



## Environmental Engineering & Services

Edmonton's global reputation for excellence in waste management, water and wastewater and land and water remediation technologies forms the backbone of the environmental products and services sector.

With this sector closely aligned to Alberta's oil and gas industries, the potential is strong and the future bright.

### Sector snapshot

The world is demanding significantly greater environmental stewardship from industry and the public sector, and the global 'green' economy is worth over \$4 trillion.<sup>1</sup> The environmental focus on Alberta's oil and gas sector has resulted in a robust, and growing, environmental products and services sector within Edmonton.

Edmonton's core strengths are in waste management, water and wastewater treatment, carbon capture and storage and land and water remediation technologies. Sector firms offer a wealth of marketable consulting services, technology development and specialty products.

Sector growth has been driven by the continuing expansion of Alberta's energy sector, public policies to protect the environment, new regulatory frameworks and increased public and private sector funding.

The Government of Alberta, either directly or through a range of government supported agencies such as C3 and Climate Change and Emissions Management (CCEMC) Corporation, supports the development and implementation of strategies that reduce the negative environmental consequences of energy production and the conservation and efficient use of energy. In addition to private sector projects funded through CCEMC, the Government of Alberta has committed \$2 billion to support large-scale storage projects designed to help reduce greenhouse gas (GHG) emissions.<sup>2</sup>

Edmonton is a leader in development of innovative waste management processing and technologies.

### Canada and Alberta's environmental products and services sector in brief:

- Canadian green technology and services sector is projected to grow from \$2.3 billion in 2010 to \$3.7 billion by 2014.<sup>3</sup>
- Alberta is home to more than 1,300 companies with revenues of over \$2.8 billion.<sup>4</sup>
- Alberta re-invests its carbon tax to fund research and pilot projects designed to stimulate transformational change through investments in climate change knowledge, clean technology development and operational deployment.<sup>5</sup>
- Alberta leads national expenditures in environmental protection activities relating to its resource sector.<sup>6</sup>
- Alberta's oil and gas sector had the highest operating expenditures for environmental protection, reporting over \$2 billion in site reclamation, decommissioning and pollution prevention processes.<sup>7</sup>
- Alberta's workforce, with significant depth in engineering and expertise in natural resources planning and management, aligns well with skills needed for this growth sector.<sup>8</sup>
- Alberta is home to the largest remediation conference in Canada.



1 Greening the Economy, Federal-Municipal Policy Alignment, David Thompson, Sustainable Prosperity, 2012

2 <http://www.solutionsstarthere.ca/24.asp>

3 Greening the Economy, Federal-Municipal Policy Alignment, David Thompson, Sustainable Prosperity, 2012

4 Environmental Products and Services Profile, Province of Alberta 2013

5 <http://ccemc.ca/about/>

6 Statistics Canada, Environmental Protection Expenditures in Business Sector, 2010

7 Statistics Canada, Environmental Protection Expenditures in Business Sector, 2010

8 The Green Jobs Map, ECO Canada, 2012

## SECTOR-SPECIFIC INDUSTRIAL ATTRIBUTES

### Edmonton's environmental products and services sector in brief:<sup>1</sup>

- Over 40 professional consulting engineering firms in Greater Edmonton's environmental sector.<sup>2</sup>
- Canada's first four large-scale carbon capture and storage projects located in the Greater Edmonton area.
- Opening soon, the world's first industrial-scale municipal waste-to-biofuel facility that will convert 100,000 tonnes of sorted municipal solid waste into 38 million litres of ethanol annually.<sup>3</sup>
- Thriving recyclable (including metals, plastics, electronics, oil, construction materials and paper products) sector that contributes both millions of dollars to the local economy and saves millions from public expenditures.
- Home to several major public and private research facilities and engineering services that pioneer land reclamation, mobile thermal soil remediation and greenhouse gas emissions.

### Edmonton environmental engineering and service-related companies include:<sup>4</sup>

- Aecom Canada Ltd.
- Al-Terra Engineering Ltd.
- AMEC Americas Ltd.
- Arrow Engineering Inc.
- Associated Engineering Alberta Ltd.
- Bantrel Co.
- Canadian Advanced ESP Inc.
- C-FER Technologies (1999) Inc.
- EBA Engineering Consultants Ltd.
- Golder Associates Ltd.
- Hemisphere Engineering Inc.
- ISL Engineering and Land Services Ltd.
- Matrix Solutions Inc.
- Millennium EMS Solutions Ltd.
- Morrison Hershfield Limited
- Nelson Environmental Remediation Ltd.
- Orbis Engineering Field Services Ltd.
- Petrospec Engineering Ltd.
- Read Jones Christoffersen Ltd.
- Rice Engineering & Operating Ltd.
- Scheffer Andrew Ltd.
- Select Engineering Consultants
- SNC-Lavalin Inc.
- Stantec
- Tamarack Power Partners
- Thurber Engineering Ltd.
- WorleyParsons Canada Services Ltd.

1 Consulting Engineers of Alberta, 2013

2 <http://www.edmonton.com/for-business/3391.aspx>

3 Edmonton Waste-to-Biofuels website, 2013

4 Hoover Database, January 2012



## Environmental engineering and service opportunities

The Alberta oil sands and energy sector's environmental challenges and renewed public and private commitment to mitigate environmental impacts from resource extraction and processing offer strong potential for Edmonton's environmental products and services sector.

In this sector enterprises are harnessing new technologies to better manage, mitigate and remediate the footprint made through oil sands extraction, transportation and processing. Examples of some of the areas of endeavour include:

- land remediation planning, design and implementation,
- a wide range of environmental assessment and monitoring related to air, water, habitat, etc.,
- alternate drilling and extraction technologies designed to minimize environmental impacts,
- water conservation and industrial water treatment,
- mine and tailings pond reclamation,
- pipeline flow efficiency, and
- low-pressure lifting technologies.

Edmonton is expected to experience a significant increase in "knowledge-based" employment – including growth in engineering and environmental services, professional and technical services, and research and development. Much of this non-population-related commercial employment growth will be associated with the energy sector.<sup>1</sup>

With Edmonton's growing international reputation for excellence in waste management, water and wastewater treatment and the development of climate change solutions, these specialties are likely to lead the way in growth potential. A prime location for siting environmental engineering and technology business is Edmonton's largest eco-industrial park, the Edmonton Energy and Technology Park (EETP).

### EDMONTON ENERGY AND TECHNOLOGY PARK

Located in Alberta's Industrial Heartland, the City of Edmonton is facilitating the development of this park to take advantage of the huge potential for refining the by-products from oil sands production (the residual feedstocks) into consumer and industrial products. Designed as a key location to support and service the needs of the petrochemical and oil sands processing, the park:

- is situated only 15 kilometres from existing and proposed upgrader sites,
- covers approximately 4,857 hectares of largely vacant land,<sup>2</sup>
- includes precincts planned for sector-specific industrial operations including manufacturing with 855 net hectares and R&D, education and services with 439 net acres, and
- will use an "eco-industrial development" model where companies will share utilities, use cleaner alternative energy sources, reduce water use and waste, preserve natural areas and implement sustainable building practices.

## Environmental sector workforce, training and R&D

Examples of labour rates in this sector are:<sup>3</sup>

	EDMONTON HOURLY
Environmental auditor	\$38.91
Hazardous waste management technologist	\$38.91
Natural & applied science policy consultants	\$37.34
Biologist	\$38.98
Soil scientist	\$41.91
Environmental engineer	\$43.45
Chemical engineer	\$49.68

<sup>1</sup> [http://www.edmonton.ca/business\\_economy/documents/Edmonton\\_Industrial\\_Land\\_Supply\\_Study\\_2011.pdf](http://www.edmonton.ca/business_economy/documents/Edmonton_Industrial_Land_Supply_Study_2011.pdf)

<sup>2</sup> "Horsehills Area Structure Plan, City of Edmonton"

<sup>3</sup> www.WAGEinfo, 2011 Alberta Wage and Salary Data