to the Sheerness Generating Station in Special Areas No. 2 and utilize waste heat from the plant. This would require additional capital investment but would also result in lower fuel consumption (of

[9] https://open.alberta.ca/dataset/f3bed9fa-0896-41c1-b4d4-f33717545e47/resource/dff6c633-02b9-4b3e-9903-aa466c238d69/download/af-ecb-profile-greenhouse-industry-alberta-2019-2020-08.pdf

particular importance as natural gas prices increase and considering future carbon taxes of $170/tonne by 2030).

In the past, SUMMIT72 has completed a conceptual desktop review of the potential to co-locate a commercial greenhouse next to a natural gas fired power plant at another location in Alberta and the results showed that it was technically feasible (based on high-level engineering review) and would be economic based on forecasted natural gas prices and future carbon taxes. However, the willingness of Heartland Generation to participate in a co-location arrangement has not been investigated. Additionally, SUMMIT72 spoke with a power industry subject matter expert that is knowledgeable of the Sheerness plant and he raised questions as to whether the plant will be operational beyond the next five to ten years (due to lower efficiency of the plant as compared to its peers and changing power market dynamics). While this perspective has been disputed by others, the uncertainty alone may reduce the attractiveness of this option to potential commercial greenhouse investors.

Conclusion

There is a strong case to be made for the commercial greenhouse import substitution strategy. In addition to traditional crops, leafy greens present an area where there may be significant opportunity for growth of greenhouse production (and could be an area to focus efforts on). While a significant amount of greenhouse production has been developed in Medicine Hat, the Harvest Sky Region may be able to offer attractive incentives such as low land costs, low taxes, and the potential to co-locate a greenhouse at the Sheerness generating station.

Recommendations

Type B opportunity.

Although commercial greenhouses ranked just above the middle of the pack, there could be a case for a Type A ranking. It is the opinion of the project team that a relatively small amount of effort would be required to determine if this is a viable opportunity worthy of promotion to Type A.

The approach proposed will involve market research that includes contacting local greenhouse producers to discuss potential to expand in the region. Additionally, discussions with the Red Hat Marketing Co-op should be initiated in order to determine if there may be the opportunity to join. This would reduce the burden of marketing and distribution and allow the greenhouse to focus on growing vegetables. It could be the case that existing producers in the province will not see the value in expanding operations at a new site, however, discussions with local producers may yield valuable greenhouse market intel.

Additional Business Development

Additional work that Harvest Sky Region can consider embarking on is investigating potential for waste heat recovery. This would involve engaging in discussions with Heartland Generation to better understand their willingness and long-term plans for the facility. Then if warranted, a conceptual review could be completed to determine technical feasibility and evaluate the economics of a waste heat recovery system. This high-level assessment could be completed for a relatively low cost, and if the results were favourable, it would result in another regional asset that could be used to promote Harvest Sky as a commercial greenhouse location.

3.9 Value Added Beef Processing

Figure 3 in section 3.5 provided a graphical representation of the significant number of ranching operations and amount of cattle production in the Harvest Sky Region. Therefore, in terms of predominant industries, beef is the most obvious opportunity for value added animal production. As part of the engagement process, the team spoke with a number of local cattle producers. A common sentiment was that the industry has evolved and it is becoming more difficult to run a profitable cattle operation. The industry issues being experienced by producers have been further aggravated by low levels of precipitation in the past three years.

In recent decades the Canadian beef processing and packing industry has adjusted to competitive pressure from beef imports and in many cases consolidated to the place where today, the majority of cattle are slaughtered and processed by a few massive plants owned by multinational companies Cargill and JBS. In fact, three Canadian federally regulated meat packing facilities process 85% of all Canadian raised beef (plants located in Brooks, Alberta, High River, Alberta, and Guelph, Ontario)

Stakeholder engagement identified concerns from some local cattle producers about access to slaughter facilities. Many suggested that the COVID-19 outbreaks at Cargill and JBS created backlogs for producers wanting to send their cattle to market. The pandemic related processing constraints have subsided but producers and industry experts still have concerns about structural capacity issues in the industry.

A Calgary Economic Development Agribusiness Value Chain Study, incorporating provincial perspectives and including relevant material for Harvest Sky identified industry issues around rising operating costs, feedlot closures, environmental concerns, and changes in consumer demand.[10] The report however forecasted the regional expansion of current beef processing and manufacturing capabilities and noted opportunities for niche processors and specialized meats.

According to industry experts that the project team interviewed, one of the ways that producers have adjusted to falling profit margins is by increasing the scale of their operation and overall production volumes. Another approach is an attribute-based strategy of cattle production which identifies niche markets that consumers are willing to pay higher prices for. This includes products such as organic, grass fed, black angus, Halal, etc.). There are also examples of producers expanding into new areas of the value chain. For instance, Spragg's Meat Shop is a family owned and operated farm and abattoir, with retail locations in Rosemary and Calgary. Flag Hills Ranch North of Delia is an example of a niche operation that has also expanded their operation to include sales. They produce grass-fed black angus beef and direct market the end products to consumers.

[10] https://m.calgaryeconomicdevelopment.com/dmsdocument/185

The strategic options that have been identified for producers in the region are as follows:

- Maintain the status quo in terms of size and scale of operations, which appears to be more difficult, particularly for smaller ranches.
- Increase scale of farm operations in terms of number of cattle.
- Identify niche markets or attributes that can demand premium pricing.
- Expand operations along the value chain.

Considering that cattle production plays such a significant role in the Harvest Sky Region, the continued success of large ranches and feedlots is important to the area as well as the viability of the small to medium sized family farm. Many of the opportunities identified above will be management decisions that will be made by individual farms and businesses with little ability for investment attraction efforts to change that.

One opportunity that has been raised repeatedly by livestock producers is the desire for a local abattoir facility and increased butcher capacity. Local slaughter would not only help address some of the capacity issues that have been experienced in the past, but it would also allow producers to expand their operations down the value chain (i.e. marketing their own beef products to grocery stores, restaurants, and directly to consumers). The value proposition here is that it would give producers the opportunity to extract more value for each animal produced. The downside being that they would need to embrace additional business activities such as identifying retail opportunities and accessing market channels.

The project team has identified two potential options related to building an abattoir and/or butcher facility in the region:

Attract outside investment

This would look to build off the significant levels of cattle production in the region in order to attract outside business investment. In this case, the facility would most likely operate independently of existing producers and feedlots in the region - purchasing cattle from producers and taking responsibility for all processing and marketing activities.

Producer led Co-op

A cattle processing cooperative would seek to provide local producers with improved opportunities for value-added beef production through slaughtering, butchering, distribution, and marketing efforts managed by the cooperative.

There are examples of successful producer-led co-ops that can be looked to as case studies. Conestoga Meats (Breslau, Ontario) is a co-operative of 120 family farms that owns the second largest pork processor in Ontario (the fifth largest in Canada). Another example is South East Butcher Block (SEBB) which is a producer led-cooperative in Alameda, Saskatchewan. It was formed to develop a new full-service abattoir and meat shop. To date, a business plan, construction approvals, and building design have been completed.

A common issue for abattoir operations can be the seasonality of cattle production and the subsequent fluctuating demand for slaughter services. Capacity utilization is key to generating sufficient returns on investment and while producers often speak of the need for local processing capacity, this local demand doesn't necessarily ensure adequate year-round throughput. Another important factor is the expertise required to successfully operate an abattoir. A Government of Alberta Department of agriculture representative that was interviewed for this project stated that success or failures of rural meat processing facilities can often be tied to the experience and expertise of the management team.

Conclusion

The Harvest Sky Region has a strong agricultural base and access to the cattle supply chain that an abattoir requires. It is likely the case that the region could support a small to medium size abattoir, but attracting an outside investor to the region could prove difficult.

Recommendations

Type B opportunity.

Value-added beef processing has been raised repeatedly by producers over the course of this project and during the development of the Agricultural Center Business Case, and while questions remain regarding the economic viability, there is merit to investigating this opportunity further.

Due to the potential benefits that value-added beef processing offers for local producers, Harvest Sky EDC and SUMMIT72 have agreed that business development activities around this opportunity should be prioritized above the other Type B opportunities. Based on the outcome of those activities, this opportunity could be promoted to Type A.

Additional Business Development

Additional work that Harvest Sky Region could consider embarking on is investigating potential interest in developing slaughter and butcher capacity through a producer led Co-op. This would address the difficulties attracting outside investment. SUMMIT72 would initiate discussions with producers to gauge interest, facilitate an in-person workshop with interested producers, and work with a number of organizations that can support these efforts such as Co-operatives First, and Government of Alberta.

SUMMIT72 had an exploratory discussion with a representative from Cooperatives First. Their mandate is to advocate for and support the development of cooperatives in Western Canada. This includes business planning support and covering the costs of a feasibility study once certain milestones have been met. It may be worthwhile to investigate this opportunity further and then engage Cooperatives First, making use of the services they offer to help determine if a local producer-led co-op could be viable.

3.10 Transportation and Logistics

Alberta Transportation data shows Highway 9 running through the town of Hanna accommodates an average of 2,100 vehicles per day with almost 17% being heavy transport vehicles. Highway 36 which is approximately 10 km East of Hanna also has traffic volumes on average of 1,080 vehicles per day, with an even higher percentage of heavy transport vehicles at 25%.[11] These traffic volumes are significant in comparison to many other rural highways in Alberta. Anecdotal evidence of this is the Cactus Corner truck

[11] http://www.transportation.alberta.ca/mapping/

stop which has been a fixture at the junction of highways 9 and 36 for many years. Over the course of the engagement process for this investment attraction project, a number of individuals speculated about the opportunities to benefit from the traffic passing through the region. One suggestion that was raised numerous times is the potential for businesses in the transportation and logistics sector.

Business attraction in the transportation and logistics sector would seek to leverage Harvest Sky's proximity to transportation corridors (including the Oyen rail yard) and the low price of land to attract warehousing and storage facilities that are often needed by transportation and logistics companies. According to a Coldwell Banker Canadian market outlook report, demand for warehouse space in Canada is so high that the country can't build new warehouse space fast enough.[12]

A similar but larger scale opportunity that has been investigated by the project team is the potential for the creation of a center that could include an inland port, logistics hub, or Foreign Trade Zone (FTZ). Existing examples of such operations include CentrePort Canada (Winnipeg, Manitoba) and the Global Transportation Hub or GTH (Regina, Saskatchewan). The GTH for example is an industrial park that is an integrated transportation and logistics inland port designed to encourage manufacturing, value-added processing, warehousing and distribution operations in the heart of Western Canada.

Within the transportation sector is e-commerce fulfillment which could include activities such as logistics, warehousing, and fulfillment of online orders delivered to rural areas. One of the recommendations from the Land Inventory, Commercial Building and Businesses for Sale Assessment report produced by Randal Strategy was actions that would position Harvest Sky as a destination for rural e-commerce fulfillment.

Fulfillment centers are typically associated with large urban centers, but there may also be possibilities in rural areas as well. For example, in an effort to have greater control over its last-mile deliveries in the US, Amazon has in the past considered handling its own deliveries to rural areas, rather than relying on the US Postal Service. If companies were to decide to pursue this type of fulfillment model, the proximity to rural transportation corridors would make the Harvest Sky Region an attractive option. Other large ecommerce companies that present opportunities include Etsy, Newegg and brick and mortar companies like Walmart, Canadian Tire, Costco, and Best Buy (which also have a significant online presence). Additionally, there are third party fulfillment companies like Canada Cartage Logistics Solutions, Borderless360, Interfulfillment, and Tenaxx Logistics, to name a few.

An issue that has been identified with this transportation and logistics opportunity is that these types of businesses tend to gravitate to the regions where manufacturing and retail businesses are centralized. Furthermore, all of the logistics hubs that were investigated were also located directly adjacent to a class 1 railroad's mainline (either CN or CP).

It may be the case that successfully attracting manufacturing and processing facilities to the proposed Sheerness Industrial Park will be an important first step in attracting transportation and logistics businesses. If existing businesses such as Westmoreland's humalite operation grow in scale and scope as planned, it could also create opportunities in this sector. As it stands now, Westmoreland has a

[12] https://www.evolutionfulfillment.com/ecommerce-less-warehouse-space-in-canada-2021/

distribution and transportation agreement with a company from Saskatchewan, but there may be local opportunities in the future.

Conclusion

There is an attractive narrative supporting the Harvest Sky Region's ability to leverage their position on existing transportation corridors in order to pursue transportation and logistics opportunities. However, the lack of direct access to a railroad and absence of existing manufacturing and processing in the region does present challenges. The potential for this type of opportunity should not be completely discounted though. As new businesses locate in Harvest Sky, there may be greater incentives for transportation companies to locate in the region. As discussed earlier, there may also be an opportunity to attract e-commerce fulfillment companies to the area.

Recommendations

Type C opportunity

Transportation and Logistics opportunities should be monitored and low-level marketing support provided.

3.11 Craft Brewery & Pub

The Alberta Craft Breweries Directory shows that there are many breweries located in towns across the province.[13] These include towns of similar size as Hanna such as Three Hills, Rimbey, and Black Diamond. A brew pub that included food options would provide local residents with another local amenity and could also be an attraction that would draw in drive-by traffic on Highway 9.

Craft breweries and brewpubs are not a significant contributor to regional economic development. Evidence of this is provided in the low ranking as compared to other opportunities evaluated. That said, it is a legitimate business opportunity for the town of Hanna.

Conclusion

Attracting this type of business would be one more economic step in the right direction. Craft breweries are becoming more common and there are examples of small-town successes.

Recommendations

Type A opportunity

SUMMIT72 suggests pursuing a lower level of lead generation investment attraction efforts that are commensurate with the scale of this opportunity. This would involve initial conversations with industry associations such as the Alberta Brewers Association and the Olds College Brewmaster & Brewery Operations program lead. Lead generation activities would then be pursued to raise awareness of the opportunity and with the intent of attracting this type of business to the town of Hanna.

[13] https://justbeerapp.com/guides/ca/ab/breweries

3.12 Real Estate Development

The province-wide economic downturn resulting from a sustained drop in the price of oil and the closure of the Sheerness coal mine have led to a population decline in the town of Hanna and Special Areas No. 2. The Harvest Sky EDC has sought to reverse these trends through the creation of a resident attraction program. Resident attraction activities include marketing efforts, social media campaigns, an updated website, and advocating for the region at tradeshows and conferences. The program also seeks to promote benefits related to the rural lifestyle and a wide range of recreational activities. At the time of writing, real estate inventories have declined and there are a number of anecdotal reports of new residents that have moved to Hanna from as far away as Vancouver Island and Kelowna.

Attracting new residents to the region will place demand on existing housing and could also lead to new home builds. SUMMIT72's engagement with local officials identified two areas within the town of Hanna that are suitable for real estate development–land adjacent to the golf course, and the vacant lots on 2nd St. West (otherwise known as Fielding Place). While a golf course development has an attractive narrative, it is our understanding that the cost of bringing services into that location could be substantial. Fielding Place is likely a better location to focus on as it includes 15 fully serviced lots that are ready for development.

Conclusion

There are a number of challenges related to real estate development in the town of Hanna. For instance, the cost of a new build is substantially higher than existing property values, and to date the town has not been able to attract any buyers for the vacant lots. While the argument could be made that new builds will occur when market demand necessitates it, it could also be the case that a proactive approach could help further the objectives of the Harvest Sky EDC. Attracting a residential developer to build a few homes might help attract new residents and could be the catalyst needed to initiate further builds at Fielding Place.

Recommendations

Type B opportunity.

A Type B approach could be used to help raise awareness with developers regarding the existing vacant lots in the town, as well as ongoing efforts to attract new residents. Any additional research related to real estate inventories, housing prices, etc. may be valuable empirical data that could support efforts to attract development. This work could also be linked to the Realtor Awareness Strategy that the Incite marketing team proposed as part of their Resident Attraction Execution Activities Report.

Additional Business Development

The question that needs to be answered is whether Fielding Place has gone undeveloped solely due to lack of demand, or whether additional marketing efforts would be sufficient to spur development. If the answer is the latter, then there are options available that can help promote the vacant lots at Fielding Place.

SUMMIT72 queried land development firm, New Urban Design for input on possible options for Fielding Place. They recommended an initial review of the land and existing servicing to determine if it could accommodate alternative housing configurations. This could include a number of different layout concepts such as smaller homes, courtyard housing (a building style and configuration that could improve affordability), and/or a senior's project. Once the concept was developed, preliminary designs would be created, pro forma financials would be developed, and an attractive marketing package with drawings and 3D renderings could be developed.[14] From there, the next step would be to either pre-sell the units and/or attract a builder that would build the units and then sell them. In either case, the development plan and marketing materials would provide Harvest Sky EDC and/or the town of Hanna with a development package that could be used as a marketing tool.

It is true that home buyers and building developers will make their decisions based on the reality of the real estate market in the Harvest Sky Region, but creating some additional development options and a marketing package could increase the likelihood of attracting buyers and possibly new residents to Hanna. Figure 7 provides an example of drawings from a six-acre senior's development project in Wetaskiwin, Alberta that was created by New Urban Design.

Figure 7: Senior's Development Design and Drawings

[14] New Urban Design provided a high-level budget estimate for this work at $25,000.

3.13 Tourism

Tourism can provide a highly important economic stimulus for rural regions like Harvest Sky by injecting money from outside the region into the local economy. SUMMIT72 considered tourism opportunities over the course of the initial stages of the project and believes that for the most part, efforts to improve tourism opportunities are being addressed by other local initiatives (e.g. the marketing plan). It is also the case that many tourism opportunities fall outside the realm of investment attraction activities.

That said, the team has identified two possible tourism related activities that are aligned with existing industries in the region and could serve to further bolster those sectors of the local economy. Culinary tourism presents a great opportunity to attract tourists and also support local cattle producers. Drumheller residents and tourists visiting there could be targeted as part of a campaign to showcase the premium quality beef products that Harvest Sky has to offer. Another opportunity could leverage the growth of the renewables sector in the region. This would involve working with groups that have an interest in renewable energy in order to provide green energy tours. This could include tours of wind farms, solar installations, and the maintenance center located in Hanna. These types of tours would serve very niche groups and individuals, but there may be a market for this type of tourism.

Conclusion

The Harvest Sky Region offers natural spaces and recreational activities which already attracts tourists. There may also be new trends in tourism that provide further opportunity.

Recommendations

Type C opportunities.

No tourism related investment attraction efforts have been identified.

3.14 Industrial Park

The businesses that might be attracted to the Sheerness Industrial Park can be found in a number of different sectors and as a result the Industrial Park does not easily lend itself to the kind of analysis and ranking that was completed for other opportunities.

The Sheerness Industrial Park could facilitate a range of industries and is particularly well suited to activities that are best carried out in areas of low population density. This could be due to negative externalities such as noise or smell. The Industrial Park is a regional asset which SUMMIT72 intends to promote over the course of this project along with all the other benefits that the region has to offer. It is the opinion of the project team that the industrial park will be viewed positively by the businesses engaged as part of investment attraction activities.

Conclusion

Outside of the business development activities identified in this report, it may be the case that general marketing activities and word of mouth will be the best way to attract businesses to the industrial park. However, there may be additional targeted activities that could be undertaken to increase the likelihood of attracting tenants to the park.

Recommendations

Type C opportunity

The Sheerness Industrial Park has been set as Type C simply because it is more challenging to identify specific businesses to target as part of lead generation activities. General marketing efforts by Incite and Blue Train can be used to increase exposure of the region and the industrial park.

Additional Business Development

Incremental scope directed at specifically attracting investment to the industrial park could include more extensive research and lead generation activities to identify the industries and specific companies that would seek a more remote region to set up operations.

One possible approach could be to complete research into other examples of industrial parks in rural areas across Canada (or North America if needed) in order to identify business trends and patterns. The objective would be to identify the types of industries that gravitate to more remote areas (specifically those areas with similar attributes to Harvest Sky). From there, the team could engage industry associations and make use of other resources to begin lead generating activities such as identifying start-up companies or businesses looking to expand. Those companies would then be engaged with the intent to attract them to the Sheerness Industrial Park.

4 Summary

The below table provides a summary of each opportunity ranking, recommended activity type, and whether any additional business development initiatives have been suggested.

Table 1: Opportunity Summary

Opportunity	Recommended Activity Type	Preliminary Analysis Ranking	Opportunity to Promote to A?	Potential for Additional BD
Cryptocurrency Mining & Data Center	A	2 & 4		Yes
RCP	A	3		
Hydrogen Production	A	6		
Micro-Brewery	A	11		
Value Added Beef Processing	B	9	Yes	Yes
Real Estate Development	B	12		Yes
Value Added Ag. Processing	B	5	Yes	Yes
Biofuel	B	7	Yes	Yes
Commercial Greenhouse	B	8	Yes	Yes
Wind and Solar Production	C	1		Yes
Transportation & Logistics	C	10		
Tourism	C	13		
Sheerness Industrial Park	C	N/A		Yes

There are five opportunities that have been identified as Type B, and it has been suggested that four of them have the potential to be promoted to Type A, if justified by additional research and investigation (value added beef processing, value added agricultural processing, biofuels, and commercial greenhouses).

Appendix A – Opportunity Ranking

The following table provides a summary of the opportunity ranking process. Scores for each category range from 1-8, with the higher scores indicating higher levels of regional suitability or economic impact. Scoring has been tied to economic data provided by Statistics Canada Labour survey, and Business Count data, as well as extensive business sector data provided by Industry Canada. Opportunities have been ranked by total score.

Table 2: Opportunity Ranking

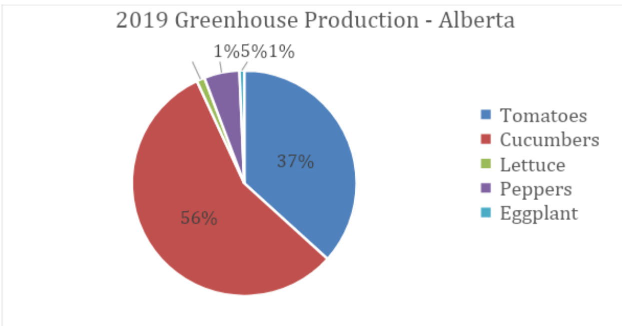
Opportunity	NAICS	Financial Metrics	GDP Impact	Sector Profitability	Potential Job Creation (median)	Income Potential (median)	Regional Fit	Overall Score
Wind and Solar Production	22111	3	4	8	4	8	8	35
Cryptocurrency Mining	5182	4	4	8	4	6	8	34
Veterinarian	54194	8	2	8	2	6	6	32
Data Center	5182	2	5	8	4	6	4	29
Value Added Ag. Processing	3112	4	6	4	4	6	5	29
Hydrogen Production	3251	3	4	6	4	6	6	29
Biofuel	3251	4	5	4	4	6	5	28
Research	5417	6	4	6	2	5	5	28
Commercial Greenhouse	11141	2	5	6	4	5	6	28
Animal Health	1152	4	4	6	2	5	6	27
Value Added Beef Processing	31161	3	5	6	4	4	5	27
Transportation and Logistics	4841	4	4	8	2	4	4	26
Warehousing	4931	3	4	6	4	4	4	25
Micro-Brewery	31212	4	4	2	4	5	6	25
Real Estate Development	2361	5	4	6	2	4	4	25
Culinary Tourism	7225	5	2	4	4	2	5	22
Agri-Tourism, Green Energy Tours	7121	2	2	2	2	2	5	15

Appendix B – Greenhouse Market Assessment

Vegetable Production

As a starting point, the market evaluation will concentrate on those crops that have historically offered opportunities for Alberta greenhouse growers. As illustrated in Figure 1, in the past Alberta growers have focused on growing tomatoes, cucumbers, lettuce, peppers and eggplants.

Figure 1

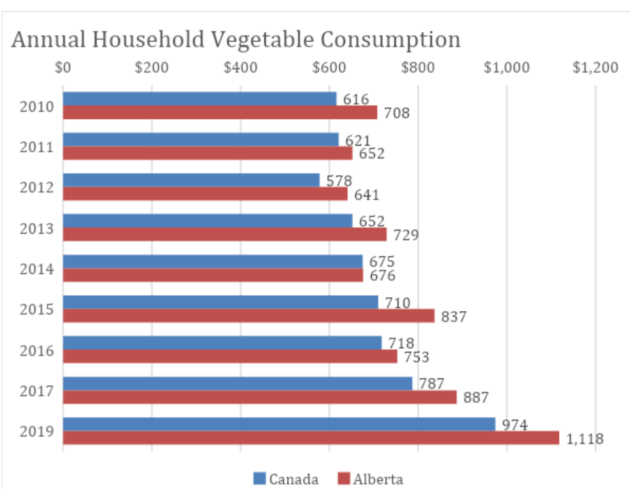


Statistics Canada, 2019

Vegetable Consumption

Since 2014, annual household vegetable consumption has increased by 10.6% as compared to 7.6% nationally. The average Alberta household now purchases over $1,100 in vegetables per year, up nearly $450 since 2014. Part, but not all of this increase can be explained by food related inflation, but Albertans are also purchasing more vegetables than they used to.

Figure 2



Statistics Canada, 2020

Vegetable Market

As summarized in Table 1, vegetables consumed by Albertans primarily originate from one of three sources: Canadian field production (during summer months), international imports (typically field grown), and Canadian greenhouses.

Table 1: 2019 Alberta Vegetable Market Composition ($1,000)[15]

	Tomatoes	Peppers	Cucumbers	Lettuce	Eggplant	Total
Field Production	398	138	1,058	162	0	1,756
Greenhouse Production	29,131	4,803	48,645	1,819	791	85,190
Imports	40,122	39,486	8,392	84,355	5,109	177,464
Subtract Exports	4,171	30	691	1,112	0	6,005
Vegetable Market	**$65,480**	**$44,397**	**$57,404**	**$85,224**	**$5,900**	**$258,405**

Not included in the totals in Table 1 are interprovincial imports. Canada produces significant field production in the summer months. However, 98% of that field production occurs in Ontario and Quebec.[16] The data available indicates that field vegetables produced in Eastern Canada are consumed locally or exported to the nearby US market.

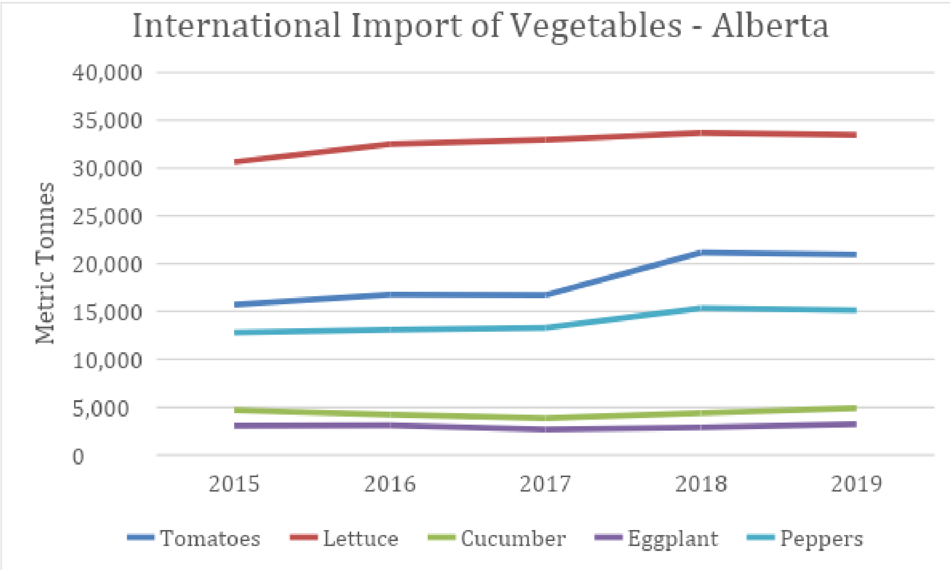
Table 1 provides insight into the potential domestic market for Alberta's greenhouse growers. The total market is estimated at $258M with close to 70% of vegetables being imported (primarily from the United States and Mexico). With minimal field production in Alberta, greenhouse producers serve most of the remaining market share.

Vegetable Imports

With imports comprising such a large component of Alberta's vegetable market, it is worth investigating to understand how recent trends might impact the potential for growth in greenhouse vegetable production.

[15] Field production is based on Farm Gate value. Trade data values reflect the transaction value or price paid between unrelated buyers and sellers. (ic.gc.ca/eic/site/tdo-dcd.nsf/eng/h_00079.html)
[16] Statistics Canada. Table 32-10-0365-01 Area, production and farm gate value of marketed vegetables

Figure 3



Trade Data Online, 2020

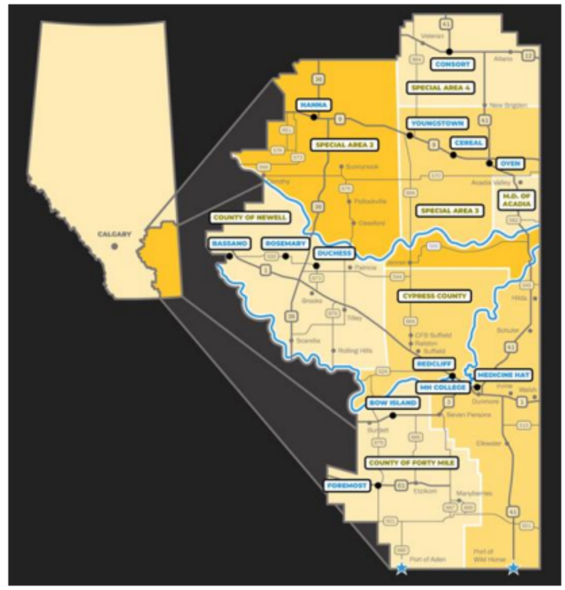
Interestingly, vegetable imports have remained reasonably stable over the past five years, with only tomatoes and peppers registering significant average annual growth at 5.9% and 3.4% respectively.

Since vegetable consumption in Alberta has increased in recent years, this data suggests that the growth has not been fully met by the import market. This would imply that Alberta greenhouse operations have been able to capture the additional growth in the market.

Appendix C – Hydrogen Hub Info Sheet

Southeast Alberta Hydrogen Hub – Foundation Report – Request for Information

The Transition Accelerator and its funding partners have recently launched the SE Alberta Hydrogen Hub Task Force (Task Force established to Advance Hydrogen Economy in Southeast Alberta - Transition Accelerator). The Task Force members include the City of Medicine Hat, City of Brooks, Palliser Economic Partnership, APEX Regional innovation Network, CF Industries, Methanex, RockPoint Gas Storage, Campus Energy, Envoy Energy, and The Transition Accelerator.



Randy Litun [rlitun@skypointres.com | 403.540.1806] is an independent contractor, working with The Transition Accelerator, as the SE Alberta Hydrogen Hub Facilitator. He has been tasked with contacting various businesses, organizations, and stakeholders within the region to gain input for purposes of completing a Foundation Report, which is intended to be a commentary on the potential energy transition pathways for the region, focused on hydrogen.

The publication of the Foundation Report will coincide with the formal establishment of the SE Alberta Hydrogen Hub, which will be a collaborative effort of companies, communities, and stakeholders to encourage the creation of a value chain of projects within the region. The SE Alberta Hydrogen Hub region has been defined by the boundaries of the Palliser Economic Region.

The Foundation Report is intended to capture the diverse nature of the region by quantifying the complete energy cycle (specifics of the demands and generation) as well as highlighting strengths, hurdles, and opportunities unique to the region. The focus will be on compiling data at a level to provide meaning analysis of various factors and components within the region, yet not disclose any individual entity's specific information to respect privacy and potentially competitive factors. The report will address potential of Hydrogen integration within Heavy Transportation (road, rail, air), Industrial (feedstock, utilities, products), Electrical Generation, Agriculture, and Personal (vehicles, utilities) sectors of the region.

Due to the unique nature and diversity of this region, Randy would like to connect with as many individual stakeholders as possible throughout the region, to ensure that he is representing the entire region correctly and capturing the differences, unique characteristics, and opportunities that may not be apparent within provincial or federal averages. The commentary within the report would address technologies and strategies for energy transition pathways, the limitations, strengths and risks specific to the region, as well as the role of the community and other stakeholders in participating and guiding the transition in the area.

To accomplish this, the following input would be requested:

- the amount of energy consumed or generated, and the equipment or processes associated with such volumes, (including diesel, gasoline, propane, coal, natural gas, electricity, biofuels, hydrogen, and other fuels),
- where you access or deliver your energy (utilities, wholesale or retail distributor, other),
- whether your organization has an energy transition strategy and the thoughts on hydrogen's role in your company, industry, and community, and
- commentary on the opportunities and risks of establishing a hydrogen economy and energy transition pathway for the region.

It should be stressed that the intent is to use the data that you provide to create aggregate values and views for the Hub region for purposes of the publication and in no way will the reader be able to trace the specific information back to individuals, organizations, or facilities.

Your participation and contribution to the generation of the SE Alberta Hydrogen Hub Foundation Report is greatly appreciated.