RENEWABLE ENERGY AND CLEAN TECHNOLOGIES

SECTOR PROFILES

Chamber of Commerce

GRANDE PRAIRIE & DISTRICT

Please note that every effort has been made to use the most current data available. There are four major sources of information for this part of the research.

- SuperDemographics 2020 from Manifold Data Mining Inc.
- EMSI Analyst 2021.Q1
- Statistics Canada - 2001 to 2016 Census Profiles
- IBIS World 2020 and 2021 Industry Profiles

Cover Photo Credit: Wendy Kempert
Inside Cover Photo Credit: NWP

INTRODUCTION

This sector profile focuses on the Region consisting of the City of Grande Prairie, County of Grande Prairie, Municipal District (MD) of Greenview, Town of Beaverlodge, Town of Sexsmith, Town of Wembley, Town of Fox Creek, Town of Valleyview, Greenview Co-ops and Enterprises, Sturgeon Lake Cree Nation, and Horse Lake First Nation. Any references to "Region" within this document refer to the custom region above.

The Region spans nearly 40,000 square kilometres and acts as a gateway and resource hub for northwestern Alberta. Its largest centre, the City of Grande Prairie, is located approximately 450 kilometres northwest of Edmonton. With a strong postsecondary institution, new hospital, skilled labour force, and significant business supports, opportunities abound within the Region.

- MD OF GREENVIEW
- COUNTY OF GRANDE PRAIRIE
- CITY OF GRANDE PRAIRIE

ALBERTA

- EDMONTON
- CALGARY
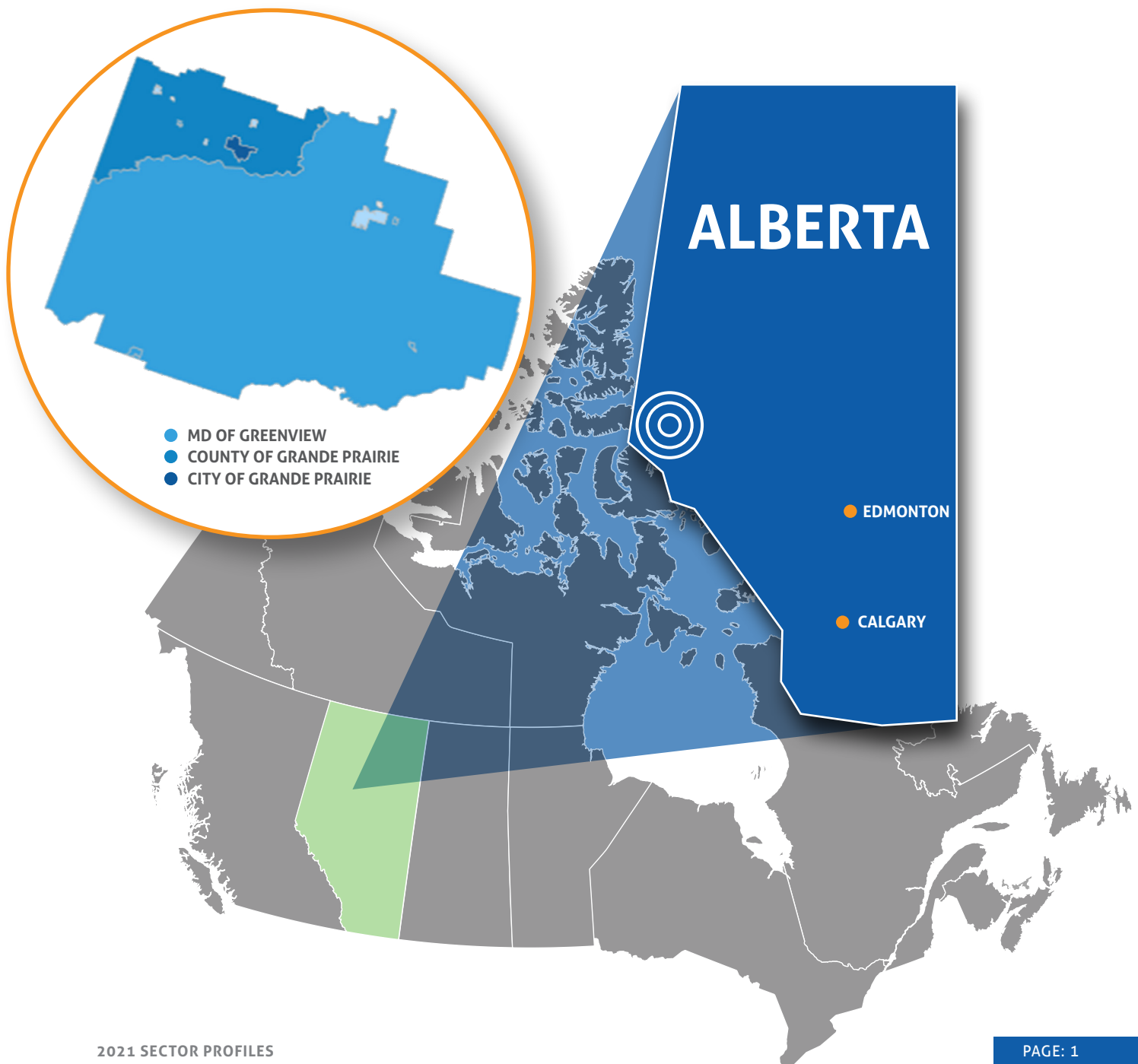
REGIONAL DEMOGRAPHIC BREAKDOWN

All data sourced from Manifold SuperDemographics unless otherwise specified.

Population of Region, 2020

141,202 — 2030
**131,571** — 2025
121,814 — 2020
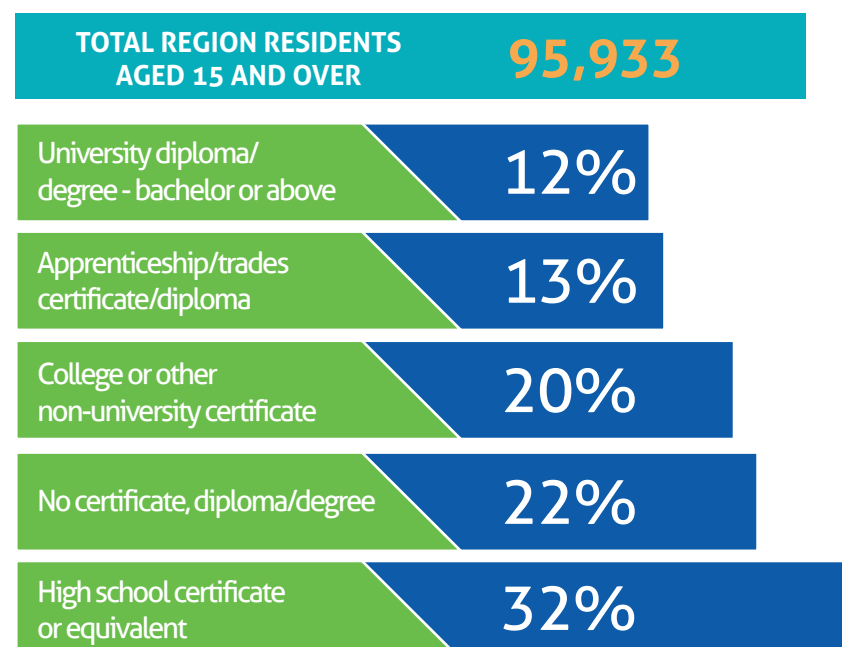**108,953** — 2016
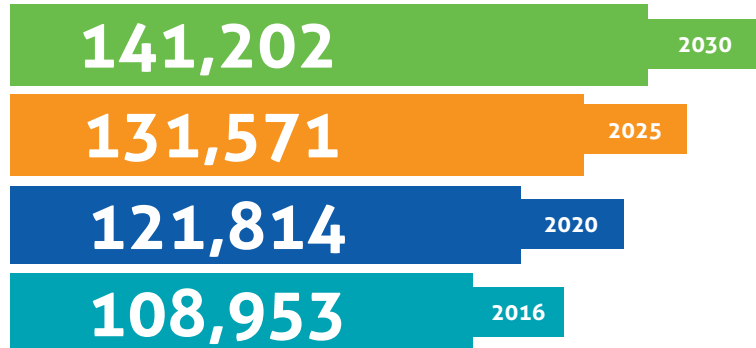
PERCENTILE INCREASE

The 2020 population estimate relies on a different source (Manifold Data Mining) than the 2016 population estimate (Statistics Canada Census) and the numbers are therefore not directly comparable.

There is a projected **8%** increase in population from 2020 to 2025, and **7%** increase from 2025 to 2030.

Median and Average Age, 2020

MEDIAN	AVERAGE
Region Age **34**	Region Age **35**
Alberta Age **37**	Alberta Age **38**
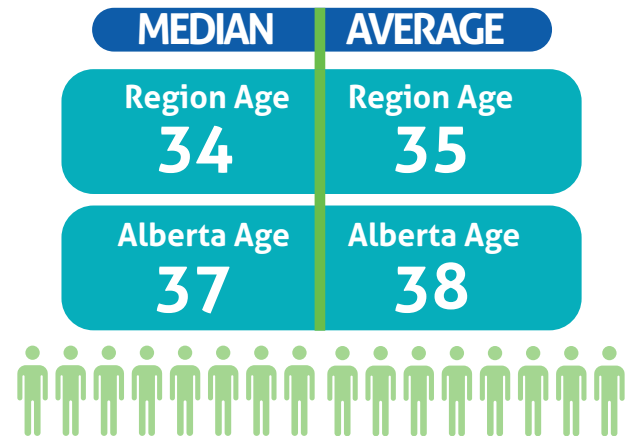
Highest Educational Attainment for Region Residents, aged 15 and over, 2020

TOTAL REGION RESIDENTS AGED 15 AND OVER	**95,933**
University diploma/degree - bachelor or above	**12%**
Apprenticeship/trades certificate/diploma	**13%**
College or other non-university certificate	**20%**
No certificate, diploma/degree	**22%**
High school certificate or equivalent	**32%**

Top 5 Fields of Study for Region Residents, aged 15 and over, 2020

7,693
BUSINESS, MANAGEMENT, MARKETING AND RELATED SUPPORT SERVICES

6,016
HEALTH PROFESSIONS AND RELATED PROGRAMS

4,998
MECHANIC AND REPAIR TECHNOLOGIES/TECHNICIANS

3,553
EDUCATION

3,285
CONSTRUCTION TRADES

Labour Force Status for Region Residents, 2020

Labour Force Status	Region
Total Population, Residents aged 15 and over	**95,933**
In the labour force	70,682
Employed	61,956
Unemployed	8,726
Not in the labour force	25,251

Average Labour Force Participation Rates, 2020

PARTICIPATION RATE	EMPLOYMENT RATE	UNEMPLOYMENT RATE
REGION	REGION	REGION
73.6%	64.5%	12.3%
ALBERTA	ALBERTA	ALBERTA
69.4%	61.7%	11.0%
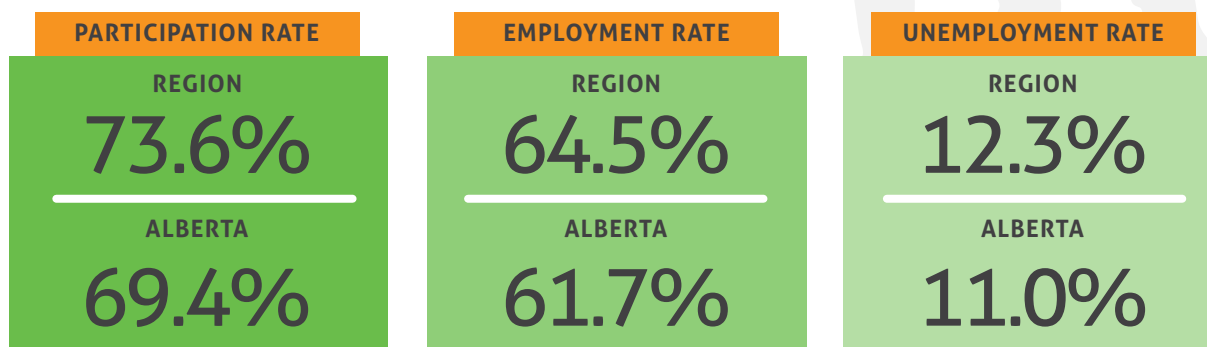
ABOUT THE SECTOR

Renewable energy and clean technologies has been identified as a target sector within the Region. Subsectors within this field consist of power generators; engineering construction; sewage and utility systems; and power transmission equipment manufacturing. As demand for sustainable energy generation and eco-friendly technologies rise, demand for outputs from the renewable energy sector will correspondingly rise. As such, the importance of this sector for the Region will continue to grow.

REGION SPECIFIC

The renewable energy and clean technologies sector houses over 2,000 businesses within the Region, making it one of the largest industries in the Region. The sector is also a valuable exporter of goods, being responsible for approximately $1.3 billion of goods, or 13.4% of the Region's total exports.

Though many businesses are smaller enterprises (78.8% have fewer than 10 employees), 18 employers (1.7%) employ over 100 individuals. The largest subsector in terms of total businesses is support activities for mining, and oil and gas extraction, which houses 781 businesses, including 10 with over 100 employees.

Renewable Energy and Clean Technologies Businesses, 2021

Industries	Businesses
Support activities for mining, and oil and gas extraction	781
Management, scientific and technical consulting services	498
Architectural, engineering and related services	236
Utility system construction	224
Other professional, scientific and technical services	195
Electronic and precision equipment repair and maintenance	70
Waste treatment and disposal	21
Other heavy and civil engineering construction	20
Remediation and other waste management services	20
Electric power generation, transmission and distribution	7
Water, sewage and other systems	5
Other electrical equipment and component manufacturing	3
Engine, turbine and power transmission equipment manufacturing	1
Electrical equipment manufacturing	1
Total	**2,082**

Source: McSweeney and Associates using data from EMSI Analyst - 2021.Q1

Renewable energy and clean technologies businesses in the Region employed 7,549 people in 2021. From 2021 to 2028 this sector is poised to see a slight decrease of 5% of jobs compared to 2021, down to 7,164 positions. Certain sectors, however, are projected to see significant growth over that period including other professional, scientific and technical services (16% growth projected) and other heavy and civil engineering construction (8% growth).

Renewable Energy and Clean Technologies Employed and Self-Employed Positions, 2019, 2021 and 2028

Subsector	2019 Positions	2021 Positions	2028 Positions	Change '21-'28	% Change
Support activities for mining, and oil and gas extraction	4,218	3,428	3,057	-371	-11%
Utility system construction	1,654	1,437	1,392	-45	-3%
Architectural, engineering and related services	1,128	1,143	1,137	-6	-1%
Other professional, scientific and technical services	445	476	551	76	16%
Management, scientific and technical consulting services	312	302	297	-5	-2%
Electric power generation, transmission and distribution	209	188	169	-19	-10%
Electronic and precision equipment repair and maintenance	140	175	184	9	5%
Remediation and other waste management services	161	136	137	2	1%
Other heavy and civil engineering construction	145	94	102	8	8%
Waste treatment and disposal	120	89	62	-27	-31%
Electrical equipment manufacturing	32	45	40	-5	-11%
Water, sewage and other systems	35	35	35	0	1%
Engine, turbine and power transmission equipment manufacturing	10	0	0	0	N/A
Other electrical equipment and component manufacturing	10	0	0	0	N/A
Total	**8,618**	**7,549**	**7,164**	**-385**	**-5%**

Source: McSweeney and Associates using data from EMSI Analyst - 2021.Q1
Note: Job totals per subsector may not add up to the total to number of positions within the broader sector due to methodological rounding.

Average wages for the Region's renewable energy and clean technologies sector are high, with the average earner across the sector seeing wages of $70,356.54 in 2021.

Renewable Energy and Clean Technologies Average Wages Per Subsector, 2021

Subsector	Average Wages
Oil and gas well drillers, servicers, testers and related workers	$82,432
Contractors and supervisors, oil and gas drilling and services	$81,683
Oil and gas well drilling and related workers and services operators	$70,413
Oil and gas drilling, servicing and related labourers	$60,309
Heavy equipment operators (except crane)	$63,169
Contractors and supervisors, heavy equipment operator crews	$80,866
Underground production and development miners	$82,611
Transport truck drivers	$63,542
Central control and process operators, petroleum, gas and chemical processing	$101,505
Steamfitters, pipefitters and sprinkler system installers	$85,523
Average Salary (all positions)	**$70,356.54**

Source: McSweeney and Associates using data from EMSI Analyst - 2021.Q1
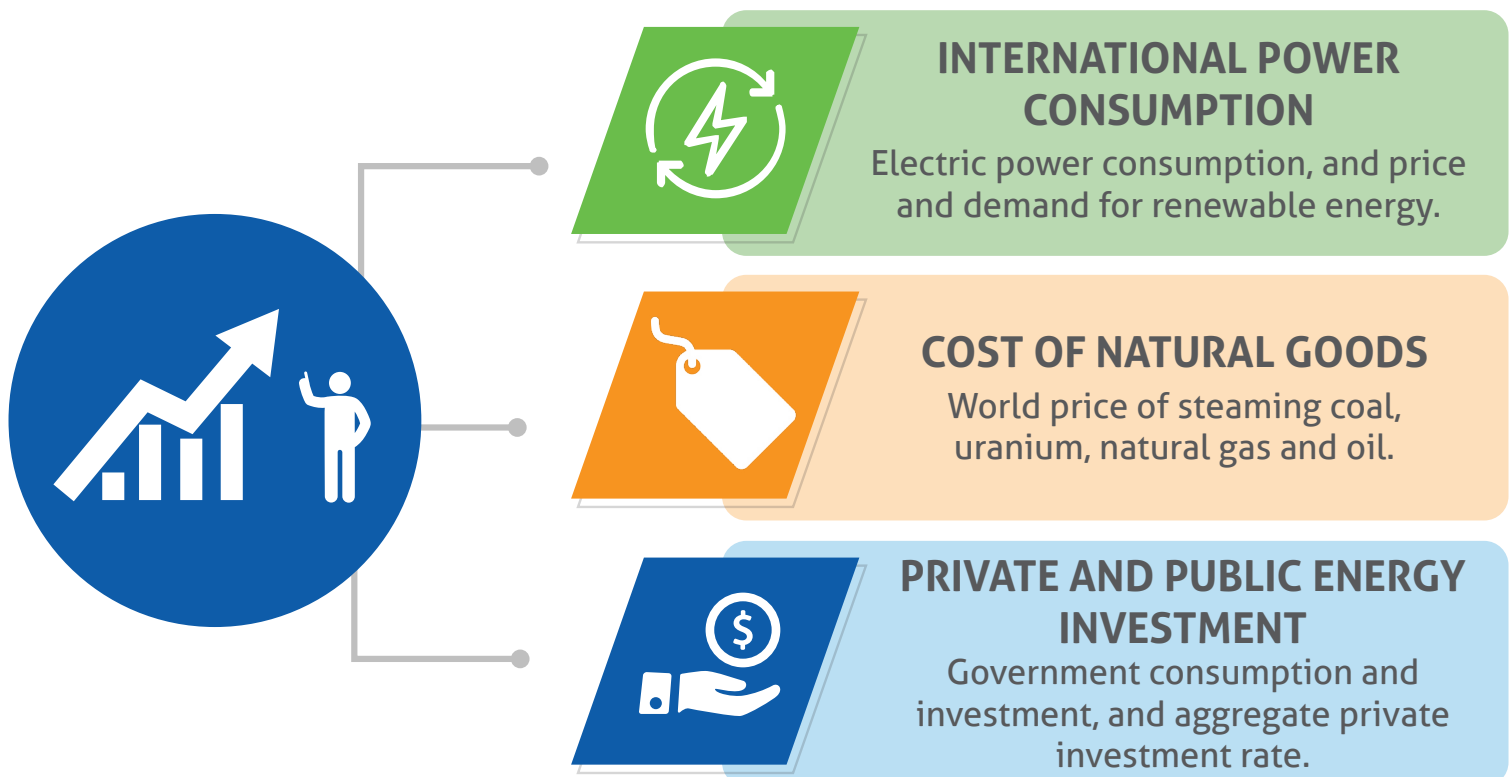
SECTOR DATA

FUTURE OUTLOOK OF THE SECTOR

The broader natural goods extraction industry in Canada has experienced significant volatility over the five years to 2020. Industry revenue grew significantly in the years leading up to the reporting period before falling prices caused a decline in 2015. Improved technology and extraction techniques as well as international oil investment has helped alleviate some concerns.

However, lower industry prices and extensive capital requirements suggest declines in employment and businesses are expected in the short term. At the same time, renewable power (geothermal, wind and solar) demand has grown alongside the demand for clean technologies. These cleaner subsectors of energy production are increasing in importance to the Region and are likely to play a significant role moving forward.

KEY DRIVERS OF DEMAND

Factors determining national demand for the renewable energy and clean technologies sector can be broken into three categories.
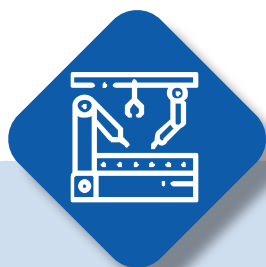
INTERNATIONAL POWER CONSUMPTION
Electric power consumption, and price and demand for renewable energy.

COST OF NATURAL GOODS
World price of steaming coal, uranium, natural gas and oil.

PRIVATE AND PUBLIC ENERGY INVESTMENT
Government consumption and investment, and aggregate private investment rate.

Source: IBISWorld 2021

KEY SUPPLIERS TO THE RENEWABLE ENERGY AND CLEAN TECHNOLOGY SECTOR

Upstream manufacturers
(e.g., engine and turbine; metal pipe and tubing; and wire and cable)

Natural goods producers
(e.g., coal mining; oil, drilling and gas extraction; and petroleum refining)

KEY BUYERS TO THE RENEWABLE ENERGY AND CLEAN TECHNOLOGY SECTOR

Downstream industries
(e.g., construction; mining; manufacturing; and utilities)

Canadian consumers

TOTAL EMPLOYMENT FIGURES

In 2019 there were 9,374 Region residents working within the renewable energy and clean technologies sector, with the majority working within the support activities for mining, and oil and gas extraction subsector. This suggests that there are 759 additional individuals working within the sector than there are jobs available within the Region (see table on Pg. 5 noting 8,615 jobs in 2019). This is to be expected, given the nature of work within this sector relies on employees travelling to work in geographically remote areas for extended periods of time.

Employment Totals Within Renewable Energy and Clean Technologies, Region Residents 2019

Industries	Workforce
Support activities for mining, and oil and gas extraction	5,517
Architectural, engineering and related services	1,270
Utility system construction	931
Management, scientific and technical consulting services	430
Electric power generation, transmission and distribution	411
Other professional, scientific and technical services	349
Water, sewage and other systems	131
Waste treatment and disposal	116
Electronic and precision equipment repair and maintenance	95
Remediation and other waste management services	84
Electrical equipment manufacturing	18
Other heavy and civil engineering construction	16
Engine, turbine and power transmission equipment manufacturing	3
Other electrical equipment and component manufacturing	3
Total	**9,374**

Source: Manifold 2020 SuperDemographics

RELEVANT LEVELS OF EDUCATION

Region residents are well-positioned to thrive within the renewable energy and clean technologies sector, when considering educational attainment. Specifically, 8,337 residents in 2019 had degrees in fields of study directly related to this sector, including 2,510 in engineering technologies and engineer-related fields.

Fields of Study Within the Renewable Energy and Clean Technologies Sector for Region Residents

Field of Study	Total Residents
Engineering technologies and engineering-related fields	2,510
Precision production	1,924
Engineering	1,104
Mathematics, computer and information sciences	1,103
Physical and life sciences and technologies	980
Natural resources and conservation	716
Total residents with degrees in related fields of study	**8,337**

Source: Manifold 2020 SuperDemographics

PERCENTAGE OF OVERALL LABOUR FORCE AND LOCATION QUOTIENT

Location quotient is a calculation that assesses which industries are more likely to be represented locally, compared to benchmark areas. A location quotient above 1.00 suggests that industry is more heavily concentrated as a percentage of the total jobs available locally, while a location quotient below 1.00 suggests it is less heavily concentrated.

The renewable energy and clean technologies sector has a location quotient of 1.57 relative to Alberta, meaning that jobs within this sector make up a larger percentage of the local workforce than they do at the provincial level. Specifically, jobs in this sector represent 12.7% of the Region's total jobs, compared to 8.1% of provincial jobs.
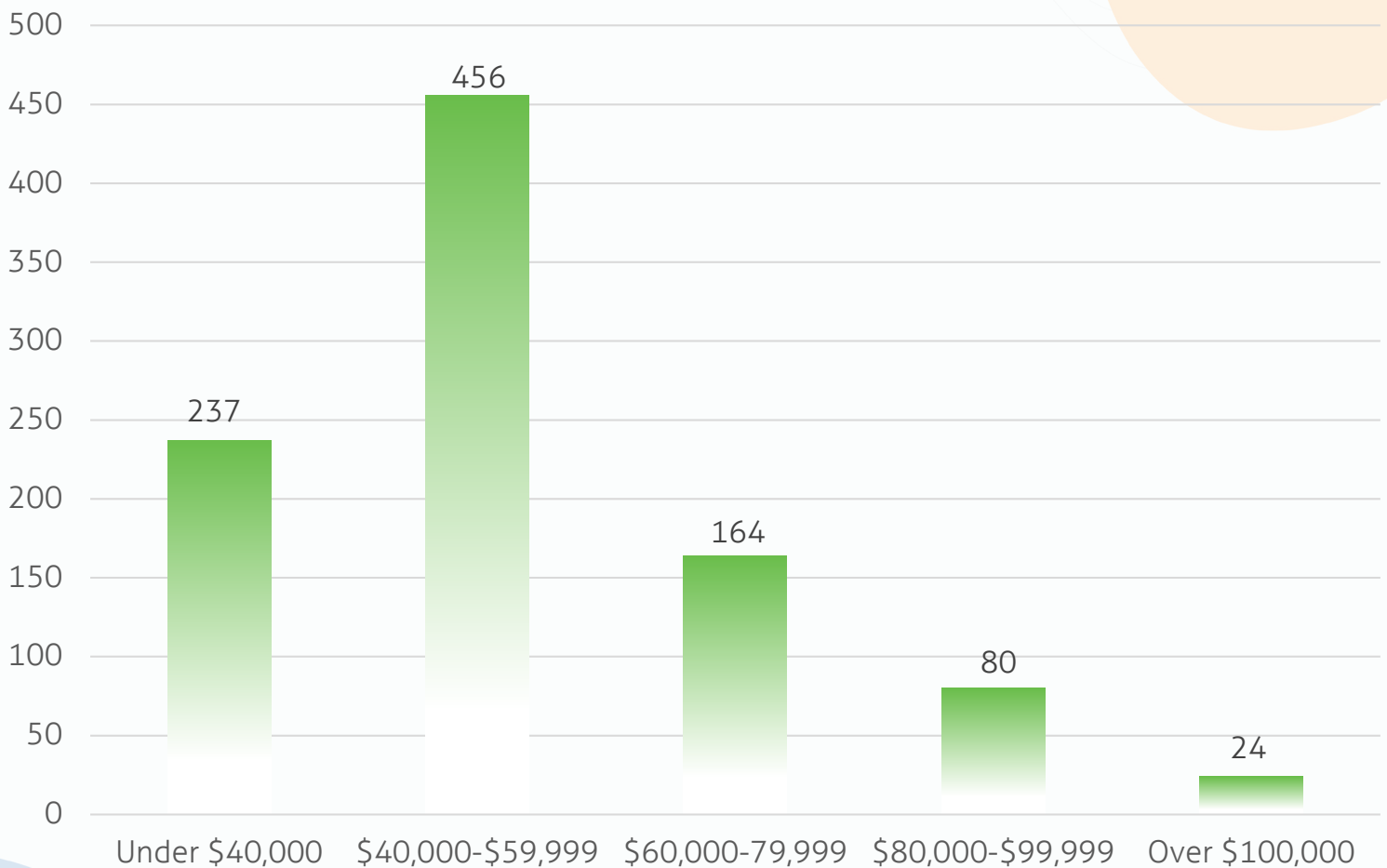
JOB POSTING DATA

Between March 2019 and March 2020, the Region saw 5,664 unique job postings within the renewable energy and clean technologies sector. Of the jobs posted during this period, 971 had advertised salaries. Those 971 postings had a median advertised salary of $56,192, with 10.8% offering a salary above $95,000.

The median posting duration (i.e., how long each job was posted before being taken down) for job postings in this sector was 29 days, compared to the regional average of 31 days for all job postings.

Job Postings by Salary, March 2019-March 2020, Region

Source: EMSI Analyst

	MEDIAN SECTOR JOB POSTING DURATION	REGIONAL AVERAGE FOR ALL JOB POSTINGS
	29 days	**31 days**

COMMUNITY ASSETS SUPPORTING THE SECTOR/CLUSTER

Northwestern Polytechnic (NWP) offers a variety of educational options and has developed local partnerships to provide programming that rapidly and effectively meets the needs of their learners and the broader community.
nwpolytech.ca

Grande Prairie Regional Innovation Network (GPRIN) helps innovators, entrepreneurs and companies move their ideas forward by offering access to a variety of services and professionals throughout the Alberta innovation ecosystem.
gprin.ca

Community Futures Grande Prairie and Region offers businesses support from first steps through to growth stages. This includes information on how to start a business, developing business plans, financing loans, marketing and feasibility studies.
grandeprairie.albertacf.com

ATB Entrepreneur Centre supports businesses through business-to-business networking, connections and workshops.
atbentrepreneurcentre.com

Women Building Futures offers programs and support services to help unemployed and underemployed women explore and connect to careers that pay above a living wage. Employment training programs provide the introductory skills to begin a new career in areas where women have historically been underrepresented.
womenbuildingfutures.ca

For information on other Community and Training Assets, please contact the project partners.

CONSULTATION RESPONSES

✓ Employers rated **communication** and **literacy** as the two strongest skills among the Region's workforce.

✓ **30%** of businesses saw a growth in employment in the last two years, including during COVID-19.

Note: Based on a 2020 survey of over 700 regional stakeholders.

RENEWABLE ENERGY AND CLEAN TECHNOLOGIES

REGIONAL SPOTLIGHT

Within the Region, geothermal energy has been identified as an emerging opportunity. The **Leduc Formation** and **Granite Wash Formation** have both been assessed as viable for commercial development. Considering the Government of Alberta has indicated that clean/renewable energy represents a significant opportunity to diversify Alberta's and the Region's energy sector, these formations present unique development opportunities for the Region moving forward. Further, situated above two prolific natural gas formations – the **Montney** and the **Duvernay** – the Region offers tremendous opportunity for value-added processing in the petrochemical industry.

Already, the Region is attracting multi-billion dollar investments into energy production and clean energy projects. Planning for three major projects is currently underway in the MD of Greenview and the County of Grande Prairie. These world-class projects will support more than 9,000 construction jobs locally and across the province, as well as over 650 operational jobs in the Region.

Photo Credit: Beauchamp Photography

TRAINING ASSETS AND INSTITUTIONS THAT SUPPORT THE SECTOR/CLUSTER

CONSULTATION RESPONSES

The Region's workforce is invested in skills development, with 85% of survey respondents indicating they would like to gain new skills or re-train.

- Energy-related skills were some of the most highly sought set of skills to train. This includes training in power engineering, renewables energy asset maintenance and installation, and energy efficiency.

The top three reasons residents would look to remain at a job were:

1. A supportive manager
2. Fair pay
3. Career growth, and learning and development opportunities

Note: Based on a 2020 survey of over 700 regional stakeholders.

TRAINING ASSETS SPECIFIC TO REGION

NORTHWESTERN POLYTECHNIC

NWP has a wide array of renewable energy and clean technology-related degrees, diplomas and certificate programs. Students can deepen skills and knowledge through Power Engineering, Computer Systems Technology, and Business Administration offerings.

Sector related Skilled Trades and Apprenticeships provide hands-on Heavy Equipment Technician and Instrumentation and Control Technician experience while NWP's Collaborative University Transfer programs enhance Science and Engineering expertise.
nwpolytech.ca

University Transfer
(Science and Engineering)

Computer Systems Technology

Power Engineering

TRAINING ASSETS SPECIFIC TO REGION CONT.

CAREERS: The Next Generation is a non-profit organization that works with schools to connect high school students to employers for paid internships. Youth get the opportunity to test drive in-demand occupations in skilled trades, forestry, information and communications technology, agriculture and healthcare. Companies benefit by attracting local talent and bringing youthful energy to their industry. There are also financial incentives to help employers provide opportunities during tough economic times.
careersnextgen.ca

The Rupertsland Institute supports the well-being of Métis in Alberta through job matching, training partnerships with NWP, access to technology and internet, online counselling tools, information on local services, employers and careers, and self-employment workshops.
**rupertsland.org**

Western Cree Tribal Council
The **Indigenous Skills Employment and Training (ISET) Program** is designed to help Indigenous people improve their skills and find employment through training and skills development. The program helps the community members find employment and polish employment skills. Funded through Service Canada, it gives members the skills required to find employment and fill job gaps.
westerncree.ca

Northern Lakes College (NLC) provides a supported distance learning environment with two locations in the Region. Programs include Resource Technology, Sustainable Energy Certificate and Diploma (through Lakeland College), Apprenticeship Trades, Pre-Employment Trades, and Business and Administrative Studies. Continuing Education and Corporate Training offers Forest Stewardship, Asset Management Professional, and Maintenance Management Professional.
northernlakescollege.ca

For information on other Community and Training Assets, please contact the project partners.
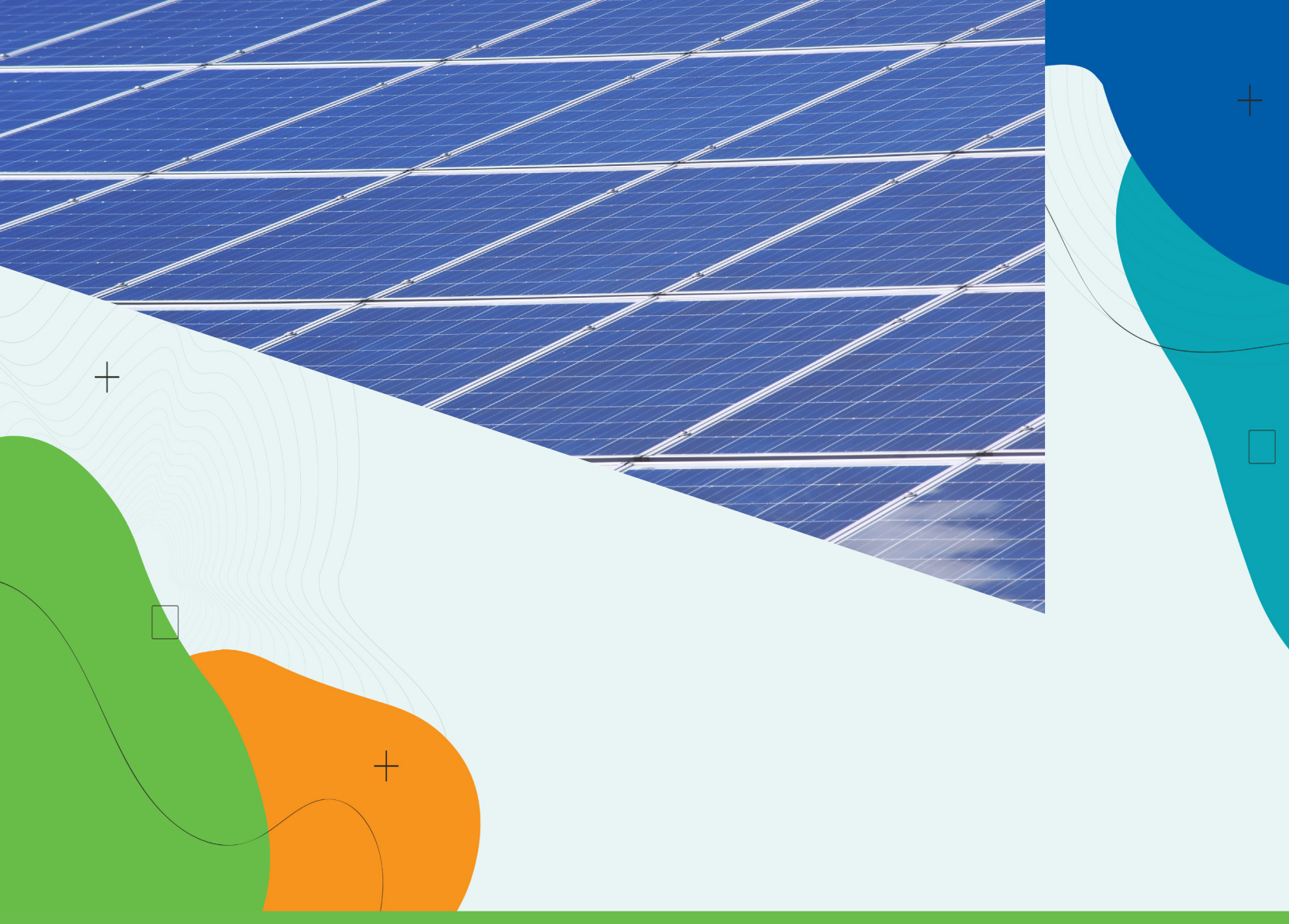
Alberta Labour and Immigration

Workforce Strategies Division
3201, 10320 - 99 Street
Grande Prairie, AB, T8V 6J4

T: (780) 512-4880
E: wfc@gov.ab.ca
W: alberta.ca/labour-and-immigration

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Northwestern Polytechnic

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W: investgrandeprairie.com

Municipal District of Greenview

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