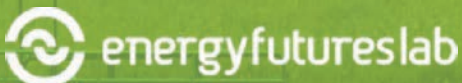


MARCH 2021

The LEAD Project:

*Leveraging our Energy
Assets for Diversification*

Prepared by:



POWERED BY THE NATURAL STEP CANADA



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LIST OF ACRONYMS AND DEFINITIONS

AEP	The Ministry of Environment and Parks
AER	Alberta Energy Regulator
Asset holders	Companies who currently hold oil and gas licenses
AUC	Alberta Utilities Commission
Brownfields	As described in Alberta's Municipal Government Act, brownfields are abandoned or underutilized commercial or industrial properties that are, or might be contaminated, but are suitable for redevelopment.
CWF	Canada West Foundation
DCG	Distribution-Connected Generation credits
Disturbed lands	Land on which an industrial activity occurred for which a reclamation certificate or reclamation exemption is required or would be required but has not yet been obtained.
EFL	Energy Futures Lab
LEAD	The Leveraging our Energy Assets for Diversification project, led by the Energy Futures Lab
OWA	Orphan Well Association
PNG	Petroleum and Natural Gas
Redevelopment & Repurposing	Any future use of an existing licensed oil and gas site, well, facility or infrastructure for non-oil and gas related use, that may defer -- but uphold -- responsibilities related to reclamation certification.
SRB	Surface Rights Board



PROJECT PARTICIPANTS

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EXECUTIVE SUMMARY

This document presents a set of recommendations to the Alberta government that have come out of the LEAD (Leveraging our Energy Assets for Diversification) project.

The LEAD project is intended to clear roadblocks to allow entrepreneurs to utilize existing oil and gas infrastructure and sites for new development, attract investment to Alberta for these developments, protect landowners and create an alternate path for aging oil and gas assets and liabilities.

These efforts are not about avoiding environmental commitments, but about safely repurposing well sites to provide benefits to landowners, local communities and the public. At its core, the LEAD project aims to make redevelopment and the reuse of previously disturbed and brownfield oil and gas sites and infrastructure more desirable than greenfield development and more desirable than delaying closure of those sites.

This report captures the thinking and recommendations that have resulted from a five-month intensive collaborative process among contributors from the oil & gas industry, new energy ventures, landowners, law firms, energy investment firms, environmental remediation companies and others.

This report puts forward **a short but impactful draft bill** that will help the Alberta government signal that solving this problem is a priority, that new energy entrepreneurship is welcome, and that the regulators have the mandate to cooperate, coordinate and innovate as necessary. The report also presents an explanation of the specific issues that are causing problems, and some possible approaches to solving them.

The process approach described in this document represents a relatively easy win for all stakeholders and—at the same time—a way to cut red tape. And repurposing inactive oil & gas sites for new energy lives will create jobs, help diversify the energy sector, create new economic opportunities for landowners, and ease taxpayer burden around site liability.

"A process-change approach within the current regulatory framework, as this report outlines, enables the repurposing of well sites for alternate uses to occur in a timely and effective manner while considering all stakeholders."

– Jenny Yermiy, Liability Management Specialist at Canadian Natural Resources Ltd.

WHAT IS THE PROBLEM WE ARE TRYING TO SOLVE?

How do you turn a liability into an asset? This isn't just a theoretical question for Alberta, but a real problem and also – quite possibly – a major economic and environmental opportunity.

The problem of inactive wells is relatively well-known in Alberta. Currently, there are over 95,000 inactive wells in Alberta, 7,743 of them considered “orphaned” or without an extant owner. Sitting dormant, these sites represent an enormous public financial and environmental liability.

They also represent a multifaceted opportunity. Many – although not all – of these sites are good candidates for repurposing for other energy uses, including geothermal, micro-solar, hydrogen, recovery of lithium or other minerals, or carbon capture and storage.

Repurposing these sites for new lives would have multiple advantages. It would mean that industrial sites can be kept on already-disturbed brownfield land rather than eating into greenspace. It would create jobs for oil & gas workers who have been laid off, and balance liability with additional asset value, thus easing taxpayer burden. It would also help diversify the energy sector, expedite a smart energy transition, create new economic opportunities for landowners and could help a licensee partially fund asset retirement programs.

How important is solving this problem?

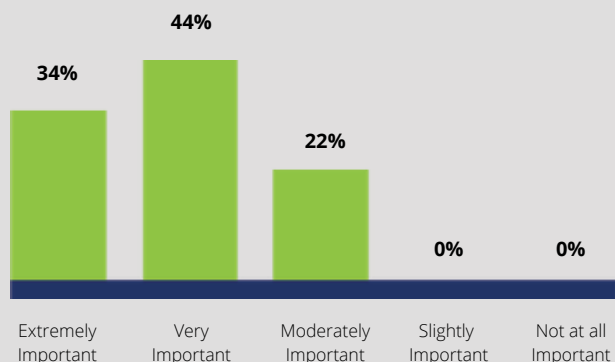


Figure A

Why is solving this problem important?

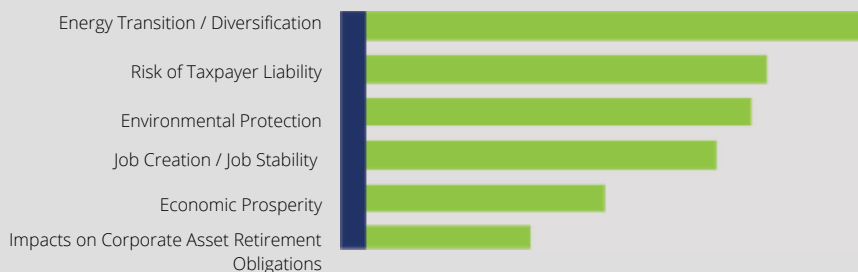


Figure B

****Results from an Energy Futures Lab survey taken September 2020 (90 participants)**

Unfortunately, this isn't happening yet – at least at scale. And it's not for lack of trying. In recent years, there have been numerous attempts by both start-up and established companies to repurpose inactive sites in order to create complementary value. However, for the most part, these innovative projects have died due to either inflexible regulations that do not allow for site repurposing (rather than traditional remediation and reclamation) and/or difficulties in assigning financial liability. As a result, the sites aren't environmentally improved, economic opportunities are missed and cleantech opportunities are lost.

But things have changed in Alberta over the last 18 months - and a window has opened for solving at least part of this problem. And based on survey results (see figures on page 4), there is strong support for finding a way to repurpose inactive wells for new energy uses.

Not every inactive site will be a good candidate for safe repurposing. But the impact of getting a substantial portion of inactive sites off the books and returned to productive use is meaningful – furthering the goals of government, landowners, the public, the environment and the economy. And it represents an opportunity not to bail out companies, but to build durable solutions that create new revenue streams.

The initiative also strongly aligns with stated federal and provincial priorities on diversification, plans for geothermal energy and hydrogen production, and with a focus on how best to structure the Alberta Energy Regulator.

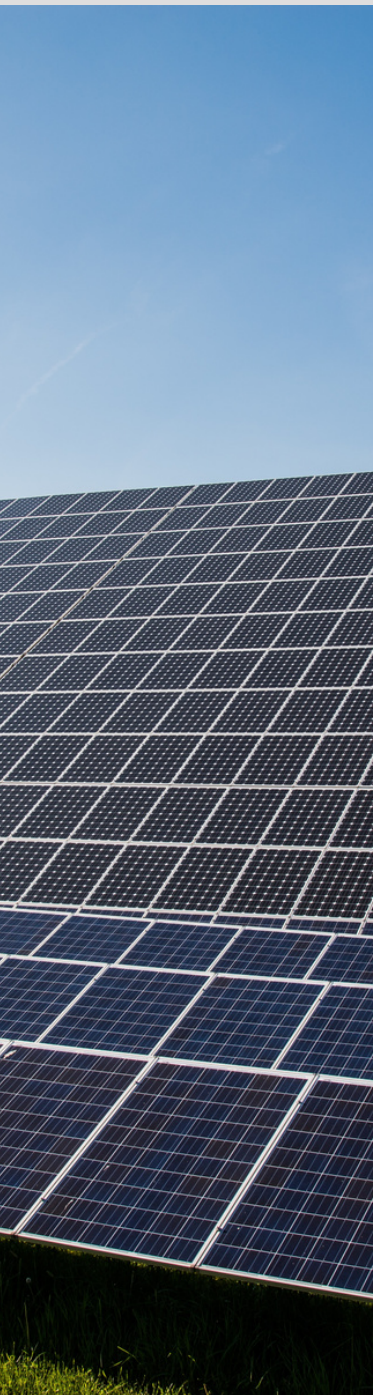
The recommendations provided in this document are intended to help the Alberta government signal that solving this problem is a priority, that new energy entrepreneurship is welcome, and that the regulators have the mandate to cooperate, coordinate and innovate as necessary.

We recognize that the challenges are very real and the recommendations included herein will not solve all problems. Concerted action will be required by government, energy incumbents, innovators, First Nations, landowners and others to create a durable solution.

What is repurposing?

For this project, repurposing has been defined as any future use of an existing licensed oil and gas site, well, facility or infrastructure for non-oil and gas related use, that may defer -- but uphold -- responsibilities related to reclamation certification.

RenuWell



In 2016, former petroleum geoscientist Keith Hirsche launched the RenuWell Project, with a goal to efficiently re-purpose legacy oil and gas infrastructure for community solar power. Solar projects require a lot of space, and Hirsche, who comes from a farming family, wanted to locate his on already-disturbed land so there would be less impact on the agricultural land base. His approach would also reduce the high up-front costs of renewable energy development by using existing access roads, graded well pads and electrical infrastructure. It would also provide emissions-free distributed power for irrigation farming, and reduce site closure costs for the oil and gas asset holders.

The innovative approach proposed by RenuWell has proven popular with the oil and gas industry, rural municipalities, irrigation farmers, renewable energy companies and workers looking for employment. “I haven’t seen anybody that understands the project that is opposed to the project,” said Daryl Bennett, Director of the Action Surface Rights Association.

However, the very thing that made RenuWell’s approach so popular also brought numerous headaches. As noted by Hirsche, “While the technical aspects proved relatively easy, I did not anticipate the complexity of oil and gas liabilities, the electricity utility sector and environmental regulations.”

It took RenuWell over five years to navigate the regulatory hurdles involving the AER, the AEP, the AUC and the Orphan Well Association. The AER requires that sites used for solar projects first be reclaimed, a process that includes removing equipment like pads and roads, and replacing topsoil and vegetation. “So all of those steps have to be done just the same as if the site was just going to go back to the farmer or go back to public use,” Hirsche said.

Ultimately, RenuWell was able to get a pilot project started that is slated to begin operations in 2021. Alberta’s Municipal Climate Change Action Centre awarded \$2.1 Million to the M.D. of Taber through the Municipal Community Generation Challenge program to help fund the first RenuWell pilots. This pilot, which is being implemented in partnership with Canadian Solar, SkyFire Energy, Iron + Earth and Medicine Hat College, will result in 2 MW of solar power generation that will be owned by IRRICAN (St. Mary River, Taber and Raymond Irrigation Districts) who is co-funding the project.

But while RenuWell appears on the path to success, five years is a long time for a first project - many other companies might not have survived.

Alberta No.1



Alberta No. 1 is an excellent example both of why the government's dedicated geothermal framework will be essential and how the LEAD project can help.

Alberta No. 1 is a geothermal energy project located in the MD of Greenview. When constructed, it will be the first conventional large-scale deep geothermal facility in the province, generating 10MW of power and 35 MW thermal energy. The total project cost is approximately \$90 million, and it will employ nearly 200 workers during construction. In 2019, the project was awarded \$25.45 million in funding by Natural Resources Canada.

The company decided to take an approach that built on Alberta's past energy legacy by siting their facility at previously permitted sites, utilizing inactive well pads – an approach they hoped would both minimize environmental disturbance and provide them with an economic and timeline advantage.

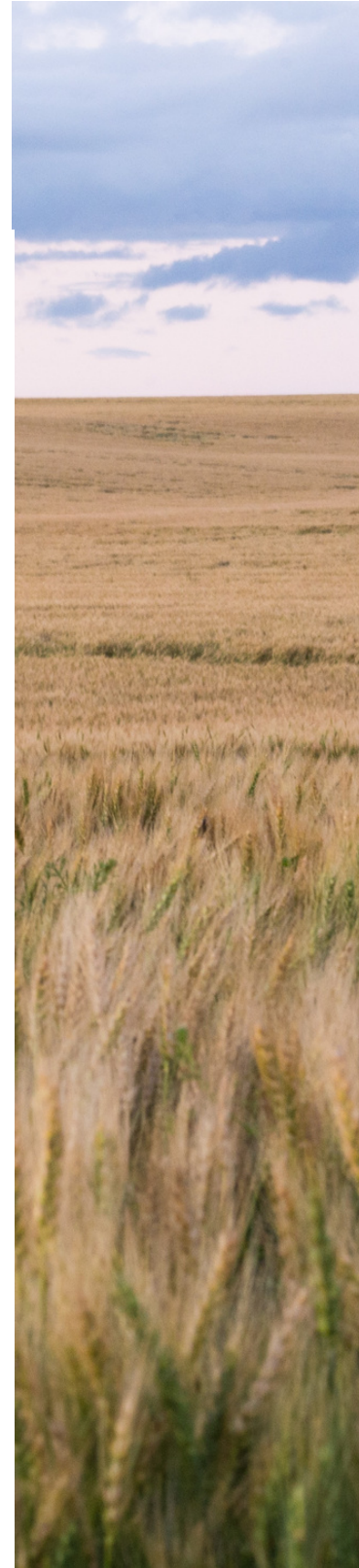
However, with no straightforward path at the regulator to enable this approach, this decision has resulted in substantial delay, removing the anticipated timeline advantage. The major contributing factor to the delay is a lack of a mechanism for the company to assume a plugged and abandoned well because they do not have the Petroleum and Natural Gas rights to the formations – even though the well itself would never be opened by the geothermal company because it is not completed in a formation conducive to geothermal energy production.

As explained by CEO Catherine Hickson, "we at Alberta No. 1 are working hard to actually use existing infrastructure rather than break new ground, but it is a hard road we have chosen. If I had to do everything over again, I would likely have decided to break new ground and go through the permitting process at the time our project was announced. We would likely already have our site secured and be constructing roads and pads. Now we are in limbo."

WHO WINS?

Although it will not solve all problems, the bill and the other recommendations in this report represent a step forward and will allow meaningful progress to be made on a very difficult issue. In particular it has benefit for the following:

- **Those concerned about the environment** because it minimizes the use of untouched green space for industrial use, and puts a responsible party back on the table for some inactive facilities that are hanging in limbo.
- **Provincial government** because it helps eliminate a portion of the large, expensive and intractable problem of aging oil and gas infrastructure.
- **New energy entrepreneurs** because it will enable them to build projects more quickly and less expensively, while avoiding new land disturbance.
- **Companies that hold operating or inactive oil and gas assets** because it helps reduce their expensive asset retirement obligations and also opens a path for them to leverage existing assets and participate in emerging energy development.
- **Provincial regulatory agencies** because it will enable them to simplify and streamline the approval process for redevelopment and address the needs of applicants while ensuring safe and responsible development.
- **Landowners** because it helps replace a dwindling revenue stream while enhancing autonomy for decision-making regarding future development.
- **Indigenous groups** because it may help balance economic development with protection of the environment and may open additional commercial opportunities.
- **Municipalities** because it may help bring people and employment back to their communities, and enable them to start benefitting financially from the new energy economy.
- **Oilfield service companies** because many new energy projects require the petroleum service subsectors during construction and/or operation.
- **Alberta's taxpayers** because it moves a part of this problem off the public purse.



About the LEAD project and process

The LEAD project was initiated jointly by the Energy Futures Lab (EFL) and the Canada West Foundation (CWF).

EFL is a consortium of over 70 collaborators and 20 partner organizations that builds on the energy sector's current strengths to develop solutions for a low-emissions energy future. CWF is an independent, non-partisan public policy think that provides practical solutions to tough public policy challenges facing the West, and Canada as a whole, at home and on the global stage. Collectively, EFL and CWF represent neutral parties that are able to bring diverse groups to the table, with EFL leading in the energy space, and CWF leading in the policy space.

The LEAD project was initiated in 2019 but gained traction in 2020. Three things in particular contributed to the momentum of the project:

- Increased attention on the problem of inactive and orphan wells by both federal and provincial governments and by the general public.
- A signal of interest by the Alberta government that it would be receptive to the EFL / CWF putting forward a solution that could partially alleviate this problem while also addressing the key priorities of employment and diversification.
- Interest in collaboration by a broad group of stakeholders who represented different interests and perspectives.

Starting in November 2020, the EFL pulled together a “core team” of 25 individuals from 16 organizations to scope the problem and potential solutions and to contribute to drafting the bill. The participants are listed on page 3 of this report, and included people from the Alberta government, the Alberta energy regulator, oil & gas companies, entrepreneurs developing new energy applications, Indigenous energy company representatives, landowners, environmental professionals and energy investors. No individuals or organizations were paid to participate in the project or to produce the bill.

Some key activities / milestones of the LEAD project are shown in the timeline (Figure C).



Figure C

We recognize that the LEAD project is not the only initiative trying in some way to tackle the problem of inactive infrastructure, liability management and land repurposing. Other efforts include:

- The Government of Alberta's [site rehabilitation program](#) and [review of the existing liability management framework](#)
- The work of the [Orphan Well Association](#)
- The development of a [Low Probability Receptor Framework](#) by the Petroleum Technology Alliance of Canada (PTAC) and Millennium EMS Solutions, in conjunction with asset holders, landowners and municipalities
- Landowner and citizen-based initiatives including the [Alberta Liabilities Disclosure Project](#) and the [Polluter Pay Federation](#)
- Academic efforts including various studies and analysis out of the University of Calgary School of Public Policy
- Focused efforts by the Clean Resource Innovation Network (CRIN), InnoTech Alberta and the Petroleum Services Association of Canada (PSAC)
- and many others

The LEAD project is meant to complement and not replace the work being done by these other initiatives.



HOW TO START SOLVING THE PROBLEM

The work that our group has done has resulted in the realization that a lot of the problems that repurposers face do not arise from existing legislation or regulations. Rather, the problems are a result of:

- Poor coordination across the regulators—in particular, the Alberta Energy Regulator (AER), Alberta Environment and Parks (AEP) and the Alberta Utilities Commission (AUC)—and the absence of a clear mandate for the regulators to collaborate and enable this opportunity.
- A lack of understanding around how responsibility should be apportioned across different regulatory agencies when there are both surface and subsurface assets/interests in play and/or when oil and gas assets pivot to become power producing assets.
- Hesitancy by regulators to act when processes or policy guidance is not clear.
- A resulting lack of clear communication between the regulators and redevelopers, asset holders and landowners about processes, requirements, timelines, etc.

The silver lining is that fixing the problem will not require a host of new regulations or bureaucracy - quite the opposite. **Fixing this problem can be accomplished—for the most part—by having the provincial government give specific direction to the regulators to collaborate and address the problem by applying existing legislation to new circumstances where the interpretation permits, identifying gaps and creating processes and coordination to fix those gaps.**

The fact that a process approach, rather than a regulatory approach, is what is required represents a relatively easy win and—at the same time—a way to cut red tape.

To help the government achieve the desired outcome, this report puts forward two things:

First, a short but impactful draft bill that will enable the government to plant a flag around its intent, and that will compel action.

Second, a “problem and principles” section that describes more fully the specific issues that are causing problems, and some possible approaches to solving them.

THE BILL

Appendix A contains the draft bill - the *Redevelopment on Disturbed Lands Act* - that we recommend be passed by the Government.

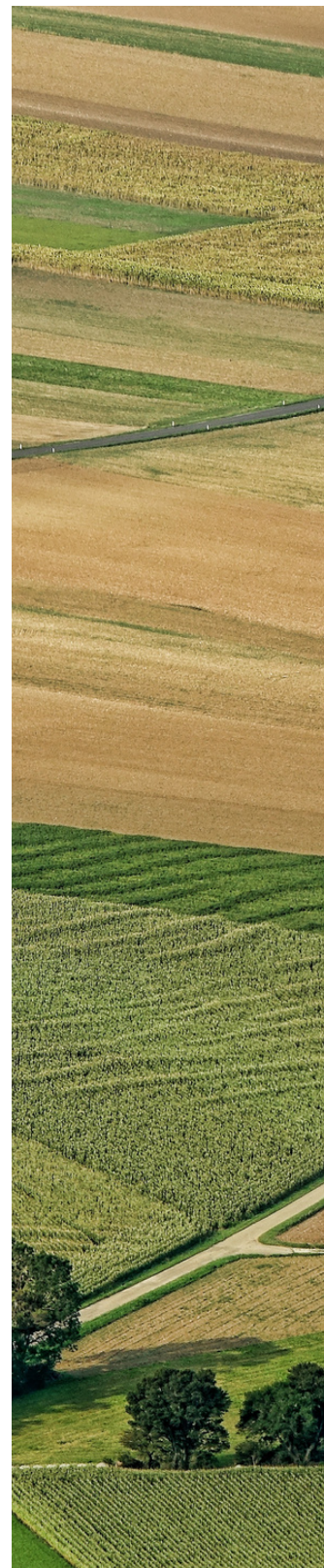
The bill has only three substantive provisions:

- Decision makers shall give preference to developing natural resources on disturbed land and direct that developments occur on disturbed land where practicable.
- The Minister shall direct the Alberta Energy Regulator to chair a committee comprised of representatives from the Alberta Energy Regulator, Alberta Utilities Commission, and the Ministries of Alberta Environment and Parks and Alberta Energy to develop and implement processes for the cooperation of applications for the redevelopment of disturbed land, ensuring for timely and transparent decisions.
- The Alberta Energy Regulator shall provide the Minister with the recommendations within 1 year of proclamation.

In short, the bill states that: a) the government will prefer natural resource development to occur on previously disturbed land, and b) regulators will cooperate and coordinate to remove blockages towards achieving that goal. The draft bill aligns with provincial Land-use Framework strategies to consider cumulative effects of development in land use decision-making and to reduce the footprint from human activities on Alberta's landscape.

As currently framed, this "skinny" bill is something that all stakeholders should be able to support. It clarifies the Government's intention and directs action, but does not introduce additional regulations or red tape. The follow-up tasks that will be required to implement the legislation are ones that need to be taken by the regulators themselves, and may take the form of inter-agency discussions, role clarifications and/or Memorandums of Understanding, process reviews, stakeholder or public engagement activities, development of protocols and/or development of communication materials.

That being said, implementation may also require reviewing and updating other pieces of legislation (e.g., the *Oil and Gas Conservation Act*, the *Mines and Minerals Act*, the *Pipeline Act*, the *Surface Rights Act* and the *Municipal Government Act*) and their associated regulations as well as approved Regional Land Use Plans.



It should be noted that a legislative Act is not required for the government to be able to make the policy changes that will achieve this objective of enabling redevelopment on previously disturbed sites. However, we believe that a bill has merit, because it represents a strong signal of the government's intention, it is more durable than a policy change, and its public nature promotes transparency and accountability.

This is not the first version of the bill that the group drafted – in fact, it is the fourth. The three earlier versions of the bill each took a dramatically different approach; but each contained elements or approaches that were identified as problematic (or “non-starters”) by team members and contributors. Appendix C outlines the approaches that were used in these earlier versions, and describes why each caused problems. These are presented in the hope that they will enable the government and others to avoid the same pitfalls and problems.

SCOPING THE PROBLEMS AND PRINCIPLES

The engagement activities undertaken for the LEAD project among both the project team and external stakeholders (see Appendix B) resulted in a rich trove of information on different facets of the problem and possible fixes for specific pieces. It also resulted in the development of fundamental principles that should be employed when developing solutions.

We believe that fully describing the issues and possible solutions that arose from the multi-stakeholder engagement activities will enable government decision-makers to fully appreciate the scale and scope of the problem, some of the potential routes to solving those problems, where inter-agency coordination will be helpful, and some of the trade-offs that may need to be considered.



A) Guiding principles for a durable solution

The guiding principles that should underpin any action on asset repurposing are:

- The path forward should promote redevelopment of disturbed or brownfield sites over greenfield development.
- The path forward should incentivize new energy development in Alberta.
- The path forward should create economic opportunities rather than barriers.
- The path forward should be consistent for different types of energy developments.
- The path forward should be fair to all parties, including landowners, Indigenous groups and the Alberta taxpayer.
- The path forward should be practical, workable and well-communicated.
- The path forward should result in environmental benefit.

B) Coordination and clarity

Alberta has numerous regulators and policy makers that each own part of the process for repurposing sites for other uses or for enabling co-uses on the same site. These include the AER, the AUC, AEP and Alberta Energy. Therefore, each of these entities should be engaged in the process of coordinating activities, closing gaps and providing clarity to applicants. Specific requests include:

- Clarify, explicitly identify and document the scope of the different regulators with respect to energy and mineral redevelopment.
- Provide clear information on processes and establish firm timelines for providing permits and licenses.
- Ideally, provide a one-stop-shop interface that will act as a single entry point into all regulators. Alternatively, localize the application and approval process within the mandate of a single regulator.
- If there is to be a 'primary regulator', it should be the AER because they already regulate the sites to be repurposed, and have the most information and history in regulating such activity.

C) Allowing repurposing on public lands

Public / Crown lands should be made available for developing renewable energy (specifically, geothermal, solar and wind, as well as lithium extraction) on previously disturbed sites, in a way that preserves environmental integrity and the stewardship of this land for the benefit of all Albertans.

Although the legislative authority appears already to exist, the Public Lands Act and Public Lands Administration Regulation are not currently applied to permit renewable energy development. Additionally, there are no disposition types that specifically enable standalone renewable energy development projects on Public Lands. However, it is appropriate and consistent for the government to provide policy direction for the application of existing legislation, where possible, to facilitate such repurposing.

D) Addressing landowner concerns

In order to be fair to landowners, the repurposing and redevelopment of a site should include permission from the landowner, a fair compensation structure, surrender and restoration obligations, and a mechanism to guarantee the obligations of the project developer.

This approach, however, while strongly supported by many of the LEAD core team, puts repurposing / renewable energy projects at a disadvantage compared to 'traditional' oil and gas projects, for which explicit landowner permission is not required for development. We are not advocating for a similar allowance for non-oil and gas projects, but we felt it important to note the disparity.

E) Surface repurposing (solar and wind energy)

Repurposing inactive oil and gas facilities for surface-only uses such as solar and wind energy is an excellent use of disturbed land and a relatively straightforward process. However, there are still coordination and process problems that may impede timely redevelopment and undermine the principle of preferring redevelopment on previously disturbed sites.

- An existing oil and gas license cannot currently be transferred for a non-oil and gas activity (not only solar and wind, but also geothermal), even if the new entity is prepared to assume the outstanding obligations. While this is protective for certain uses (for example, it limits public exposure), in the case of repurposing the site for a surface energy project, it causes a problem.
- One option is for the oil and gas company to obtain a reclamation certificate before repurposing begins. But in order to obtain the reclamation certificate, the existing infrastructure must be removed—including infrastructure that the new developer would like to use, such as pad sites and roads. [The AER's Specified Enactment Directive 002 provides for leaving a limited amount of infrastructure for landowner use, but may not apply to the full scope of infrastructure that the repurposes wants in place, and does not apply if contamination is present on the site.]
- A work-around currently available is to instead obtain a designation of land use change (e.g., from agricultural to residential), with landowner and municipality signoff. This allows the repurposers to assume the existing infrastructure. However, these zoning changes create a loophole in which the reclamation obligation disappears.
- Fundamentally, the 'problem' that needs to be fixed for these types of projects is enabling a site transfer before the abandonment and possible remediation of subsurface infrastructure. This would allow transfer of the remaining surface infrastructure and reclamation liability to the repurposer.
- A framework could be developed to allow repurposing prior to the full remediation of contaminated sites in cases where there is a low probability that the contamination would spread to groundwater or the surrounding environment. This framework would facilitate alternative closure by repurposing the site to productive uses like renewable energy generation while emerging bioremediation technologies could be employed to remove the contamination.

F) Combined surface and subsurface repurposing (Lithium, Geothermal, Hydrogen, Helium)

Repurposing inactive oil and gas facilities for subsurface uses comes with additional challenges. Current regulations and processes are not very good at enabling energy repurposers to ‘share’ the subsurface as well as the surface with oil and gas activities.

- There are challenges in obtaining subsurface rights, especially given the breadth of current dispositions which can tie up certain mineral rights for a significant period of time even where the holder of the rights has no intention to explore for or produce that right.
- Geothermal companies want rights to produce the subsurface heat resource only: not the water, not the petroleum resources and not the minerals. Many resource extraction companies pull the water to surface to extract a resource (oil, heat, lithium, etc.). The water itself is a by-product, and hence is reinjected back into the subsurface. Currently Alberta Energy has no classification for heat rights only, although this may change with the new *Geothermal Resources Development Act*.
- There is currently no overlapping disposition / surface lease category that enables power production to occur on the same site as oil and gas activity. This means that co-production of geothermal energy cannot take place on oil and gas regulated facilities—an arrangement that would benefit both sides. Currently, a Mineral Surface Lease (MSL/MLL) is needed for hydrocarbon production, but a Commercial/Industrial Miscellaneous Lease (DML) is required for power production, and it is not possible to have these two types of leases concurrently on a single site. Ideally there would be a public lands disposition that would consider an integrated facility of power and oil and gas production. (Co-generation represents a similar situation that can assist with precedence, as co-gen currently sits in the grey zone as well and also requires an integrated lands designation.) In all cases, clarity on closure and remediation also needs to be part of the lease discussion.
- The ideal role for the regulator in the above arrangement is to ensure there are proper elements in place for risk management around issuing and transferring licenses, but to allow commercial arrangements to be entered into between the oil and gas licensee and the repurposer to enable hybridization of oil and gas site and infrastructure activities and uses. As an example of a possible commercial agreement: a geothermal company could produce heat and bring water and solution gas to the surface. Their business model would only account for extracting heat from the water and re-injecting it back into the formation. A commercial agreement could be made with a Petroleum and Natural Gas (PNG) rights holder to extract the solution gas at surface, and for the PNG rights holder to sell that product.
- Similar to geothermal, many other potential site redevelopers suffer from their use case not having a definition under the current frameworks. This includes helium, hydrogen, carbon dioxide, lithium and vanadium.



An example of thwarted geothermal production - and how it could have been solved

A geothermal company cannot repurpose an existing lease with an existing plugged and abandoned well, because the well comes with the lease and the regulators require the geothermal company to own the Petroleum and Natural Gas (PNG) rights to that zone to acquire the abandoned well. The geothermal company is not interested in acquiring the PNG rights for a zone that has no potential for geothermal. The oil and gas company is ready to reclaim the site and the geothermal company is ready to accept the liability associated with the lease and the abandoned well, but regulations prevent that transfer.

Regulations should make a distinction between an active or suspended well, in which case it would make sense that the geothermal company acquires the PNG rights to that zone, and an abandoned well.

An example of how this could have been solved:

1. The existing licensee puts the \$20K estimated for site reclamation in a bond or trust towards future reclamation.
2. The repurposer acquires the lease and the abandoned well without having to acquire the PNG rights.
3. The lease and well are officially off the books of the existing licensee.
4. The repurposer carries on with their project.
5. When time comes for reclamation, those costs are first funded from the \$20K in the bond and the repurposer pays for additional expenses beyond that.

G) Producing electricity

Several of the repurposing applications that are being considered in Alberta, including geothermal, solar and wind projects, propose to use existing infrastructure for electricity generation. Currently, these projects are hindered due to the need to work with several regulators, including the AER, AEP and the AUC. In addition to this complexity, these small projects, which typically generate less than 1 MW of electricity, are required to meet the same regulatory requirements as much larger utility-scale projects.

The commercial deployment of these projects could rapidly contribute to a large number of small-scale generation projects which would reduce the requirements for “green-field” utility scale solar and wind projects together with the need for additional expansion of the electricity transmission system in the province. However, the current regulatory and utility interconnection process is a major barrier to the growth of this important sector. However, these barriers can be reduced through the enactment of three key policies:

- Provide a utility interconnection process that is modeled on the microgeneration regulation process that is currently enacted through the AUC.
- Ensure that the DCG credits that are currently available to distribution connected generators are protected for repurposing projects and flare gas generation projects.
- Consolidate the application process under the Alberta Energy Regulator.

H) Liability transfer

Liability refers to the costs required to suspend, abandon, remediate, and reclaim a well or facility. Liability is a looming financial burden for existing licensees. Repurposing can lessen this burden, as licensees can move existing liabilities off their books quicker while sharing some of the actual costs with the repurposer. However, the uncertainties surrounding liability can be a key impediment to repurposers who might not be able to withstand assuming the liability for past development.

Specific issues that must be addressed include:

- The criteria for liability/license transfer need to be clearly defined and should be informed by the revised Liability Management Framework: i.e., do they pay into the Orphan Fund Levy and if so, how is the repurposer's share of the levy calculated? What criteria will be used to measure the financial health of a repurposing company? Do they need to post a full security for license transfer and avoid paying into an OWA-type levy?
- There is no equivalent to the OWA that would backstop reclamation requirements or an entity like the Surface Rights Board to cover unpaid surface rentals in the case that a repurposer goes bankrupt.
- Creating a new regulatory regime for a nascent industry presents the opportunity to integrate learnings from the oil and gas industry. Liability should be dealt with at the front end of the project via security posting and/or royalty banking to negate the need for an orphan site management organization and levy. This drawback could be in part compensated by government to incent the development of this industry. The suggestion of ensuring OWA and SRB backstop the repurposing applications fit nicely into the current system; however, the criteria for liability and licence transfer for repurposing needs to be developed such that the use of these backstops for liability management for repurposing projects is a rare exception.

The best way to manage liability going forward is to:

1. Assess it (via Phase 1 & Phase 2 Environmental Site Assessments when required).
2. Determine a fair agreement of who should be responsible for what portions of liability between the key parties involved (typically the oil company and the repurposing company, but the landowner may be factored in if they would like to maintain infrastructure such as roads, pads, etc.).
3. Determine an appropriate course of action for the site involved. Some options could include:
 - a. The repurposer delays reclamation and remediation work and agrees to take on the costs based on the liability assessment and the contractual arrangement with licensee.
 - b. The current licensee conducts necessary closure activities such as: well and pipeline abandonment, facility decommissioning, remediation etc.
 - c. A sum is transferred from one organization to the other (or could be held in trust) to be put towards future closure work.
 - d. The Regulatory body (AER) uses clear and consistent criteria, including those set out in the licensee capability assessment, to determine if the liability management plan and associated bonding/trust are sufficient to manage the risk.
 - e. Site transfer occurs and repurposing work is initiated.



LOOKING FORWARD

The LEAD project brought together numerous stakeholders with a broad range of views, all of whom were concerned with a common problem: of removing roadblocks for repurposing oil and gas infrastructure for new uses. Through an intensive, five-month process, this project was able to make some headway. We have:

- Scoped and described the problem
- Identified benefits for specific stakeholders
- Presented a bill that will take an important first step in creating positive change
- Put forward ideas and recommendation that could help many elements within the system.

Together, these outputs provide the provincial government with a path forward that will at least partially solve the problems that new energy innovators have run into when attempting to re-use existing sites and infrastructure for their projects.

We recognize that the suggestions made in this report won't take care of all problems or address all concerns from stakeholders.

This is not going to solve all problems for landowners, who are more broadly concerned about upholding the obligations pertaining to the current development. This is not going to solve all problems in liability, which is a much larger and thornier issue. This is not going to solve all issues related to the problem of cleaning up orphan wells or stopping additional wells from becoming orphaned, although if done right it could create new lives for some inactive and orphan sites. It is not going to solve all commercialization problems of new energy innovators. As noted on page 10, there are other initiatives working on many of these different aspects.

However, the approach outlined in this report will enable the government to chip away at all of these problems while also unlocking benefits for all Albertans.



Appendix A: The Redevelopment on Disturbed Lands Act



Redevelopment on Disturbed Lands Act

Preamble

Whereas the Government of Alberta recognizes that Alberta is a leader in the responsible energy development and will continue its role as a global leader;

Whereas the exploration and development of Alberta's natural resources are a significant contributor to Alberta's economy;

Whereas the Government of Alberta has stated its intention of encouraging geothermal, lithium, hydrogen, alternative types of energy and other forms of resource development;
Whereas land disturbance creates adverse environmental impacts and may limit opportunities for future use;

Whereas there are numerous sites where the land has been disturbed and no activities are ongoing and no reclamation certificate has been obtained;

Whereas the Government of Alberta recognizes the need to respect the property rights of individuals and to protect the environment;

Whereas the Government of Alberta is working alongside Indigenous communities to implement land use practices;

THEREFORE HER MAJESTY, by and with the advice and consent of the Legislative Assembly of Alberta, enacts as follows:

Interpretation

1 In this Act,

1. "decision makers" means a person who, under an enactment or regulatory instrument, has authority to grant a statutory consent, and includes a decision-making body;
2. "disturbed land" means land on which an industrial activity occurred for which a reclamation certificate is required or would be required but for a reclamation exemption but has not yet been obtained;
3. "natural resources" means materials or substances found in Alberta that may be used for economic gain;
4. "redevelopment" means utilization of disturbed land for a purpose other than as authorized under current approvals or authorization.

5. "Minister" means the Minister determined under section 16 of the Government Organization Act as the Minister responsible for this Act.

Land Use

2 Decision makers shall give preference to developing natural resources on disturbed land and direct that developments occur on disturbed land where practicable.

Cooperation

3(1) The Minister shall direct the Alberta Energy Regulator to chair a committee comprised of representatives from the Alberta Energy Regulator, Alberta Utilities Commission, and the Ministries of Alberta Environment and Parks and Alberta Energy to develop and implement processes for the cooperation of applications for the redevelopment of disturbed land, ensuring for timely and transparent decisions.

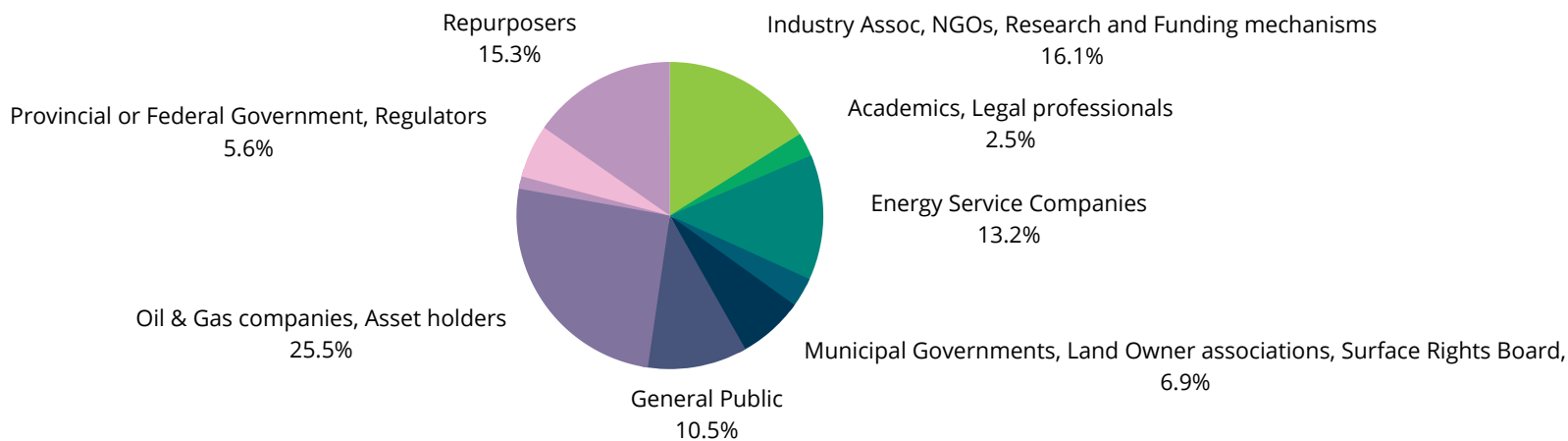
3(2) The Alberta Energy Regulator shall provide the Minister with the recommendations within 1 year of proclamation.



Appendix B: Stakeholder engagement audience

Stakeholder Engagement Perspectives

The Energy Futures Lab showcased the findings, learnings and recommendations from the LEAD project in three stakeholder engagement events on March 22, 23 and 25, 2021. In total there were 80 attendees who participated in the stakeholder engagement sessions over the 3 days. The breakdown of stakeholder representation of all attendees is shown in the following chart.



Appendix C: Other legislative approaches examined and rejected

In preparing the draft bill, the LEAD team considered various approaches before settling on the final version shown in Appendix A. This appendix shows the approaches that were used for each draft bill, and why the initial approaches were rejected.

Approach 1: Using existing oil and gas legislation as a template

The first approach used as a template the existing legislative framework as seen in various oil and gas enactments and the recent geothermal bill.

This first version described the regulatory process that would be needed to obtain approvals for repurposing activities, and included specific detail on co-operative proceedings, factors of approval, dispute resolution, suspension and abandonment, continuing liability, and entry on land.

In this version, an applicant seeking to repurpose an energy site, a facility, a well, or a pipeline would apply to a decision maker (to be determined by the Minister of Energy) to seek approval for repurposing. In considering whether to allow an applicant to repurpose, the decision maker would consider: suitability of the proposed site for repurposing; impact on the environment; abandonment and reclamation obligations; impact on affected landowners; impact on affected licensees; and the existing abandonment and reclamation plan. An approval from the decision maker could impose conditions on the proposed repurposing projects.

Why this approach was rejected

Although this draft bill was similar to the existing energy development regime in Alberta, various stakeholders indicated that the approach perpetuated the problems in the existing oil and gas regime, including liability management and impact on landowners.

Further, some repurposers expressed concern that this approach would introduce too many changes at once, introduce additional regulatory hurdles, increase red tape and create investment uncertainties that could harm smaller businesses.

Finally, some stakeholders were concerned that the legal framework was too prescriptive, given the early stage of development of the repurposing industry and its technology.

Approach 2: Giving power to the Minister of Energy to coordinate and accelerate repurposing projects

The second approach attempted to address the issues of uncertainty by introducing flexibility for the nascent repurposing industry, while ensuring that the repurposing did not fall through the cracks of regulatory jurisdictions. Recognizing that many repurposing projects may be integrated projects that involve multiple regulators, this approach would have the applicants request approval directly from the Minister of Energy during an interim period while legislative and policy changes were made. The intent of this approach was to provide a single point of contact with explicit authority to make decisions on a timely basis and learn from the applications to develop a fulsome regime.

Under Approach 2, an applicant seeking to repurpose the existing energy infrastructure would first apply to the Minister of Energy. The Minister of Energy in turn would review the proposed repurposing application and give authorization. Such authorization would be for repurposing only, while the Minister of Energy would retain the power to impose conditions or waive conditions from the existing regulatory regime. Once the Minister of Energy gave authorization for repurposing, the applicant would still have to follow the existing regulatory framework. When granting the authorization for repurposing, the Minister of Energy could waive some of the requirements in the existing regulatory framework.

Why this approach was rejected

Various stakeholders were concerned about the extent of discretion being provided to the Minister of Energy. It was felt that this could create uncertainty or unpredictability of both the process and the outcome, and also act as a bottleneck around timely decision-making.

Approach 3: Creating a Panel consisting of representatives of various regulators to accelerate repurposing projects

Given the concerns expressed in Approach 2, Approach 3 employed a Panel—which would be appointed by the Minister—that would consist of representatives of the regulatory bodies that had decision making power or that enacted relevant regulations: the Alberta Energy Regulator, the Alberta Utilities Commission, the Surface Rights Board, and the Ministries of Alberta Environment and Parks, and Alberta Energy.

The Panel would be charged with establishing a framework for repurposing energy sites, pipelines, facilities, and wells. In this Approach, the elements that the framework would have to include were described, including a definition of repurposing; the process that will be used for submitting and considering applications and approvals; providing for cooperation and coordination between regulators and Ministries where projects overlap between regulatory regimes; apportioning liability; collecting security; and requirements and prohibitions related to activities or outputs (e.g., waste).

The Panel would have three years to develop the framework. In the interim, the Panel itself would act as a body to consider applications for repurposing projects and would have the power to grant approvals and impose conditions for repurposing.

Why this approach was rejected

While this model sought to reduce Ministerial discretion and bottlenecking, stakeholders expressed concerns that the establishment of the Panel could cause additional red tape. Further, stakeholders were skeptical about whether the establishment of the Panel was actually needed to foster inter-jurisdictional collaboration between various regulators in Alberta. Some felt this was “overkill” relative to the problem, and what was needed was not additional layer of bureaucracy at the applicant-decision maker interface.

Approach 4: Creating a bill with principles to encourage the redevelopment of disturbed land

The final approach—ultimately accepted by the group—was to scale back the bill radically so that it set out only the principles that the group hoped the government would stand behind, and omitted the process that would be required to achieve those objectives.

The bill has only three substantive provisions:

- Decision makers shall give preference to developing natural resources on disturbed land and direct that developments occur on disturbed land where practicable.
- The Minister shall direct the Alberta Energy Regulator to chair a committee comprised of representatives from the Alberta Energy Regulator, Alberta Utilities Commission, and the Ministries of Alberta Environment and Parks and Alberta Energy to develop and implement processes for the cooperation of applications for the redevelopment of disturbed land, ensuring for timely and transparent decisions.
- The Alberta Energy Regulator shall provide the Minister with the recommendations within 1 year of proclamation.

While the group recognized that a process would ultimately be required, this approach enables collaboration among the regulators to figure out how best to coordinate, rather than imposing legislative conditions on what that collaboration or its outputs would look like. The approach in this bill clarifies the government’s intention and directs action, but does not introduce additional regulations or red tape.

Although this bill is extremely brief, the stakeholder group felt it had value because it would send a strong signal of the government’s intention, would have more durability than a policy change, and its public nature would promote transparency and accountability.

