

#### WHAT WE REGULATE



#167000
OPERATING NATURAL GAS & OIL WELLS

**30 000** 

AND CLOSE TO 21000
GAS FACILITIES



#### ABOUT the AER

The Alberta Energy Regulator (AER) is the single provincial regulator for oil, natural gas, oil sands, and coal development in Alberta. The AER ensures the safe, efficient, orderly, and environmentally responsible development of energy resources. This includes allocating and conserving water, managing public lands, and protecting the environment while securing economic benefits for all Albertans.

This means that in almost all cases, companies deal with the AER alone when developing or proposing to develop Alberta's energy resources. It's our job to make certain that Alberta's oil, gas, bitumen, and coal are developed and transported in ways that don't

- · place people at risk;
- · harm our air, water, land, or biodiversity; or
- waste these valuable energy resources.

We determine when, where, and how the energy industry may use water, and we make sure that energy development doesn't harm Alberta's water; we regulate any energy development that occurs on provincial lands; and we make sure energy development doesn't damage any aspect of our province's environment.

We are part of a broader government system making sure that Alberta and its citizens receive full value for our energy riches.

#### **OUR RESPONSIBILITIES**

Few organizations on the planet steward such a large and varied mix of energy resources and infrastructure as the AER. We oversee some very large established reserves:

- 1.6 billion barrels of conventional oil
- 165 billion barrels of bitumen
- 28.2 trillion cubic feet of natural gas
- 36.6 billion tons of coal

That's a lot of energy, and it requires a lot of infrastructure to produce, mine, process, and move to markets. We're responsible for regulating this infrastructure, including pipelines, wells, processing facilities, in situ projects, bitumen upgraders, and coal mines and processing plants.

The Government of Alberta gives the AER authority to ensure that companies develop the province's massive

energy resources in a safe and environmentally responsible fashion, and without waste.

- We review applications and make decisions on proposed energy developments (almost 134 000 applications processed since June 2013).
- We oversee all aspects of energy resource activities in accordance with government policies.
- We regularly inspect energy activities to ensure that all applicable requirements are met.
- We penalize companies that fail to comply with AER requirements.
- We hold hearings on proposed energy developments.

To make it happen, the AER employs 1200 inspectors, technical staff, engineers, geologists, scientists, investigators, stakeholder engagement specialists, mediators, lawyers, regulatory experts, and other employees in 15 offices and field centres around Alberta.

#### ALBERTA'S SINGLE ENERGY REGULATOR

The Government of Alberta created the AER in 2013 when it proclaimed the *Responsible Energy Development Act*. We were formed by combining the Energy Resources Conservation Board and Alberta Environment and Parks (previously Alberta Environment and Sustainable Resource Development).

The AER's role is to develop and enforce rules and regulations around energy development, taking direction from government policy.

#### WHAT WE DON'T REGULATE

The AER's authority is limited to activities that relate to oil, bitumen, natural gas, and coal development. We have no authority over any of the following:

- any aspect of electricity generation or distribution, including renewable energies, gas utility pipelines, and the price of natural gas (these are regulated by the Alberta Utilities Commission);
- gasoline or other refined petroleum products; and
- oil and gas pipelines that cross provincial or international borders (these are regulated by the National Energy Board).

#### PIPELINE performance

Pipelines have been a hot topic for some time in Alberta and across North America, with the big question being, are they safe?

In our province, the numbers show they're safer than ever. Still, the AER's executive vice president of operations knew that more could be done to improve pipeline safety, and that the solution wasn't to just craft more rules.

"We're not going to improve performance by adding more pages to the *Pipeline Act*," Kirk Bailey noted, knowing that more could be done to improve pipeline safety beyond crafting more rules.

This past February, the AER released a report revealing how pipeline operators are performing—with details not only on the sector as a whole but on individual companies as well.

While the length of pipelines the AER regulates grew by 11 per cent in the last decade, pipeline incidents actually dropped by 44 per cent, with the pipeline failure rate dropping to 1.1 incidents per 1000 kilometres of pipeline in 2016 compared with 2.2 incidents per 1000 kilometres in 2007.

The AER points to stronger requirements, industry education, improvements to inspection programs, and a greater focus on pipeline safety among operators for the improvement.

The report showed that pipeline incidents dropped by three per cent in 2016 compared with 2015. Most incidents were of medium to low consequence in terms of impacts on the public, wildlife, and the environment. High-consequence incidents accounted for about 7 per cent of all incidents in 2016.

While the decline in incident rates is encouraging, the AER believes all pipeline incidents are preventable—especially high-consequence ones. Achieving this will take a big effort in many small steps; in 2017 the AER aims to reduce the two-year average of high-consequence pipeline incidents by two per cent.

The AER will continue to raise the bar each year and take action to ensure that performance steadily improves.

The pipeline report was the first to be released, but it will not be the last. The AER will issue similar reports that will cover water use in energy development and inactive wells.

#### ALBERTA'S PIPELINES

The last 10 years

length of pipelines grew by

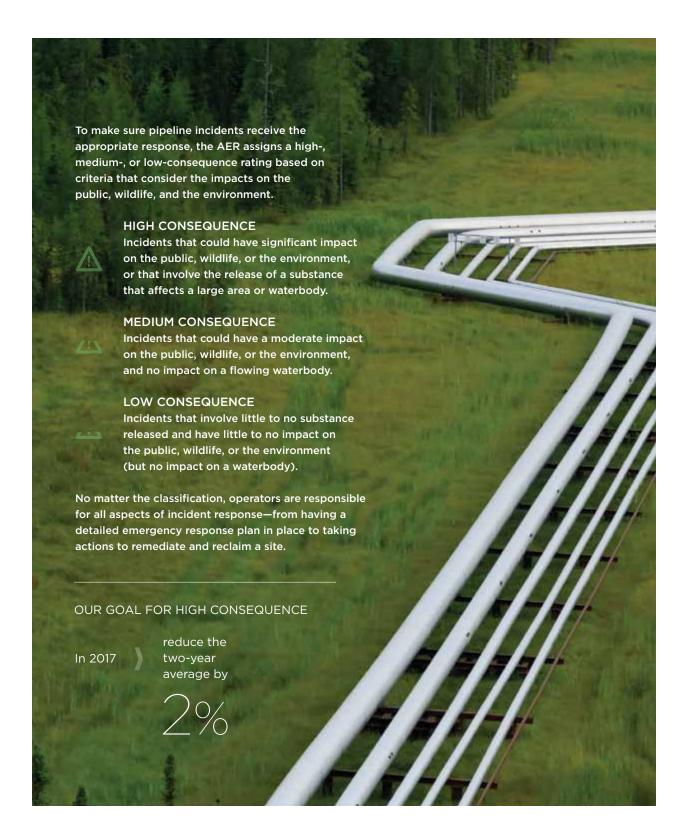
dropped by

incidents

2016

incidents/ 1000 km of pipe

11





Supported the government response to the Fort McMurray wildfire by providing valuable information to industry and by ensuring the safe startup of operations once the fire was controlled. \$224 MILLION



Generated over \$224 million in annual savings for industry by making our regulatory processes more efficient, without compromising public safety or environmental protection.

### HIGHLIGHTS 2016/17

## 17 **t**recommendations

Worked with Alberta Health on a year-long study into air quality and odour concerns near Fort McKay by making 17 recommendations to improve conditions.



Launched Resource.aer.ca, a site where the AER posts stories, images, and video about Alberta's energy development and how it's regulated—with more than 80 stories and some 30 000 visitors.



Developed new rules to manage tailings with the ongoing support of a committee of AER stakeholders.

#### application 1 review decision



Piloted a new approach requiring a single, integrated application for all activities within a project instead of separate ones for each activity. This new approach gives a clearer picture of the broader impacts of energy development.



Issued *Directive 086*, which strengthened public safety and environmental protection by introducing new subsurface reservoir containment rules for projects in the Athabasca area.



Worked with indigenous elders to develop *Voices of Understanding*, a document about using indigenous oral decision-making to help improve interactions between the AER and indigenous people.



Partnered with Mexico to create the International Centre of Regulatory Excellence—a not-for-profit institution to help regulators worldwide train, collaborate, and innovate.



Launched the Enterprise Learning Branch to provide coordinated and standardized training to ensure AER employees have the necessary skills and knowledge to do their jobs well.



Issued 4053 reclamation certificates, confirming that companies met all requirements to reclaim an energy site.



Culminated years of commitment to Peace River-area residents by releasing new requirements to control gas emissions from heavy oil and bitumen operations in the region.



Exceeded our target to reduce pipeline incidents in 2016 with a drop of 3% to 1.1 per 1000 km.

82% 77% **†** •

82% of Albertans and 77% of stakeholders expressed confidence in the AER.



Developed the Industry Performance Program and released a detailed report on pipeline performance.

#### 2016/17 REPORTING ON OUR RESULTS

Since the AER's launch in 2013, we have promised that we will be transparent. Keeping that promise requires us to report on our results by showing where we have made progress over the last year, how we are working towards meeting the goals we have set, and what challenges we have faced that may have caused us delay.

The 2016-19 strategic plan was developed by examining the work we need to focus on based on our four pillars of protective, effective, efficient, and credible. The plan included our strategic priorities, outcomes, and performance measures to ensure that we stayed on track and

#### OUTCOME **MEASURE** Volume of all water used (by source) for hydraulic fracturing, enhanced oil recovery, in situ oil sands, and mineable oil sands Total annual volume of fluid tailings, **PROTECTIVE** treated fluid tailings, fines captures Effective management of public safety and cumulative Develop an integrated whole-system environmental risks and impacts Volume of methane emissions regulatory approach Volume of oil sands emissions Complete a risk assessment of energy-**EFFECTIVE** related infrastructure by March 2018 Effective management of resource Strengthen conservation and minimize financial risk-based liability on Albertans Number of high-consequence regulation pipeline incidents **EFFICIENT** Stakeholder savings resulting from reduced The regulatory system is efficient, minimizing duplication, with highly efficient processes, and only intervening to the level necessary regulatory burden that does not negatively Transform impact the environment or public safety Alberta's energy regulatory system Improve efficiency of AER to improve application decisions efficiency Percentage of Albertans aware of the AER who express confidence in the organization's ability to fulfil its mandate Incorporate key attributes of CREDIBLE regulatory excellence Stakeholders are confident Increase trust and about how energy is confidence in how developed in Alberta Level of skills and competencies energy is developed in Alberta Employee engagement Percentage of IRMS\* strategic priorities supported by the AER Alberta Energy Regulator

demonstrated our results. Like the AER itself, the 2016–19 plan was fluid enough to allow us to remain nimble in an ever-changing energy sector, and was designed to move with the ebbs and flows throughout the year.

The targets we set for ourselves in the strategic plan, such as reducing fluid tailings accumulation, lowering oil sands' emissions, and improving the application process, all tie back to our commitment to regulatory excellence—achieving it and living it as we work toward it.

Annual Report Executive Summary 2016/17

TARGET	STATUS
Public reporting of water use by industry	On track: Scheduled for spring 2017.
Ensure industry complies with established performance standards	In progress: Revisions to <i>Directive 085</i> being made to include public input. Expected in 2017.
Support multistakeholder engagement process to facilitate early action on methane reduction	Target met: Multistakeholder process has been created and is being used to develop changes that will ensure a 45% reduction in methane by 2025.
Ensure industry complies with established performance standards	In progress: Draft regulatory development is 60% complete, ahead of targets.
Establish a tracking and reporting system for oil sands emissions	On hold: Provided input to the Oil Sands Advisory Group. Awaiting government response.
Address high-risk items as they are identified	In progress: 96% of high-risk wells have been brought into compliance through <i>Directive 013</i> , and the Inactive Well Compliance Program has achieved 56% compliance.
2% reduction in high-consequence pipeline incidents from the previous two-year average	Target met: 24% reduction in high-consequence pipeline incidents.
\$100 million in savings to stakeholders in fiscal 2016/17	Target exceeded: \$224 million in savings to stakeholders due to organizational efficiency projects.
Conduct two pilot projects to evaluate the proof of concept for the single application and approval process by March 31, 2017	Target met: Three pilot projects completed.
80% confidence score	Ongoing: 82% of Albertans have confidence in the AER's ability to fulfil its mandate, while 77% of stakeholders express confidence, with varied rankings among specific groups (e.g., landowners, industry, and indigenous peoples).
Begin implementing the AER model for regulatory excellence	In progress: The Strategy and Development Branch was created. Developed internal systems to improve efficiencies.
Address high-priority skill and capability gaps through the implementation of a Centre of Regulatory Excellence in 2016/17	<b>Target met:</b> Created the Enterprise Learning Branch for AER employees. Launched the International Centre of Regulatory Excellence.
Achieve 83% engagement in 2016/17	In progress: Launched many initiatives to improve employee engagement. Results to be determined in 2017/18.
100% of IRMS strategic priorities supported by the AER	Target met: 100% of IRMS priorities supported by the AER.
	*Integrated Resource Management Framework.









We know indigenous peoples want their voices reflected in our decisions. We need to work together to find solutions while being mindful of our cultural differences. However, many of our processes fail to link western and indigenous worldviews—this prompted the AER to set out on a path to increased understanding.



#### WHEN voices matter

All of our voices matter.

Whether we speak in unison or one at a time, in one language or another, in harmony or in discord, we all have the right to be heard. This is true in the classroom, in the workplace, and at home. The regulatory field should be no different.

We know indigenous peoples want their voices reflected in our decisions. We need to work together to find solutions while being mindful of our cultural differences. However, many of our processes fail to link western and indigenous worldviews—this prompted the AER to set out on a path to increased understanding.

We made it our mission to build a new type of working relationship—one based on trust and mutual understanding—and challenged ourselves to look beyond what we know.

Blackfoot elder Dr. Reg Crow Shoe was our guide on this journey. With his leadership and teachings, AER employees explored how indigenous processes and worldviews can complement our own. Specifically, the sessions explored traditional circle decision-making, a method that can be used to make decisions or to resolve conflict.

AER employees came to understand the ways that circle management processes are mirrored in hearings, alternative dispute resolution, and mediation processes we have in place today.

"There are applications, leaders, and proper times to speak," says Barbara McNeil, an AER hearing commissioner. "In many ways, circle decision-making echoes what we want to achieve in mediation."

Circle decision-making begins with an opening statement from the ceremonialist, who brings together people from the involved parties. The ceremonialist has the great honour of being the steward of the bundle—a physical and symbolic representation of the right to carry out decisions from circle processes. That right can only be transferred through ceremony.

Before discussions begin, participants cleanse their minds, bodies, and spirits in a smudge ceremony. This ceremonial practice includes lighting dried herbs in a bowl or bundle to produce smoke.

Next, each circle participant discusses the issues at hand. A second round of discussions seeks solutions. Understanding is built as participants gather in a circle and take turns speaking, facilitating a safe environment for people to share their knowledge and experiences. Each voice is equal. The circle process doesn't end until a consensus or a decision is reached.

We explored our new awareness of this process with Dr. Crow Shoe, and together we created *Voices of Understanding: Looking Through The Window*, a guide intended to help AER staff and indigenous communities understand how to draw parallels between western and indigenous decision-making.

In an intimate circle ceremony hosted in the AER's Govier Hall, Dr. Crow Shoe transferred the rights to the bundle containing the knowledge and process behind *Voices of Understanding* to AER president and CEO Jim Ellis.

Voices of Understanding prompts us to genuinely consider the way we think and work and the processes, systems, and initiatives we use. On our quest to achieving regulatory excellence, this bundle does not symbolize completion but rather a step further in our journey to awareness and validation of indigenous decision-making.

This is but one piece in the foundation as we improve our working relationships with Alberta's indigenous people. To carry this knowledge is a responsibility we are honoured to accept.

## How a penny saved became two billion dollars earned

Work to make requirements more efficient started in April 2014 as part of a bigger strategy to improve how the AER regulates. Since this time, the AER has generated over \$1.9 billion in total cost savings for industry without reducing environmental protection and public safety rules and regulations.

COST SAVINGS (APRIL 2013 TO MARCH 2017)

over \$\frac{1}{2} \frac{million,}{annually}

We knew there were savings to be had, but we didn't know how much.

However, three years and nearly two billion dollars later, the AER's efforts to make our regulatory requirements more efficient have translated into real-world savings for an energy industry beset by low commodity prices.

But it wasn't a response to oil prices that spurred us to examine our requirements through a different lens and spot opportunities to make improvements. Work to make requirements more efficient started in April 2014 as part of a bigger strategy to improve how the AER regulates. Since this time, the AER has generated over \$1.9 billion in total cost savings for industry without reducing environmental protection and public safety rules and regulations. A portion of these are one-time savings, while the remainder are savings that recur each year and help ensure that Alberta's regulatory system remains efficient and effective.

To the end of March 2017, the AER has delivered over \$774 million of industry-verified cost savings that recur annually through regulatory efficiency improvements. This means each year Alberta's energy industry saves over three-quarters of a billion dollars. In 2017/18, we are targeting additional savings in the order of \$100 million.

So why do it? Besides the fact that creating efficiencies and a more competitive environment was a driver for merging three regulatory bodies to form the AER, our efforts bring benefits to industry such as lower operating costs, lower capital costs, and fewer regulatory delays. This allows companies to bring projects into operation faster, which in turn provides economic benefits to Alberta.

But more important is that regulating with outdated or ineffective regulation doesn't make Alberta safer. In fact, it could tie up our resources on low-risk issues and hinder action where the risks are greater. Creating efficiencies makes development safe, protects the environment better, and helps the economy. In this way, everyone affected by energy development—be they public stakeholders, indigenous communities, or Albertans in general—benefit from more efficient and effective regulatory requirements.

Making the regulatory system more efficient can be complicated, but here in Alberta it's made somewhat easier because we have only one regulator, not multiple ones with competing interests.

The savings we've achieved have been significant, and because they are applied to operations year over year, the value of this regulatory efficiency work will be realized by industry and Alberta for the next 30 years and beyond.





#### 2017-20 STRATEGIC PLAN

The AER is responsible for making sure the public and the environment are protected. We have a strategy to fulfil our mandate, reach our vision of regulatory excellence, and deliver results for all Albertans.

To develop our 2017-20 strategic plan, we examined the work we need to focus on based on our four pillars

of protective, effective, efficient, and credible. The plan includes our strategic priorities, outcomes, and performance measures to ensure we stay on track and demonstrate our results.

Ensuring the responsible use of water resources, reducing the inventory of aging infrastructure, lowering methane

#### STRATEGIC PRIORITIES STRATEGIC OUTCOMES **FOCUSED OUTCOMES** Sustainable water use Reduce fluid tailings accumulation **PROTECTIVE** over mine life Climate change - reduce methane emissions Climate change oil sands emissions Cumulative effects management Reduce aging inventory liability **EFFECTIVE** of resource conservation risk-based Pipeline safety The regulatory system is efficient, minimizing duplication, with highly efficient processes, and only intervening to the **EFFICIENT** Regulatory efficiency energy regulatory system to improve efficiency level necessary

#### **CREDIBLE**

Increase trust and confidence in how energy is developed in Alberta

Stakeholders are confident about how energy is developed in Alberta Effective engagement of Albertans, indigenous peoples, and stakeholders

Achieve regulatory excellence

The AER is an integral partner in the Integrated Resource Management System (IRMS)

VISION

Each year we update our strategic plan to make sure we're adapting to the changes taking place around us—from new technology to evolving stakeholder expectations.

This is continuing work and we can take things further by closely examining our strategy to see how it should evolve to reach our overall outcomes as we ensure the safe, environmentally responsible development of Alberta's energy resources.

The same	PERFORMANCE MEASURES	PERFORMANCE TARGETS
	Volume of all water used (by source) for hydraulic fracturing, enhanced oil recovery, in situ oil sands, and mineable oil sands	Public reporting of water use by industry
	Total annual volume of fluid tailings, treated fluid tailings, fines captured	Ensure industry complies with established performance standards
		Support multistakeholder engagement process
	Volume of methane emissions	Ensure industry complies with established performance standards
	Volume of oil sands emissions	Establish a tracking and reporting system for oil sands emissions
	Cumulative effects are managed	Develop a framework to manage cumulative effects
	Complete a risk assessment of energy-related infrastructure by March 2018	Address high-risk items as they are identified
	Number of high-consequence pipeline incidents	2% reduction in high-consequence pipeline incidents from the previous two-year average
	Stakeholder savings resulting from reduced regulatory burden that does not negatively impact the environment or public safety	\$100 million in incremental savings to stakeholders in fiscal 2017/18
	Improve efficiency of AER application decisions	Single decision-making framework for wells, facilities, and pipelines available for use by external parties not later than 31 December 2018
	Percentage of Albertans aware of the AER who express confidence in the organization's ability to fulfil its mandate	Maintain a confidence score above 80% annually
	Level of skills and competencies	Close high-priority skill and capability gaps through the implementation of the Enterprise Learning Branch in 2017/18
	Employee engagement	Achieve 83% engagement in 2017/18
	Percentage of IRMS strategic priorities supported by the AER	100% of IRMS strategic priorities supported by the AER

The AER is recognized for regulatory excellence, ensuring the safe, environmentally responsible development of energy resources for the benefit of all Albertans.



#### DRIVERS for change

Our world has changed significantly over the last decade, and we must keep pace to be a good regulator, let alone an excellent one. And achieving excellence is the AER's vision.

In the past, local stakeholders living near energy development—the people directly affected by oil and gas activities—were the ones voicing their concerns. Today, people the world over question the use of fossil fuels and demand action on climate.

Closer to home, the Government of Alberta's Climate Leadership Plan—which aims to reduce Alberta's carbon emissions—is well underway, while this past December the federal government and provinces announced the Pan-Canadian Framework on Clean Growth and Climate Change.

Meanwhile, the oil and gas industry is changing the way it develops Alberta's resources; the growth in multistage hydraulic fracturing activities and in situ oil sands development means more large-scale projects that bring with them new challenges, risks, and opportunities.

Albertans want to know what's happening and how it affects their lives, their families, their communities, the environment, and the industry. In response, we re-examined our approach to stakeholder engagement by making it a core area of regulatory practice. This includes forming committees in which indigenous peoples, environmental

groups, municipalities, landowners, and others have a voice in developing regulatory requirements.

Not only is this sound practice, it also helps build trust and confidence in the regulator, without which we can't succeed.

Today, development occurs on a larger scale, with projects having a greater footprint on the landscape from multiple wells and associated infrastructure—roads, facilities, and pipelines—a departure from the days of single wells scattered across the landscape. The AER is looking closely at how multiple energy activities will affect specific areas, and at the cumulative effects those activities have over time.

One way we can do this is to look at the big picture by adopting a cumulative-effects-management approach. Cumulative effects are the total environmental changes caused by energy development activities in combination with other past, present, and future human actions. The impacts of each activity may be insignificant by themselves, but when combined with other activities, the risk to the environment can be great.

Part of our response is to change the way operators submit those many applications, starting with a few pilot projects. Instead of many separate applications, operators will submit them as one—a single application, with one public notice—and will receive one single decision from the regulator, be it an approval or denial. Besides being more efficient for industry, it gives communities a better idea about what companies are proposing.

Meanwhile, people continue to be concerned about the pipelines that carry our oil and gas to markets across North America and beyond. They demand to see the facts and demand action to ensure that pipelines are safe. In Alberta, pipeline incident rates have fallen by almost 45 per cent in the last 10 years. While this is encouraging, the AER believes *all* pipeline incidents are preventable; reaching this goal requires a big effort.

To help achieve this, the AER is taking steps to make industry more accountable and to increase transparency by releasing data for Albertans to see. In February, we issued the Pipeline Performance Report, which details how individual companies and industry as a whole have been performing. The AER will issue similar reports on water use for in situ operations, mining, and oil and gas activities.

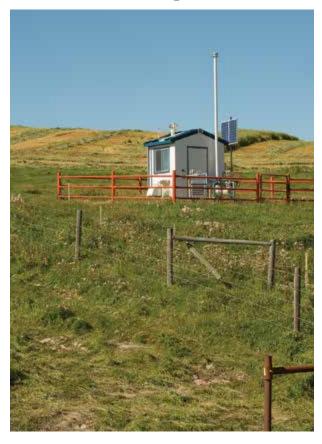
If Alberta is to meet people's changing expectations and stay current with changing technologies, and still compete in the global market, its regulator must also change by working with all Albertans to manage our energy resources today and beyond.

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#### PIPELINE INCIDENT RATES



#### FOR everyone's benefit



It's rare that a change can benefit everyone, but when it happens, it leaves one wondering why the change took so long in the first place.

The creation of the AER was one such change—it brought together all energy-related regulatory activities under one umbrella. Being responsible for all spill response and clean up has allowed us to be more effective in our approach to remediation, which benefits landowners, the energy industry, the regulator, and Albertans in general.

"Previously, the regulatory agencies had different pieces of the puzzle. There were different computer systems, different compliance structures, and different legislation," said Sandra Blais, an advisor with the AER. Historically, contamination was allowed to remain in place until the site was decommissioned. But the AER has taken a different approach, requiring more active clean up at the time of a spill instead of waiting for decommissioning, which reduces the likelihood of contamination migrating over years in underground plumes.

While Blais said monitoring a spill and remediating in the location instead of immediately removing contaminated soil works well for some spills, in most cases the longer it remains in soil, the greater risk it will contaminate groundwater.

This change also means the land is returned back to what it was before the spill—farmland, forest, or grassland—much quicker.

The benefits also apply to the ones responsible for the spill.

"Cleaning up spills immediately can mean a cost savings to industry," said Sasha Desjardins, manager of Remediation, Contamination Management, and Reclamation. "For industry to do nothing is the most expensive option."

Companies can remediate a spill before it spreads and forego the cost to continually monitor the spill.

Energy companies need to prove to the AER that they have the financial ability to return the land back to a comparable state to what it was before energy development. So for the AER, these changes allow us to better assess how much it may cost companies to clean up once their facility is no longer needed for energy development.

Better data on spill cleanup costs make our calculations much more accurate and can sometimes involve an energy company needing to pay financial security to the AER that can be used to clean up any spills if the company goes defunct. That means the company—not Albertans—is held responsible for cleaning up energy infrastructure and their associated sites. And that benefits all Albertans.

# our mandate

The Alberta Energy Regulator ensures the safe, efficient, orderly, and environmentally responsible development of hydrocarbon resources over their entire life cycle.

This includes allocating and conserving water resources, managing public lands, and protecting the environment while providing economic benefits for all Albertans.

our missio

To regulate Alberta's energy resources by protecting what matters most to Albertans— public safety, the environment, and economic value.

our vision

The Alberta Energy Regulator is recognized for regulatory excellence, ensuring the safe, environmentally responsible development of energy resources for the benefit of all Albertans.

