

THE HEART OF OPPORTUNITY

INVESTING IN CANADA'S
ECONOMIC FUTURE



Alberta's
**Industrial
Heartland** 
Celebrating 20 Years

MESSAGE FROM THE CHAIR

The last petrochemical investment wave saw \$240 billion (CAD) invested in North America. Traditionally, Canada's share would have been \$24 billion—10%. However, we only managed to attract \$3 billion—less than 2%. That \$21 billion in missed opportunities represents thousands of highly skilled middle class jobs, community investments, and revenue for government services that could have come to Canada. What changed? The United States, once our biggest customer, became our biggest competitor—and they are competing to win.

The next investment wave is upon us. Companies are looking at Canada and making their decisions imminently. Thanks to recent action by provincial and federal governments, we have already been able to attract \$3.5 billion to Alberta and \$2 billion to Ontario—but we have the potential to attract tens of billions more in investment to Canada. We must work together and compete to win.



Mayor Gale Katchur
*Alberta's Industrial
Heartland Association
Chair*

EXECUTIVE SUMMARY

THE HEART OF OPPORTUNITY

There is a petrochemical investment window open right now for North America. Alberta and Canada can be the location of choice for billions of dollars of investment in value-add energy facilities – if we work together at all levels of government to create a competitive investment climate. There is the potential to attract \$30 billion in new capital investments to Alberta's Industrial Heartland alone by 2030. The opportunities for the rest of Alberta and Canada are even greater.

A COMPETITIVE INVESTMENT CLIMATE

WELCOMING BUSINESS ENVIRONMENT

Regulatory certainty, transparency, and timeliness are critical for attracting new investment.

Recommendation 1:

Streamlined and Timely Approvals

Recommendation 2:

Pre-Approved Sites

INVESTMENT ATTRACTION TOOLS

Creating effective tools will drive economic growth and innovation.

Recommendation 1:

Petrochemical Diversification Program

Recommendation 2:

Strategic Innovation Fund

COMPETITIVE TAX FRAMEWORK

Taking into account all taxes and added costs from all levels of government ensures we remain competitive overall against our biggest competitors.

Recommendation 1:

Permanent Accelerated Capital Cost Allowance

Recommendation 2:

Globally Competitive Carbon Pricing

ECONOMY-ENABLING INFRASTRUCTURE

Investing in infrastructure will propel economic growth.

Recommendation 1:

Trade Corridors and Market Access

Recommendation 2:

Supporting Cluster Development

21ST CENTURY WORKFORCE

A skilled workforce that reflects the diversity of our country will benefit everyone.

Recommendation 1:

Inspiring the Next Generation

Recommendation 2:

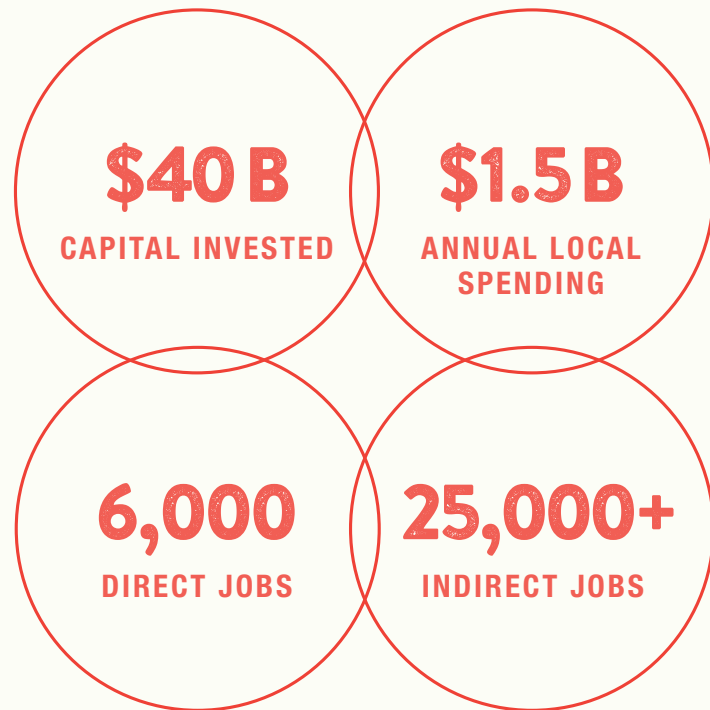
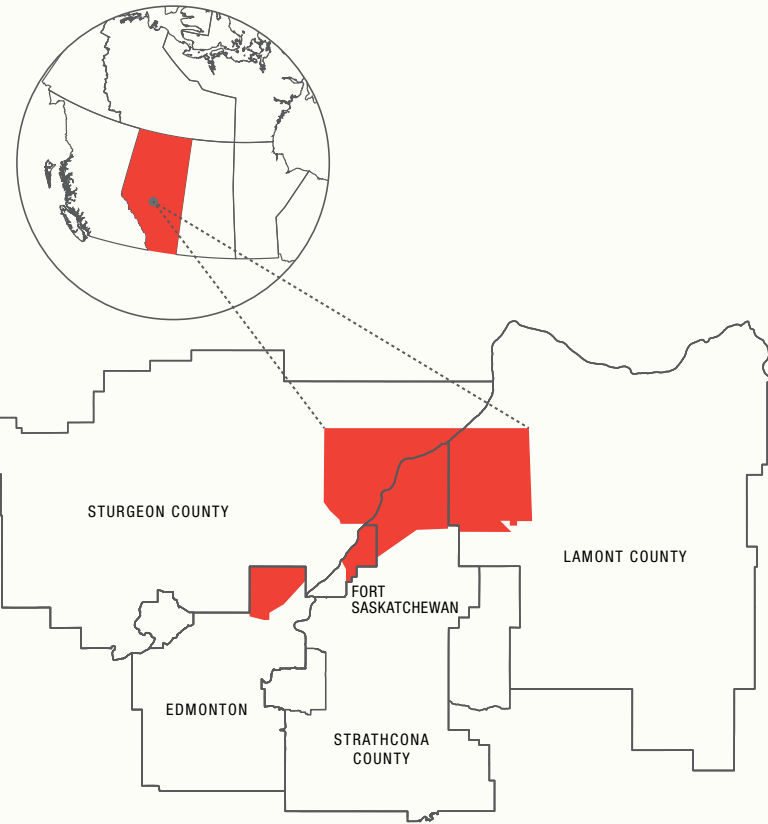
Removing Barriers

ALBERTA'S INDUSTRIAL HEARTLAND

Alberta's Industrial Heartland is a 582-square kilometre value-add energy cluster. The Heartland is guided by a non-profit association, established by municipalities over 20 years ago, to attract sustainable development with spin-off benefits across Alberta and throughout Canada.

ALBERTA'S INDUSTRIAL HEARTLAND AT A GLANCE

- Home to two refineries with carbon capture technology
- 40+ companies—several world scale—provide fuels, fertilizers, power and more to global consumers
- One of the world's most attractive locations for advanced chemistry manufacturing and value-add energy processing
- Collaborative cluster model provides improved efficiency, innovation, safety and sustainability



BOARD MEMBERS

- Reeve Wayne Woldanski, Lamont County
- Chair Mayor Gale Katchur, City of Fort Saskatchewan
- Mayor Don Iveson, City of Edmonton
- Vice-Chair Mayor Alanna Hnatiw, Sturgeon County
- Mayor Rod Frank, Strathcona County

“DON'T LET ANYONE TELL YOU WHAT YOU CAN & CAN'T DO. ONLY YOU CAN DETERMINE THAT.”

BUILDING OPPORTUNITIES

TessAnna started in quality control with Quinn Contracting in April 2011. She took a position as a summer student, fell in love with the job and decided to make it her career. She works with welding activity, making sure the products are safe to go into service on site.

“I started when I was 20 years old. I'm 5'4”, 100 pounds soaking wet and my job is to tell welders twice my size if what they're doing is right or wrong. The industry I'm in isn't easy to get into, but Quinn and NWR supported me. They gave me an opportunity and they gave me a chance.”

TessAnna had to work jobs out of town for six years until, June 2017, the construction of the NWR Sturgeon Refinery gave her the opportunity to do what she loves every day and go home to those she loves every night.



ENERGIZING CANADA'S FUTURE

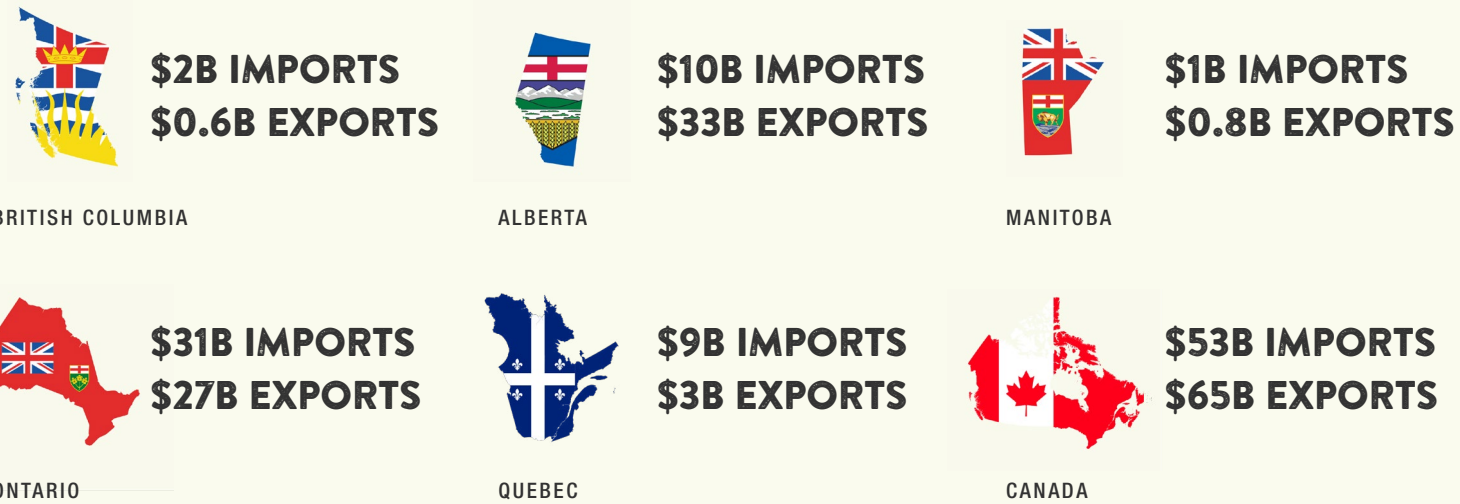
Petrochemicals are essential to Canadian life, our economy, and in transitioning to a lower carbon future.

This section will explore the benefits of petrochemicals and how they fit into our current economic landscape, including:

- Provinces across Canada import billions of dollars in petrochemicals each year
- Many of the products we use every day are made with petrochemicals – products that make our homes and cars more efficient, grow and preserve our food, and even save lives
- Petrochemical facilities that invest in Canada generate billions of dollars for public services and infrastructure
- Manufacturing more petrochemicals in Canada helps reduce our carbon footprint and global emissions

PETROCHEMICALS FUEL OUR ECONOMY

ANNUAL CANADIAN IMPORTS & EXPORTS OF PETROCHEMICALS



Includes: Basic & Polymer Petrochemicals, Urea, Methanol, Polyethylene

Source: Statistics Canada

Alberta's Industrial Heartland produces these petrochemicals and can be producing even more. These products are in high demand in Canada and across the world and at a time of North American

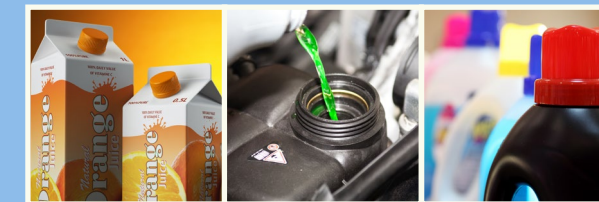
trade uncertainty, producing more petrochemicals in Canada helps ensure we can supply our own economy and find new global markets for our products.

PRODUCTS MADE FROM PETROCHEMICALS

ETHANE



WINDMILLS TIRES FOOD PACKAGING



JUICE BOXES ANTIFREEZE DETERGENTS

PROPANE

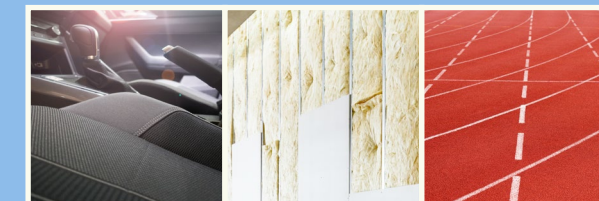


CARPETS MEDICAL PACKAGING & APPLIANCES FOOD PACKAGING

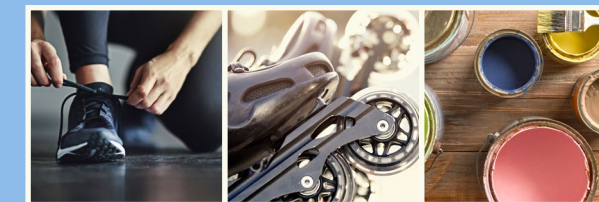


PLANE DE-ICING AUTO PARTS CANADIAN CURRENCY

METHANE



FOAM IN CAR SEATS BUILDING INSULATION ARTIFICIAL SPORTS TRACKS



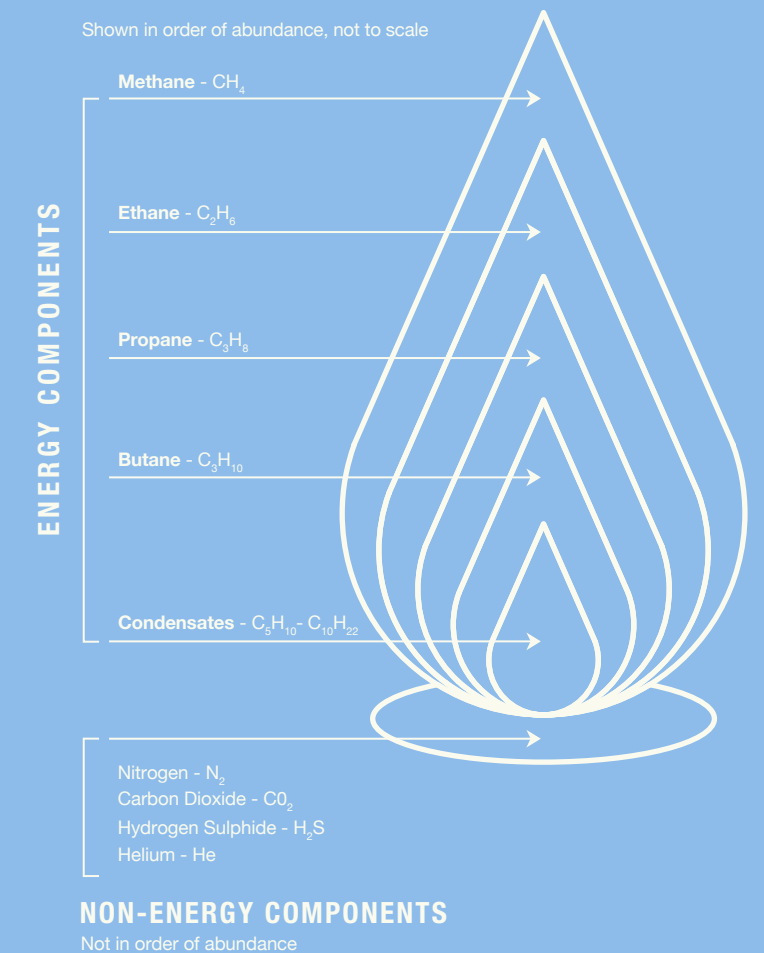
RUNNING SHOES ROLLER BLADE WHEELS PAINT



FERTILIZER

PETROCHEMICALS START AS NATURAL GAS

Shown in order of abundance, not to scale



NON-ENERGY COMPONENTS

Not in order of abundance

PREVENTING WASTE

There are 7.6 billion people on the planet. Enough food is produced to feed 9 billion people, but 1/3 of it gets wasted. Plastics made from petrochemicals helps preserve and extend the life of food—reducing waste and helping transport food further distances.

Food spoilage is a significant contributor to climate change. In Canada, \$31 billion worth of food ends up in landfills or composters each year.

When food is lost, so is the opportunity to distribute it to families in need in addition to the loss of natural resources used to produce it, like water, land and energy sources.



DID YOU KNOW?

BELL PEPPERS SEALED IN PLASTIC PACKAGING CAN LAST UP TO FIVE TIMES LONGER THAN IF THEY WERE UNWRAPPED. THAT MEANS TWENTY DAYS INSTEAD OF JUST FOUR.



SAVING LIVES

About three years ago, Celestine started having trouble breathing and an irregular heartbeat. The doctors told her she needed a pacemaker—right away. She was only in her late 70s and wanted to make sure she could continue to spend quality time with her family and be there to watch her five great grandkids grow up.

It was January in a remote northern community and they had to get to the nearest regional hospital fast. Celestine was transported by air ambulance and the pacemaker was successfully inserted in time.

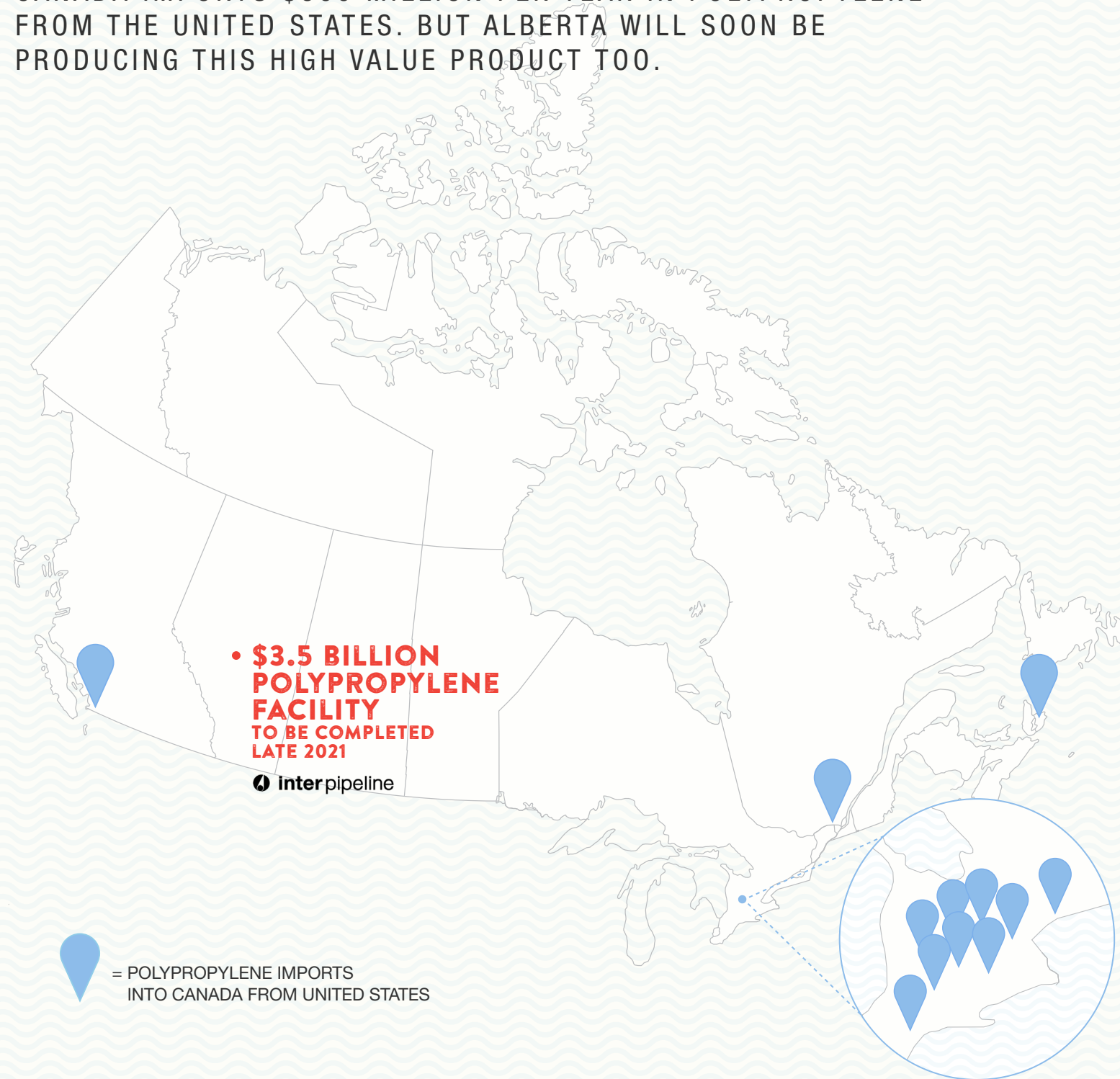
THE PETROCHEMICALS THAT HELPED BUILD THE AIR AMBULANCE, DE-ICE AND FUEL THE PLANE, ALONG WITH THE PETROCHEMICALS THAT HELPED CREATE PARTS OF HER PACEMAKER, HELPED SAVE CELESTINE'S LIFE.

Today she is happy, healthy and regularly goes to watch her great granddaughters' dance recitals. Since she received her pacemaker, Celestine has welcomed four more great grandchildren to the family and is expecting a tenth this winter.



INVESTING IN CANADA'S ECONOMIC FUTURE

CANADA IMPORTS \$500 MILLION PER YEAR IN POLYPROPYLENE FROM THE UNITED STATES. BUT ALBERTA WILL SOON BE PRODUCING THIS HIGH VALUE PRODUCT TOO.



A HOMEGROWN ALTERNATIVE

Polypropylene is one of the most widely used recyclable plastics in the world. This product is used to manufacture many of the things we touch in a given day, from the carpet in our homes, to the components in our cars, to the bills in our wallets. Currently Canada imports all of our polypropylene (\$500 million) each year from the United States and most of it goes to manufacturing in Ontario, B.C. and Quebec.

Inter Pipeline is a major petroleum transportation, storage and natural gas liquids processing business based in Calgary, Alberta, and they are constructing the Heartland Petrochemical Complex located in Alberta's Industrial Heartland. The complex will convert Canada's abundance of low-value propane into high-value polypropylene that will be available to manufacturers across Canada and the world. This is the first facility of its kind in Canada.



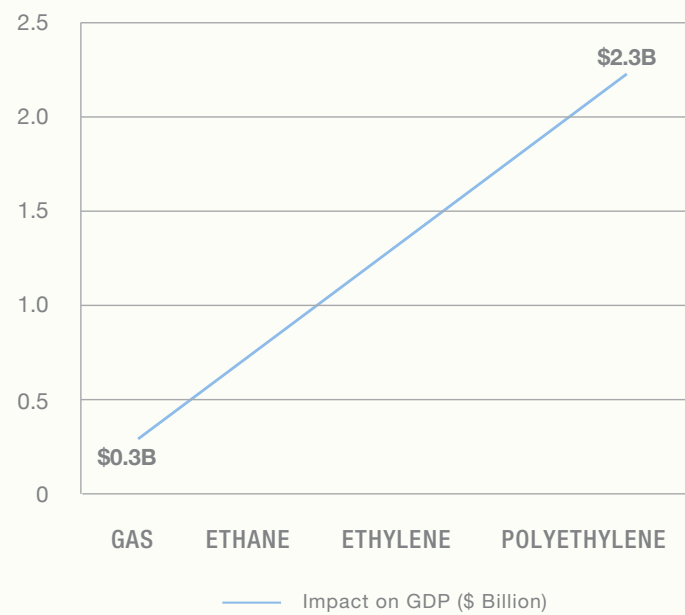
ADDING VALUE TO OUR NATURAL ADVANTAGE

Canada is blessed with an abundance of natural resources that help fuel our economy and pay for public services and infrastructure. But right now, we are getting a fraction of the value we could be getting for our resources. We ship them out as basic products to be further manufactured elsewhere—then we buy them back at a higher price. If we did more manufacturing of our resources here in Canada, we could create more jobs and get a higher value on the global market for Canadian products.

ETHANE

If a new world scale ethane facility were built in Alberta to manufacture ethane into ethylene and then polyethylene, the annual impact on our GDP would be an additional \$2.0 billion.

IMPACT ON GDP (\$ BILLION)



Federal government revenues generated by construction of such a facility would be \$3.1 billion. That could pay the entire 2018/19 Federal Budget for Indigenous reconciliation initiatives like housing, health, safe drinking water, and employment and skills training.

Provincial government revenues generated by building a world scale ethane cracker in Alberta would be \$800 million. This could pay for all of the following from the 2018 Alberta Budget:

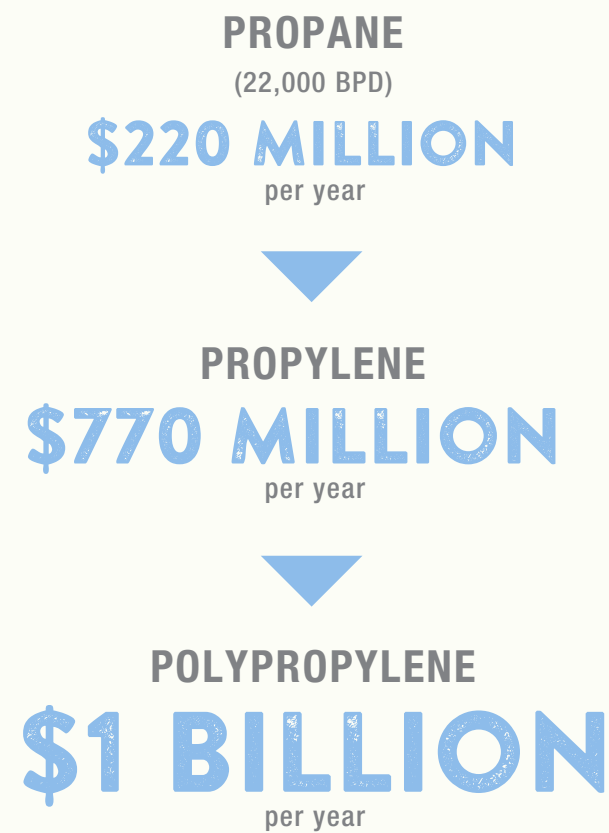
- Complex Continuing Care Facility in Calgary
- Continuing Care Beds (across Alberta)
- Fort McMurray Residential Facility Based Care Centre
- Royal Alexandra Hospital Child and Adolescent Mental Health Building

PROPANE

Today, our surplus of propane gets sent out of Canada and sold at a low price. It gets manufactured somewhere else in the world and we buy it back as propylene or polypropylene—at a higher price.

But by manufacturing our propane into higher value products here in Canada, we can create more jobs, more funding for government services, and more opportunities for Canadian products.

GETTING GREATER REVENUES FOR CANADIAN RESOURCES



Sources: The Conference Board of Canada; Statistics Canada International Merchandise Trade Database.

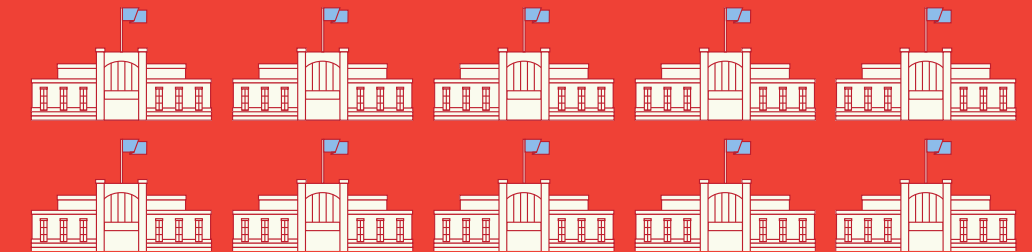
FUELLING OPPORTUNITY

TAXES GENERATED BY A POLYPROPYLENE FACILITY COULD FUND IMPORTANT PROJECTS IN CANADA

PROVINCIAL TAXES

\$190 MILLION = 10 SCHOOLS IN ALBERTA

During 4-year Construction



Source: Government of Alberta 2018 Budget - \$393 million for 20 school projects between 2018-2023

\$63 MILLION = MEDICINE HAT REGIONAL HOSPITAL (x2)

Operation (per year)



Source: Government of Alberta Budget 2018 Capital Plan: Medicine Hat Regional Hospital \$32 million

FEDERAL TAXES

\$508 MILLION = BROADBAND INTERNET ACCESS TO 300 RURAL COMMUNITIES

During 4-year Construction



Government of Canada funding to bring high-speed, broadband Internet access to 300 rural and remote communities by 2021

Source: Invest in Canada Plan

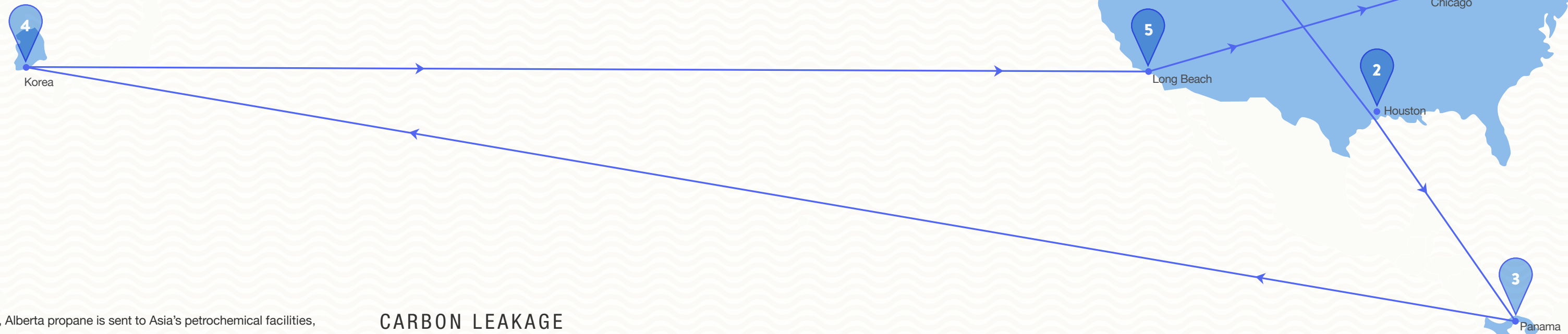
\$67 MILLION = 44 BUSES

Operation (per year)



Source: Invest in Canada Plan - \$5.8M for 10 new buses for Mississauga, ON; \$20.4M for 22 new buses for Longueuil, QC

REDUCING OUR CARBON FOOTPRINT



Today, Alberta propane is sent to Asia's petrochemical facilities, processed into polypropylene and returned for North American consumption.

Building facilities in Canada that can manufacture propane into polypropylene and selling that product into North America will reduce annual emissions by over 180,000 CO₂e: the equivalent to approximately 40,000 vehicles off the road per year.

The Canada Kuwait Petrochemical Corporation is proposing a \$4 billion propane-to-polypropylene facility that will create thousands of jobs and help us reduce global carbon leakage.

CANADA KUWAIT
PETROCHEMICAL CORPORATION

CARBON LEAKAGE

As the world rushes to build more petrochemical plants, the odds are very good that not all of them will be built to the same standards that Canada would require.

For example, in China olefins are produced from coal, which is a highly carbon-intensive production method.

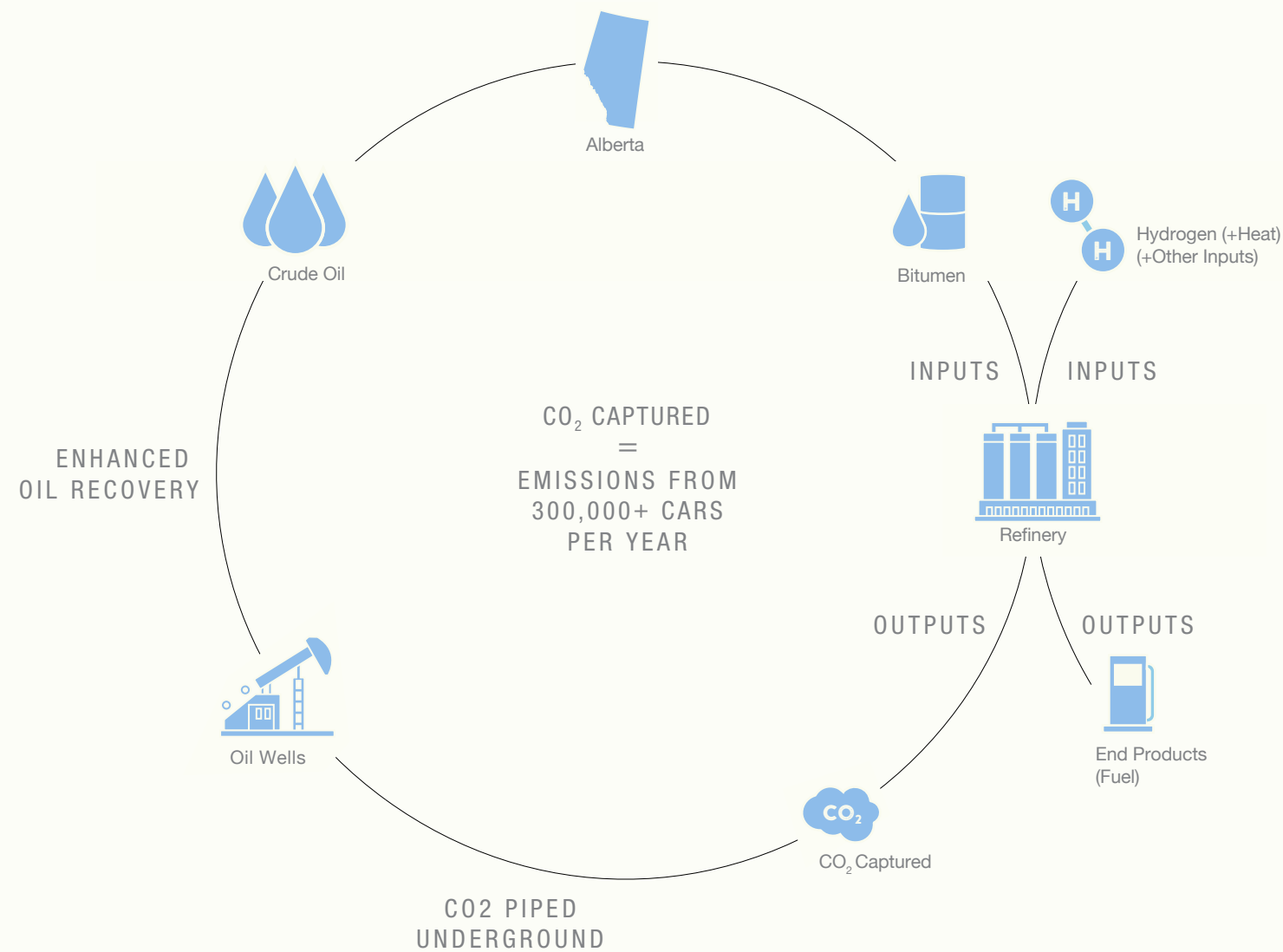
If a new Canadian petrochemical plant displaces one built elsewhere that might have higher GHG emissions, the Canadian operation is a net carbon-benefit to the global carbon budget.

Source: *Diversification, Not Decline: Adapting to the new energy reality, 2018*

RE(DE)FINING CANADA'S ENERGY FUTURE



TAKING THE REFINING PROCESS ONE STEP FURTHER TO CREATE A BETTER FUTURE



The Sturgeon Refinery is the first refinery in the world with integrated carbon capture technology built into the design of the facility. Instead of being treated as a waste product, CO₂ from the refinery and a neighbouring industrial facility becomes a valuable byproduct. Once captured, CO₂ will be safely transported to existing mature oil fields in central Alberta to enable enhanced oil recovery. This provides a permanent storage solution for CO₂,

thereby reducing the carbon footprint of the Sturgeon Refinery while revitalizing aging oil reservoirs in the province.

DID YOU KNOW?

The Sturgeon Refinery recycled more than 95% of all waste generated during construction. This included concrete, metal, wood, plastics, drywall, and more.

ECONOMIC IMPACTS FOR CONSTRUCTION PHASE OF THE STURGEON REFINERY

\$7.9B

IN TOTAL GDP IMPACTS ACROSS CANADA

20 per cent of GDP impacts take place outside of Alberta – mainly in Ontario, Quebec and British Columbia. Engineering construction, professional services, manufacturing, financial services, and wholesale trade industries, combined, account for three-quarters of incremental activity.

6,889

JOBS/YEAR ACROSS CANADA

22 per cent of employment impacts occur outside of Alberta. Engineering construction, professional services, manufacturing, retail trade, and wholesale industries, combined, account for three-quarters of these benefits.

\$1.9B

IN GOVERNMENT REVENUES ACROSS CANADA

One-third of government revenues are generated outside of Alberta. 54% of government revenues are collected in the form of personal income taxes. 60% of government revenues go to the federal government.

Source: Conference Board of Canada

CARBON CAPTURE

SHELL'S QUEST CARBON CAPTURE FACILITY CAPTURES 1.2 MILLION TONNES OF CO₂ PER YEAR - EQUIVALENT TO EMISSIONS FROM 250,000 CARS PER YEAR.



UP HERE, TOO MUCH CO₂ IS A PROBLEM



DEEP DOWN THERE, WE HAVE A SOLUTION

DID YOU KNOW?

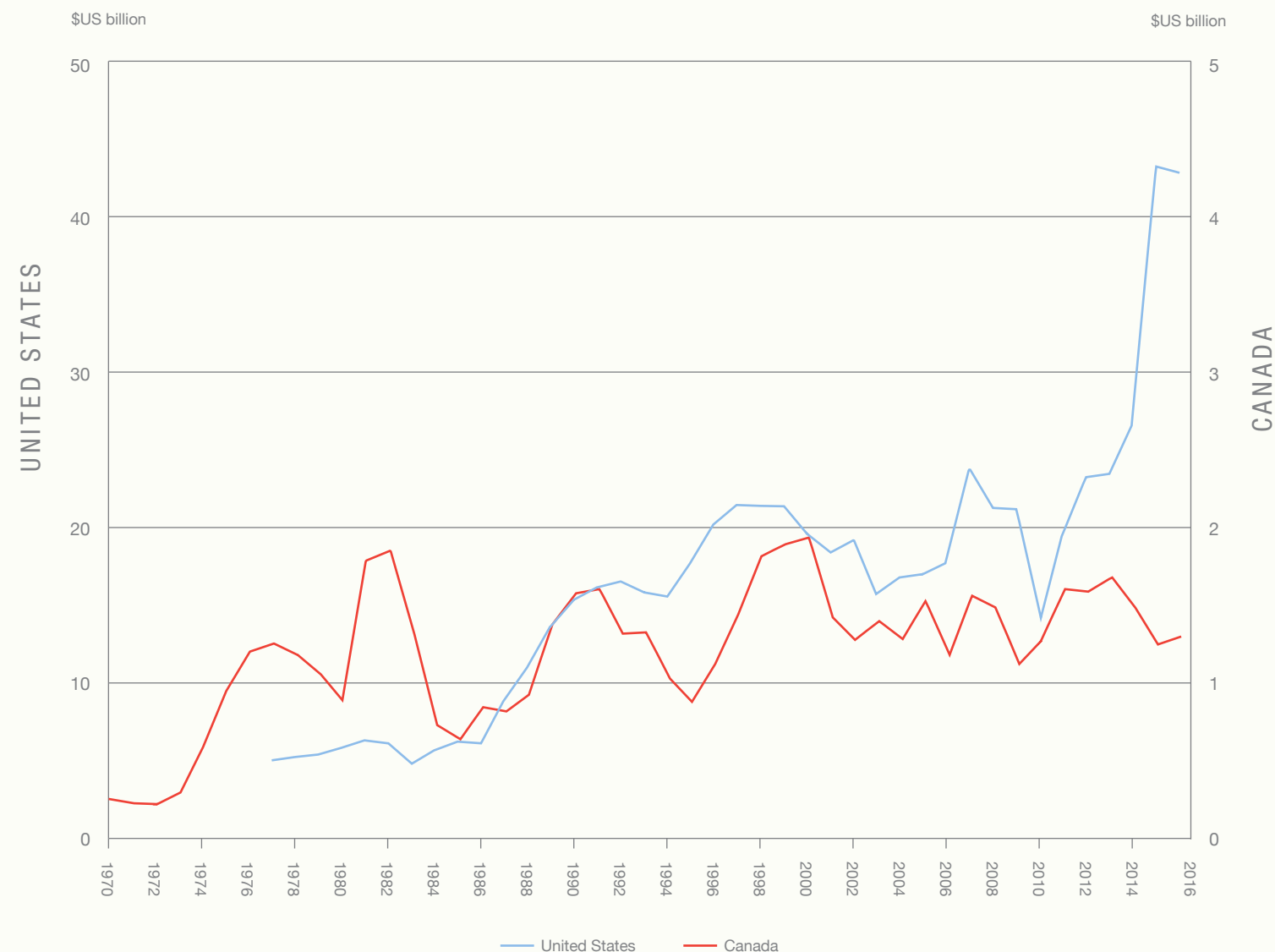
Shell Scotford is the most energy efficient facility of its type in the world. It uses about 65% of the energy of a comparable refinery. Shell Scotford has been benchmarked by Solomon as the leading facility in energy efficiency when ranked against facilities of a comparable size.

CANADA'S BIGGEST CUSTOMER IS NOW OUR BIGGEST COMPETITOR

PETROCHEMICAL INVESTMENT IN NORTH AMERICA

Canada's traditional share of petrochemical investment in North America was 10%, but in the past 5 years it's been less than 2%. What changed? Our biggest customer is now our biggest competitor—and we are being outcompeted.

The United States has attracted over 320 new global scale petrochemical investments over the past five years—with 62% being direct foreign investment—totaling over \$240 billion CAD. Canada's share was \$3 billion.



MISSED OPPORTUNITIES

CANADA'S LOST OPPORTUNITY

- \$8.1 billion ethane cracker chosen for Louisiana in 2014
- 5,000 construction jobs
- 500 operational jobs
- Plans to add \$14 billion gas to liquids facility to complex

State of Louisiana offered a custom incentive package worth over \$135 million, including \$115 million for land acquisition and infrastructure, along with \$20 million to develop a new training facility and associated equipment.

Over the last four years, the company has committed more than \$4.7 million and 3,800 volunteer hours to the Southwest Louisiana community through the company's signature community initiatives.

\$8.1 BILLION ETHANE CRACKER



CANADA'S LOST OPPORTUNITY

- \$6 billion ethane cracker chosen for Pennsylvania in 2016
- 6,000 construction jobs
- 600 operational jobs

The company's final decision was due, in part, to the tax incentives offered by the state.

The state legislature agreed to give the ethane cracker \$1.65 billion in tax credits over 25 years.

\$6 BILLION ETHANE CRACKER



COMING IN SECOND

“NEW (CANADIAN) GOVERNMENT INCENTIVES ARE HELPING MAKE CANADA MORE COMPETITIVE WITH THE U.S., BUT THE COUNTRY STILL LAGS ITS PEERS. I’D SAY THEY’RE MORE ‘CLOSING THE GAP’ AND NOT PUTTING CANADA AHEAD OF OTHER JURISDICTIONS.”

Tyler Edgington, President, Dow Chemical Canada (Source: Edmonton Journal, May 23, 2018)

“CANADA AND ALBERTA ARE ON EVERYONE’S RADAR. WE JUST KEEP COMING IN NO. 2 OR NO. 3, WHICH IS THE SAME AS COMING IN 50TH. IT’S ZERO INVESTMENT.”

Kevin Jagger, Commercial Manager Canada Kuwait Petrochemical Corporation (Source: Financial Post, Oct 3, 2017)

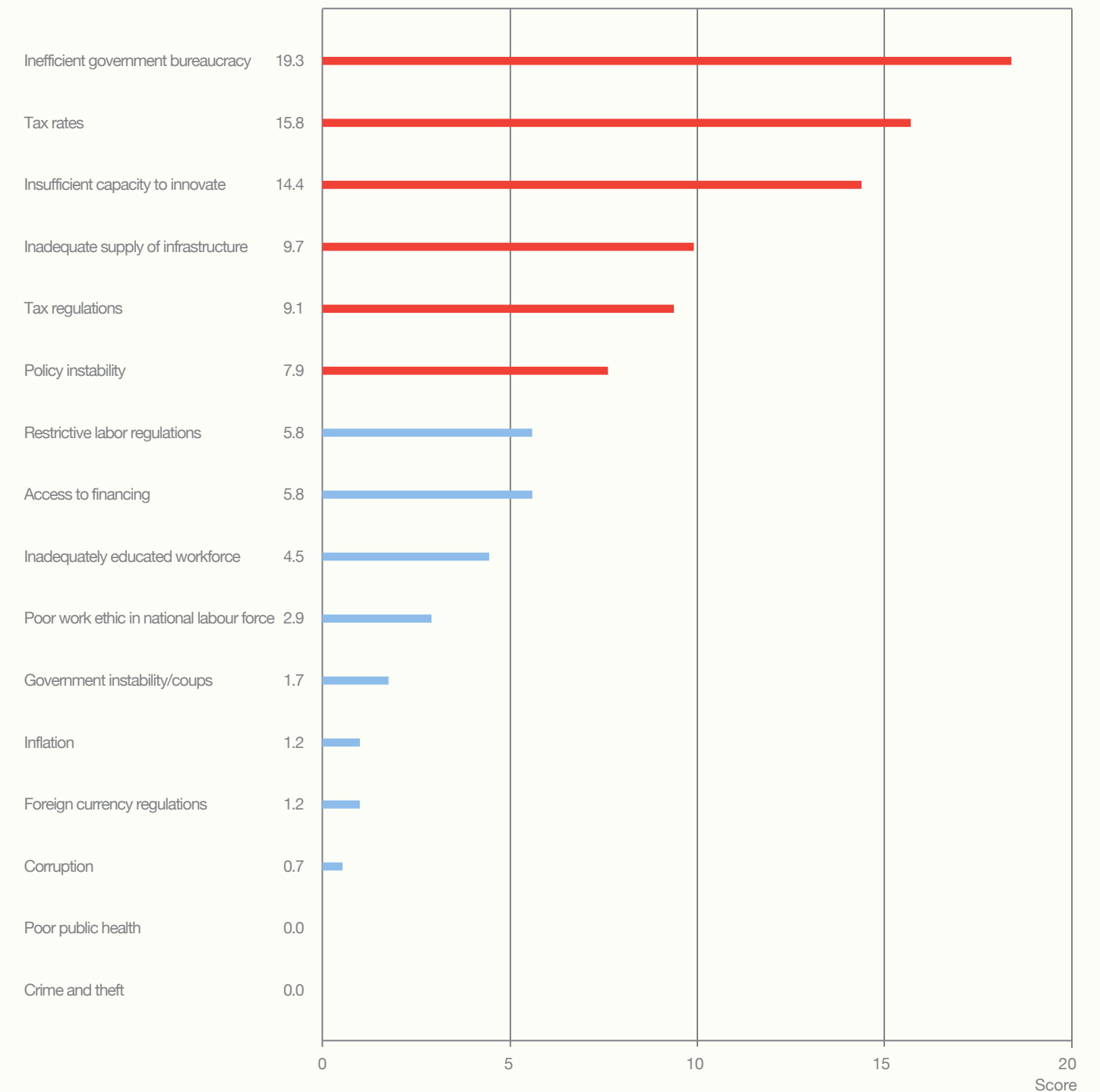


FOREIGN DIRECT INVESTMENT TO CANADA IS DOWN 26% SINCE 2010, NOW AT ONE-THIRD PEAK LEVELS OF 2007

Source: Statistics Canada

CANADA RANKED 14TH ON THE GLOBAL COMPETITIVENESS INDEX IN 2017-18 BY WORLD ECONOMIC FORUM

MOST PROBLEMATIC FACTORS FOR DOING BUSINESS IN CANADA



Note: From the list of factors, respondents to the World Economic Forum’s Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5. The score corresponds to the responses weighted according to their rankings

WE CAN ATTRACT \$30 BILLION BY 2030 TO ALBERTA'S INDUSTRIAL HEARTLAND

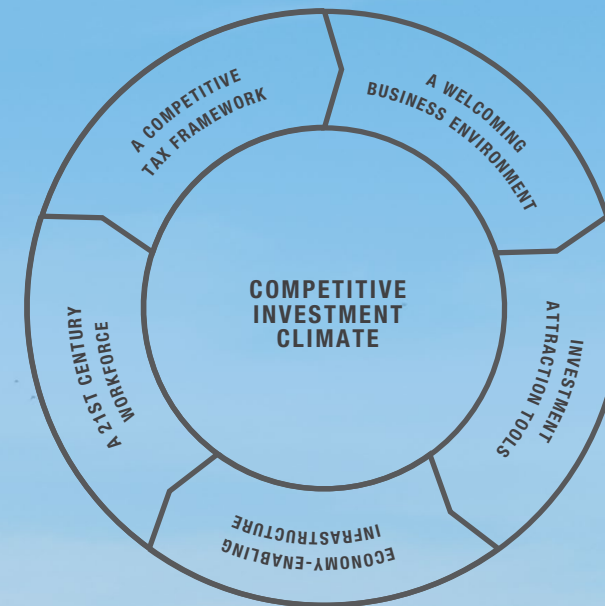
POTENTIAL INVESTMENT OPPORTUNITIES

□ METHANOL FACILITY
\$1 BILLION
 CAPITAL EXPENDITURE
1,500 SITE JOBS

□ ETHYLENE & POLYETHYLENE FACILITY
\$8-12 BILLION
 CAPITAL EXPENDITURE
5,000 SITE JOBS

□ PARTIAL UPGRADER
\$3 BILLION
 CAPITAL EXPENDITURE
3,000 SITE JOBS

□ PROPYLENE AND POLYPROPYLENE FACILITY
\$4 BILLION
 CAPITAL EXPENDITURE
3,000 SITE JOBS



There is the potential to attract \$30 billion in new capital investments to Alberta's Industrial Heartland alone by 2030, given the right investment climate. The opportunities for Canada as a whole are far greater.

But we need all levels of government working together to increase our competitiveness. We need a variety of tools in our toolbox to create the right climate for attracting jobs, investment and value added manufacturing of our resources.



“CANADA ON DOW CHEMICAL'S ‘RADAR SCREEN’ DESPITE COMPETITIVENESS CONCERNS”

Source: Edmonton Journal, May 23, 2018

“ONCE THE FIRST (PROJECT) IS BUILT, I THINK MANY WILL FOLLOW.”

*Stu Taylor, Chairperson, CKPC
 Source: Financial Post, Oct 3, 2017*

Canada Kuwait Petrochemical Corporation is proposing a \$4 billion propane-to-polypropylene facility in Alberta's Industrial Heartland.



BUILDING BETTER FUTURES

Megan always knew she'd work in the trades someday, it runs in the family—her father is a heavy duty mechanic. After a year working as a bank teller and struggling to make ends meet, Megan sought out a job as a pipefitter and began her apprenticeship. Nine years later, Megan is a journeyman red seal pipefitter foreman with Quinn Contracting working on the Sturgeon Refinery on a five year contract.

“The tough thing about working in the trades sometimes is that you are part of the chase. You work a lot of short term jobs—I worked eight short term jobs in the first two years I moved to Edmonton. Working at the Sturgeon Refinery allows me to come home to my family every night. It's nice being able to breathe a bit and not have to look over my shoulder for the next job.”

Megan says that working on the Sturgeon Refinery is the best job she has had, not just because of the stability, but also getting to work on a leading edge project. “Everyone works with you, no one points fingers if you fail. We work as a team so that we all succeed.”

Attracting major facilities like the Sturgeon Refinery provide good, stable work for tradespeople like Megan and keep our economy going.



SECTION 5 – THE SOLUTION

A WELCOMING BUSINESS ENVIRONMENT

A welcoming business environment requires clear and consistent policies, which means ensuring certainty, transparency and timeliness in our regulatory processes.

RECOMMENDATION 1 STREAMLINED AND TIMELY APPROVALS

That the **Government of Alberta** retain exclusive jurisdiction over environmental assessments and approvals for downstream projects.

That the **Government of Canada** and **Government of Alberta** ensure any regulatory processes impacting downstream projects are transparent and there is certainty around timelines.

That the **Government of Canada** and **Government of Alberta** ensure independent, quasi-judicial regulatory processes that do not allow for changes to occur through political means or be delayed by a minister or cabinet.

That the **Government of Alberta** direct Alberta Environment & Parks to modernize, streamline and operationalize timely review processes for downstream projects.

RECOMMENDATION 2 PRE-APPROVED SITES

That the **Government of Alberta** work with Alberta's Industrial Heartland Association in developing pre-approved sites for petrochemical development.

CANADA IS 3X SLOWER THAN USA TO ISSUE APPROVALS.

Source: World Bank
“Doing Business” 2017

A COMPETITIVE TAX FRAMEWORK

Tax competition for investment is a reality in today's global environment where capital is mobile. Investors routinely compare tax burdens in potential jurisdictions. International tax competition is increasing and the recent tax changes in the United States have widened the competitiveness gap between us and our biggest competitor.

Petrochemical facilities are attractive investments for Canada and they operate for 30, 40, and 50 years – providing good jobs and revenue for decades. But they are capital-intensive projects and it takes, on average, six to eight years to plan and build them. This is why companies look for programs and tax frameworks that will help offset the major cost of capital when considering in which jurisdiction to build.

RECOMMENDATION 1 PERMANENT ACCELERATED CAPITAL COST ALLOWANCE

That the **Government of Canada** permanently extend the Accelerated Capital Cost Allowance (ACCA) for manufacturers – including the petrochemical industry. And that the **Government of Canada** introduce a 100% ACCA for the entire cost of petrochemical facilities for a minimum of one full business cycle of 10 years to capitalize on the current wave of value-added resource investment opportunities that use best available technology, helping Canada transition to a lower carbon economy.

US TAX REFORM

The bulk of the entire US tax reform plan's impact on economic growth will come from the change to 100% immediate capital cost allowance.

The estimated economic impacts for a 10-year period of this measure are:

- Increase of 3.0% in annual GDP – or \$571 billion
- Increase in capital stock of 8.3%
- Boost in both the wage rate of 2.5% and in the number of full-time equivalent jobs by 575,000

Source: Tax Foundation



CANADIAN CAPITAL INVESTMENT IS NOW UNDER 10% OF GDP—IT'S LOWEST LEVEL SINCE GLOBAL FINANCIAL CRISIS

Source: Business Council Canada

RECOMMENDATION 2 GLOBALLY COMPETITIVE CARBON PRICING

That the **Government of Alberta** work towards global benchmarks for petrochemical industry emissions as it relates to carbon pricing to ensure global competitiveness is not compromised.

That the **Government of Canada** recognize Alberta's competitive carbon pricing system and allow Alberta's downstream sector to opt out of the Clean Fuel Standard as it would jeopardize this energy-intensive, trade-exposed industry.

That the **Government of Alberta** maximize the amount of funding available to industry for emissions reduction and carbon-intensity reduction initiatives through revenue collected from the Carbon Competitiveness Incentive Regulation and by reducing the number of programs delivered by government bodies and the administrative costs associated with them.

DID YOU KNOW?

Shell Chemicals Canada looked for innovative ways to lower its greenhouse gas emissions when designing its new ethylene glycol facility in Alberta's Industrial Heartland. The result is a state-of-the-art design that reduces emissions by 38,000 tonnes of CO₂ per year. The energy efficiency measures include a high-efficiency cogeneration plant that satisfies the site's significant requirements for heat and power.

Many other sites in the Heartland have invested in cogeneration (Combined Heat and Power) plants to increase their energy efficiency and reduce their emissions.

INVESTMENT ATTRACTION TOOLS

In addition to having competitive tax and regulatory frameworks, we need certain investment attraction tools to help drive Canada from second to first place on an investor's list of possible locations.

Effective tools set clear criteria, are fair and transparent and reduce the tax burden for a period of time, only once a facility is operational. The economic activity generated by a new facility – no matter where in Alberta or Canada it locates – provides significant benefits across our province and country.

The Governments of Alberta and Canada made great strides with the creation of the Petrochemical Diversification Program and the Strategic Innovation Fund, but some strategic amendments could transform these programs into tools designed to better attract more world-class petrochemical facilities and the highly skilled, high paying jobs that come with them.

RECOMMENDATION 1 PETROCHEMICAL DIVERSIFICATION PROGRAM

That the **Government of Alberta** transform the Petrochemical Diversification Program into a tax credit framework that:

- Exists for a minimum of one full business cycle—seven years—with an open intake period throughout, after which a program review is conducted.
- Establishes clear and weighted criteria and thresholds that directly relate to tax reduction, if fulfilled.
- Is feedstock agnostic, available to all petrochemical projects.
- Reduces taxes in a form that petrochemical companies can use such as corporate, income or carbon tax (or a combination thereof).

RECOMMENDATION 2 STRATEGIC INNOVATION FUND

That the **Government of Canada** expand the size of the Strategic Innovation Fund to \$2 billion per year, make the program permanent and earmark half of those funds for manufacturing, including the petrochemical industry. And that the Strategic Innovation Fund add a tax credit option in addition to the repayable and non-repayable loan options.

ECONOMY-ENABLING INFRASTRUCTURE

According to the World Economic Forum, an “inadequate supply of infrastructure” as the fourth “most problematic factor for doing business” in Canada. If we invest in bridges, roads, rail and trade corridor infrastructure we can attract investment today and ensure we can grow into the future.



“ALBERTA’S NEW VINCA BRIDGE TO BOLSTER HEAVY HAUL TRANSPORTATION”

“(THE GOVERNMENT OF) ALBERTA IS INVESTING \$90 MILLION
IN INFRASTRUCTURE UPGRADES TO TRANSFORM A KEY
TRANSPORTATION CORRIDOR.”

Journal of Commerce, July 11, 2018

RECOMMENDATION 1 TRADE CORRIDORS AND MARKET ACCESS

That the **Government of Canada** invest additional funds in the National Trade Corridors Fund to improve access to markets for Canada's products. And open a general intake for applications in 2019.

RECOMMENDATION 2 SUPPORTING CLUSTER DEVELOPMENT

That the **Government of Canada** include a stream for economic infrastructure in its infrastructure funding plan. And that the **Government of Alberta** renegotiate the bilateral agreement to include funding to be leveraged federally, provincially, and municipally for infrastructure around existing or likely sites for downstream energy clusters like Alberta's Industrial Heartland.

A 21ST CENTURY WORKFORCE

The construction and maintenance industry is facing an anticipated loss of close to 250,000 skilled workers, 21% of its current labour force, by 2026. This imminent challenge has led many organizations to rethink their approach to workforce attraction and retention, as well as identify new labour pools.

Women and Indigenous groups represent an untapped resource and potential talent pool for our economic future. As an industry with high-quality, high-paying jobs, we can provide excellent results for diverse Canadians.

Many companies and non-profit organizations in Alberta are doing great work to encourage young women and Indigenous youth to enter STEM careers and then helping trained women and Indigenous trades workers identify and overcome barriers in the workplace. If government, non-profits and industry coordinate and leverage their efforts, the resources and support will go much farther.

RECOMMENDATION 1 INSPIRING THE NEXT GENERATION

That the **Government of Canada** and **Government of Alberta** allocate grant funding for initiatives and organizations that educate and encourage elementary and secondary schools students to pursue STEM careers – with a concerted focus on girls and Indigenous youth.

RECOMMENDATION 2 REMOVING BARRIERS

That the **Government of Canada** and **Government of Alberta** allocate funding for initiatives driven by industry, government or non-profit groups to identify and remove barriers for women and Indigenous Peoples working in STEM careers in order to encourage diversification of the workforce and increase retention.

CHALLENGE ASSUMPTIONS: WOMEN IN TECH

Female members of the Association of Science & Engineering Technology Professionals of Alberta (ASET) were surveyed about their experience as women in technology.

How can we encourage women to pursue a profession as a technician/technologist?

“Outreach sessions in junior high to encourage them to look at science.”

How can we support women in the technician/technologist profession?

“Network opportunities where members can pose questions, provide advice, and discuss issues of interest.”

“IT’S BEEN DIFFICULT TO HAVE A FEMALE MENTOR IN MY FIELD BUT I TRY TO ACT AS ONE FOR THE NEXT GENERATION.”



“I’M REDEFINING ENERGY TECHNOLOGY AND PEOPLE’S EXPECTATIONS”

PRIYANKA
CERTIFIED ENGINEERING
TECHNOLOGIST



FOSTERING THE NEXT GENERATION

Companies in the Heartland are doing their part to equip those who will lead the way, to spark innovative discoveries, and to inspire exceptional potential.

The Shell Skilled Trades Centre is a \$200,000 investment from Shell Scotford for a centre within the Elk Island Public School system to support youth with training and skills needed for careers in the trades.



The FIRST Robotics Program at Fort Saskatchewan Senior High School challenges Gr. 11 & 12 students to build a robot from scratch to compete at a tournament. Dow mentor Jerome Wong has seen great growth in his students over the last two years.



Pembina offers Power and Chemical Engineering scholarship programs at NAIT and two University of Alberta Engineering bursaries:

- Safety & Risk Management
- Aboriginal designate



Dow Canada has contributed over \$1 million to NAIT's Power Engineering Program. DOW's Fort Saskatchewan facilities has hired a high number of NAIT grads: 64%.



Inter Pipeline is committed to fostering the education of youth from the communities in which they operate. Its Discovery Awards program provides bursaries to high school students who are pursuing post-secondary education in an industry-related field.



IDENTIFYING GENDER & DIVERSITY OPPORTUNITIES

INDIGENOUS OPPORTUNITY

258,640

ALBERTA'S INDIGENOUS POPULATION
6% of the province's total population

50% LIVE ON RESERVES

THE REMAINDER LIVE LARGELY IN URBAN AREAS.

38,170

CITY OF EDMONTON'S URBAN INDIGENOUS POPULATION

The most commonly reported occupational categories for Edmonton's Indigenous males are trades, transport and equipment operators and related occupations.

These jobs are directly dependent on the success of our energy economy.

Source: City of Edmonton

TRADE WINDS TO SUCCESS

Trade Winds to Success is an innovative program designed to help First Nation, Metis and Inuit adults who are interested in beginning a career in the construction trades.

Five of the graduates in the past year are working in Alberta's Industrial Heartland.

ALBERTA: LEADING THE WAY ON WOMEN IN CONSTRUCTION AND TRADES

Alberta already has the highest female participation rate for the skilled trades, with 5.5% of its total onsite construction jobs belonging to women, as compared to the national average of 3.7%. New female apprenticeship registrations nearly doubled from 2005 to 2015 in Alberta—a clear sign that these investments are making a real difference. Companies in Alberta's Industrial Heartland proudly partner with Women Building Futures to further their activities by providing apprenticeship opportunities for female students, which include a number of supports for Indigenous women.

WBF WOMEN BUILDING FUTURES

BY THE NUMBERS

34%

INCREASE IN THE NUMBER OF GRADUATES LAST YEAR

157%

AVERAGE PERCENTAGE INCREASE OF INCOME ON DAY OF HIRE

35%

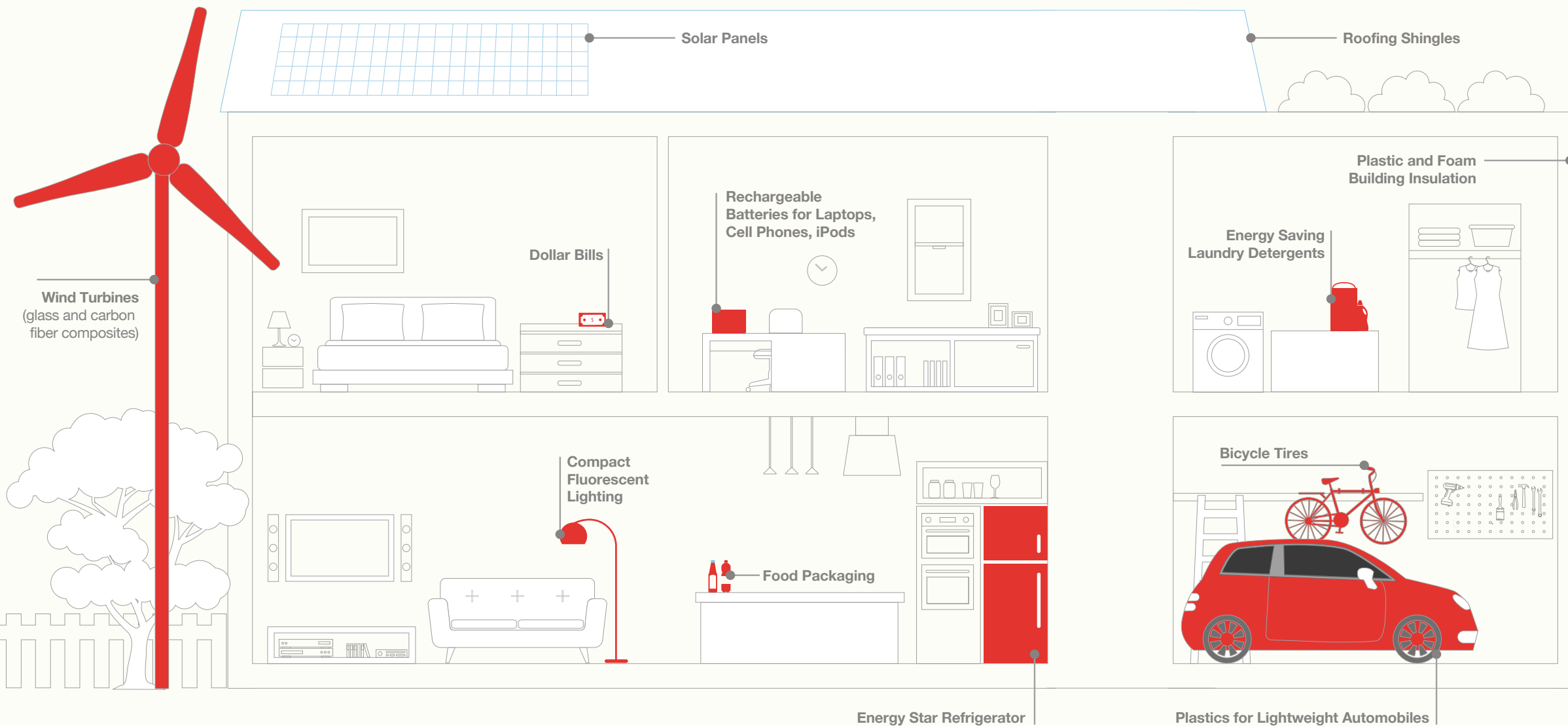
OF STUDENTS ARE INDIGENOUS

95%

EMPLOYMENT RATE FOR GRADUATES



HELPING THE WORLD REDUCE GREENHOUSE GAS EMISSIONS



EVERYDAY ITEMS MADE FROM OIL AND NATURAL GAS THAT HELP SAVE ENERGY AND REDUCE GREENHOUSE GAS EMISSIONS

Using plastics made from petrochemicals, instead of alternative materials, makes vehicles lighter so they use less fuel. Modern plastic packaging for sirloin steak can cut food waste by almost half compared to conventional plastic packaging.

A groundbreaking study in 2009 by McKinsey & Company found that the products of chemical manufacturing save twice the greenhouse gas (GHG) emissions than are emitted making the products. That ratio could rise to four times the savings by 2030—a remarkable environmental investment. Here are some examples of GHG savings (these ratios refer to emissions saved by employing the product versus emissions from creating the product):

- 233:1** Plastic foam building insulation
- 123:1** Glass-and carbon-fiber composites for wind turbines
- 111:1** Diesel additives (improved fuel efficiency)
- 20:1** Compact fluorescent lighting
- 21:1** Engine efficiency
- 3:1** Plastics for light-weighting automobiles
- 9:1** Low-temperature (i.e. energy saving) detergents

(Source: American Chemistry Council)



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