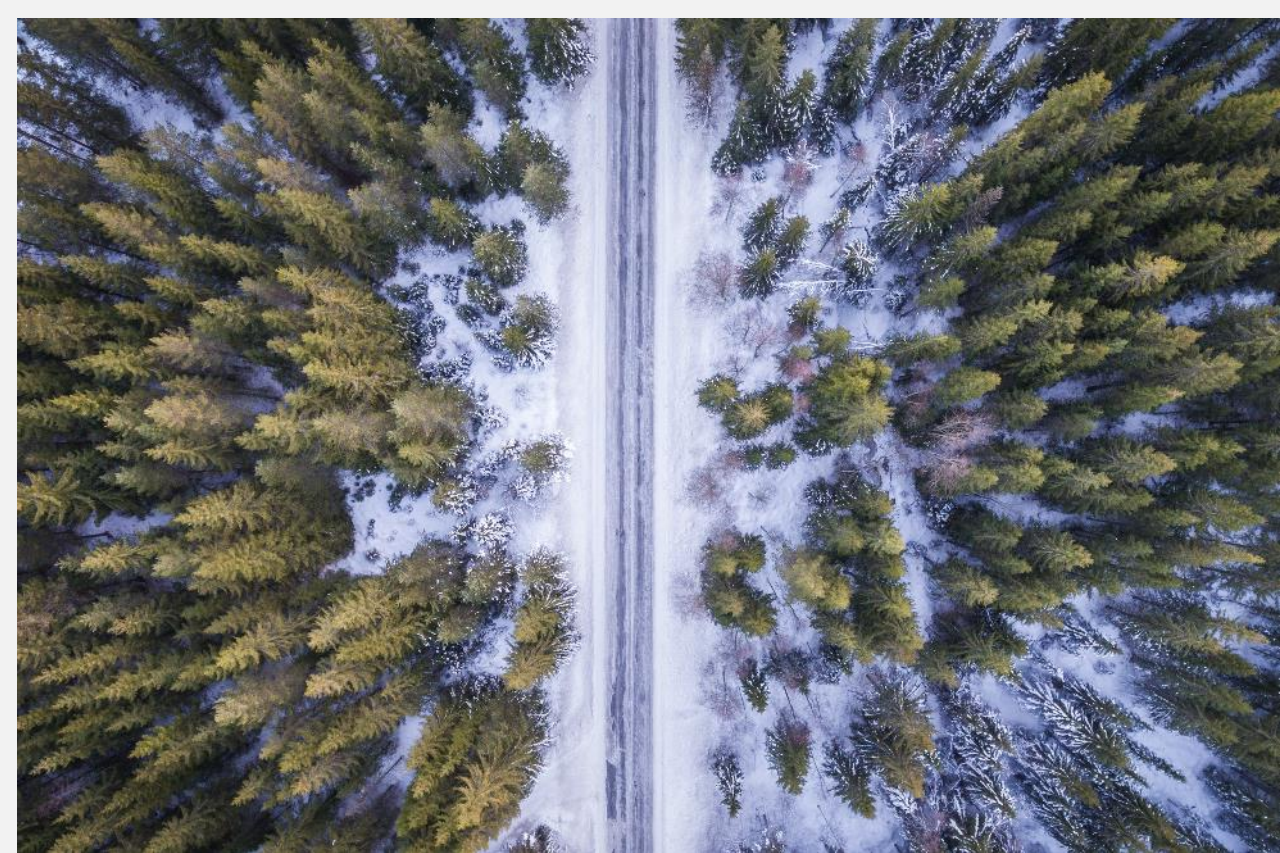


Energy Production & Environmental Protection Finding a Balance



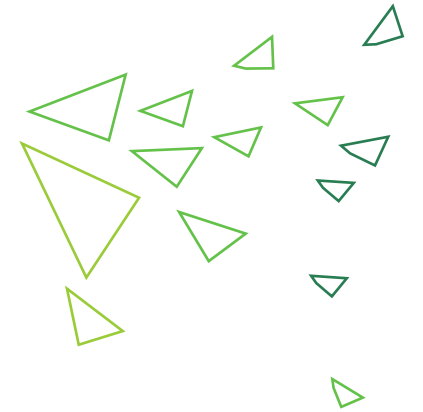
Janeen Ogloza
Paul Leveille

TERRASHIFT
Engineering Ltd.



Looking Beyond

Looking Beyond is the vision of TerraShift. In every project, TerraShift is striving to improve and find effective solutions for our dynamic world. TerraShift's new technology and product developments are at the heart of this vision and why TerraShift is constantly innovating.



Trudeau urges patience as Ottawa seeks meeting to resolve anti-pipeline protests

BILL CURRY > AND KRISTY KIRKUP >

OTTAWA
PUBLISHED FEBRUARY 12, 2020
UPDATED 5 HOURS AGO

ASSOCIATIONS, GOVERNMENT

849 COMMENT

Alberta aggregate association raises regulatory concerns

Grant Cameron January 13, 2020



A protester walks near Tyendinaga Mohaw...



A report from the Alberta Sand and Gravel Association has expressed concerns regarding the time the province is taking to review permit applications for new extraction areas.

ECONOMY

Trans Mountain pipeline expansion now estimated to cost \$12.6B, finish in 2022

BY SIMON LITTLE - GLOBAL NEWS

Posted February 7, 2020
Updated February 8, 2020



Oilsands on 'collision course' with Canada's climate goals, global market changes: report



The estimated cost of the Trans Mountain pipeline expansion has ballooned...

Industry needs support to go 'beyond incremental improvements' in emissions reductions, Pembina Institute says

Robson Fletcher - CBC News

Posted: 3 Hours Ago



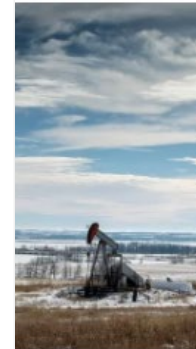
A mining truck is seen at the Fort Hills oilsands facility in this file photo. (Kyle Bakx/CBC)

Alberta's Auditor-General launches probe as province struggles with orphan wells problem

JEFFREY JONES MERGERS AND ACQUISITIONS REPORTER

CALGARY

PUBLISHED JANUARY 23, 2020
5 HOURS AGO



near Ponoka, Alta., or
E AND MAIL

or-General has lau
into the growing pr
s the province stru

Alberta gets all the attention. New Brunswick faces its own climate test with Maritime Iron

EDITORIAL

PUBLISHED FEBRUARY 9, 2020



New Brunswick Environment Minister Jeff Carr, seen here on Nov. 9, 2018, has said the potential surge in emissions is 'concerning.'

JAMES WEST/THE CANADIAN PRESS

The proposed Frontier oil sands mine in Alberta has attracted a lot of attention in recent weeks,

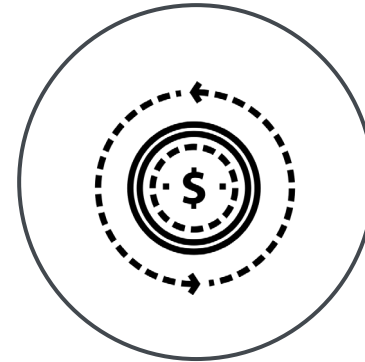
Society Values



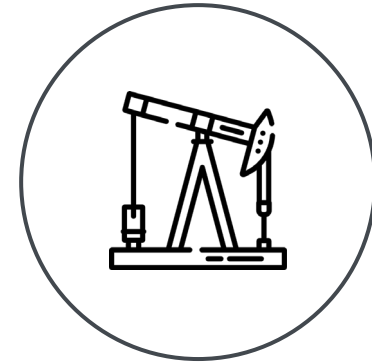
Environment
Protection



Stakeholder
Engagement



Economic
Security



Industrial
Development



Sustainable Development
Requires Balance



Methods Being Utilized



Incentivizing Alternatives



**Public Opinion
& Perception**

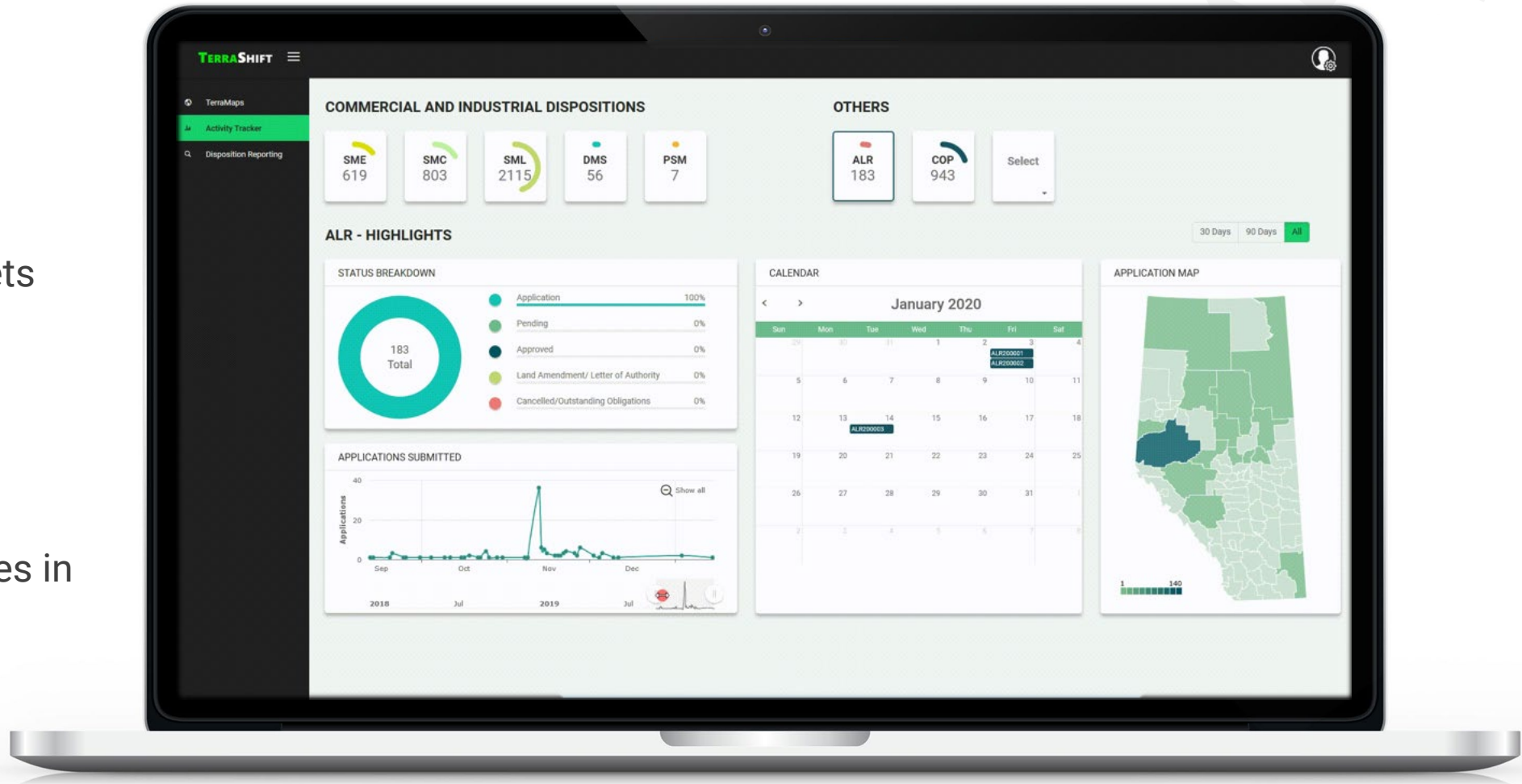


Policy & Regulation

Automated Data Analytics

Web Based Application Tracking

- Near real-time data sets
- Spatial and temporal analysis
- Track several industries in a single platform



3 Industries

3 New Regulatory Tools



Sand & Gravel

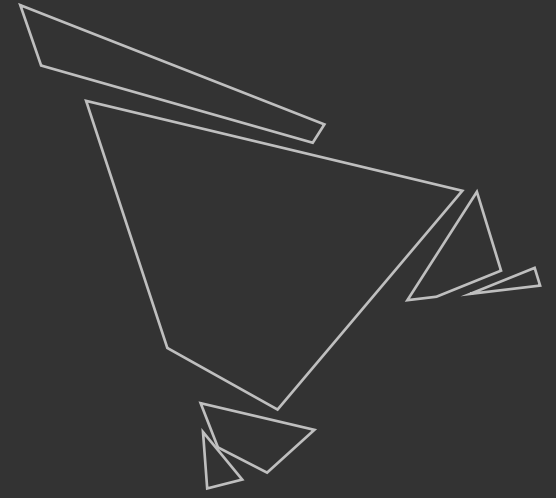
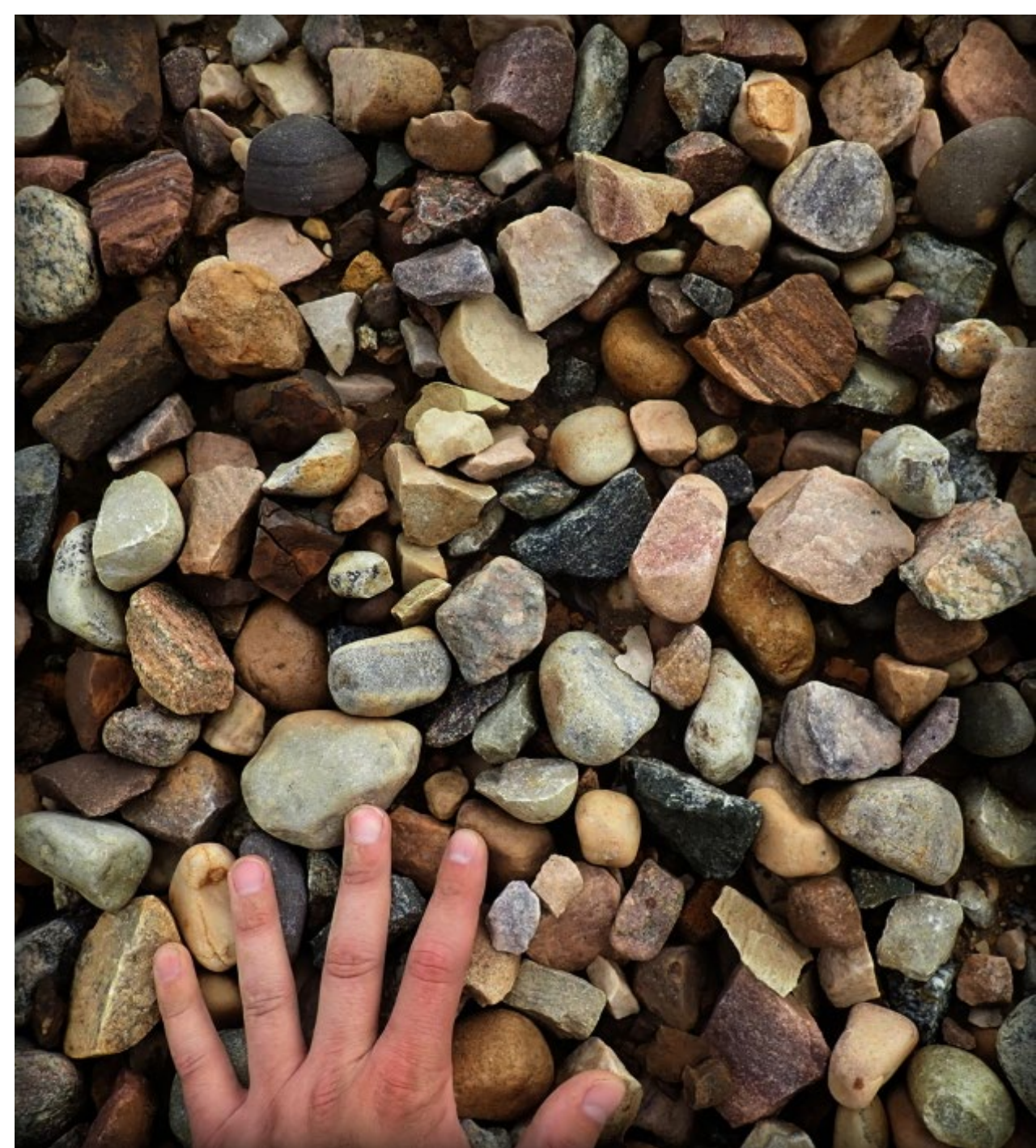


Peat



Oil & Gas

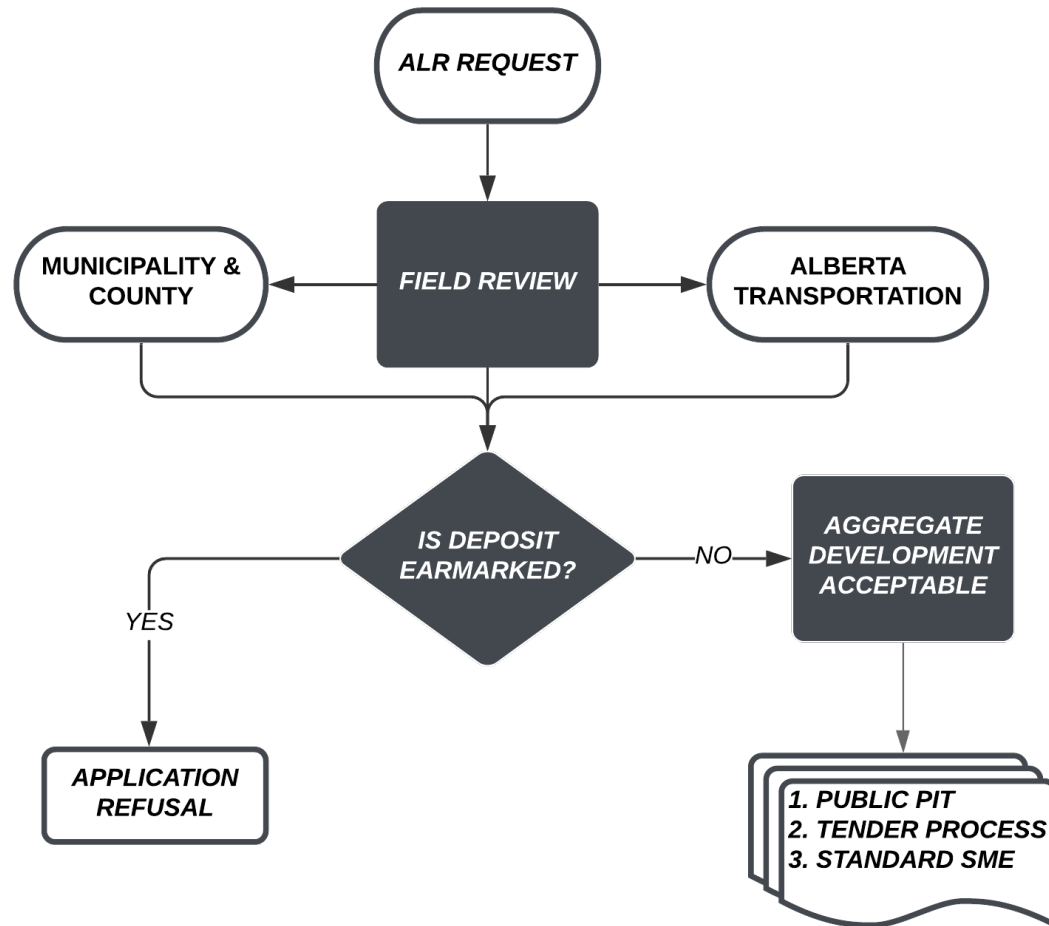




Aggregate Land Review

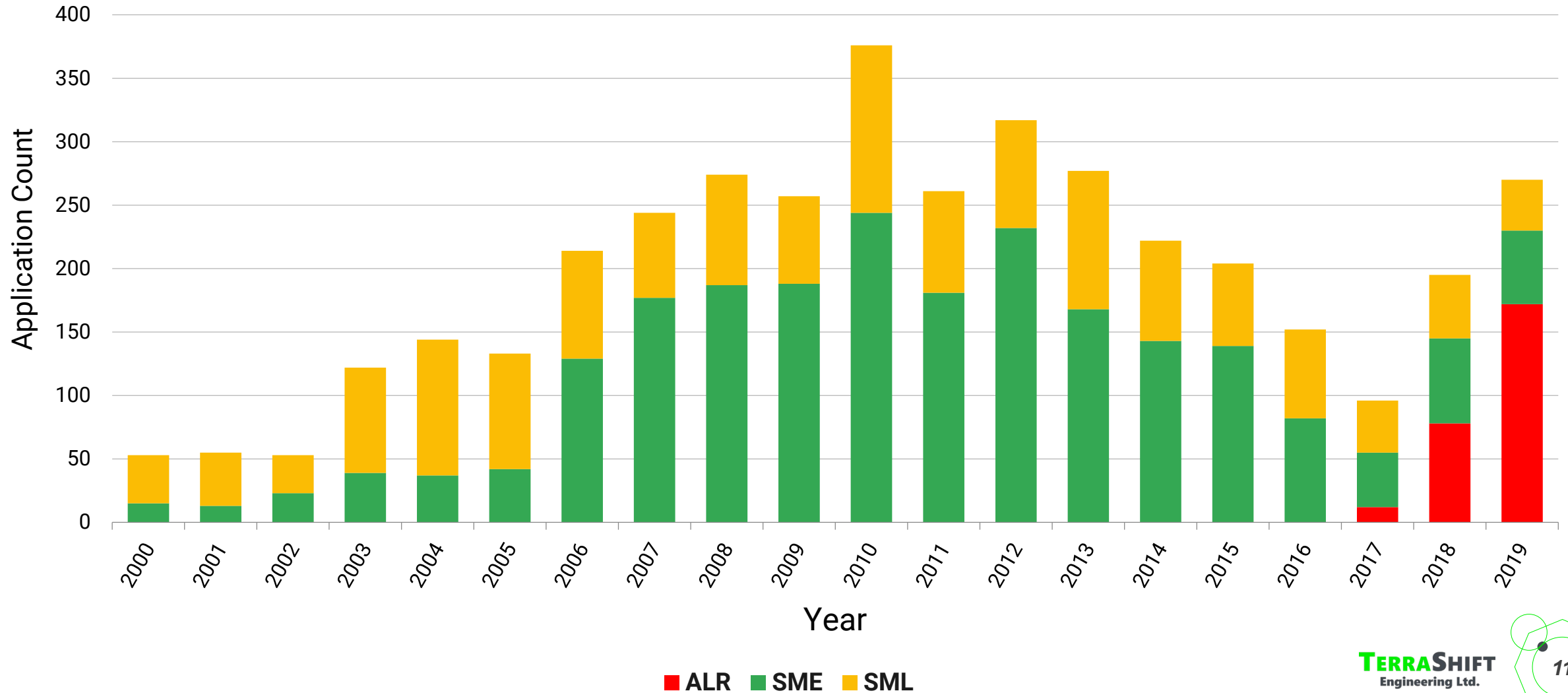
A look at the ALR Process

Key Aspects



Industry Application Reaction

Sand & Gravel Activity



75%

of ALR applications
are still in review



- **Longer Review Times**
8 months for ALR on Average
- **Increased Reviewer Burden**
25% increase in documentation
- **Greater Uncertainty**
New unknowns for applicant

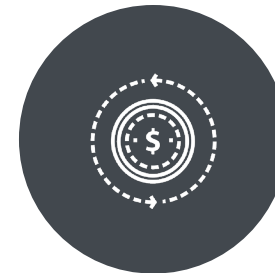
Were the concerns addressed?



Environmental
Protection



Stakeholder
Engagement



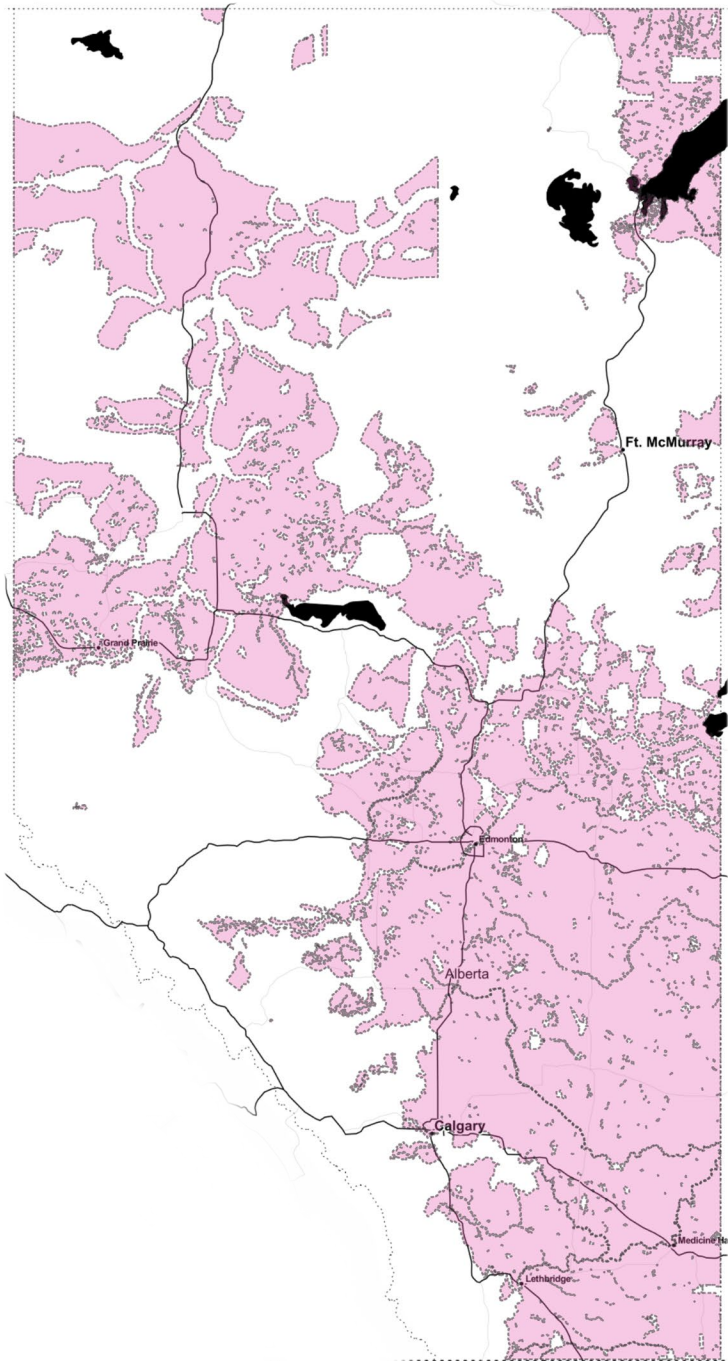
Economic
Security



Industrial
Impact

Peat Application Area



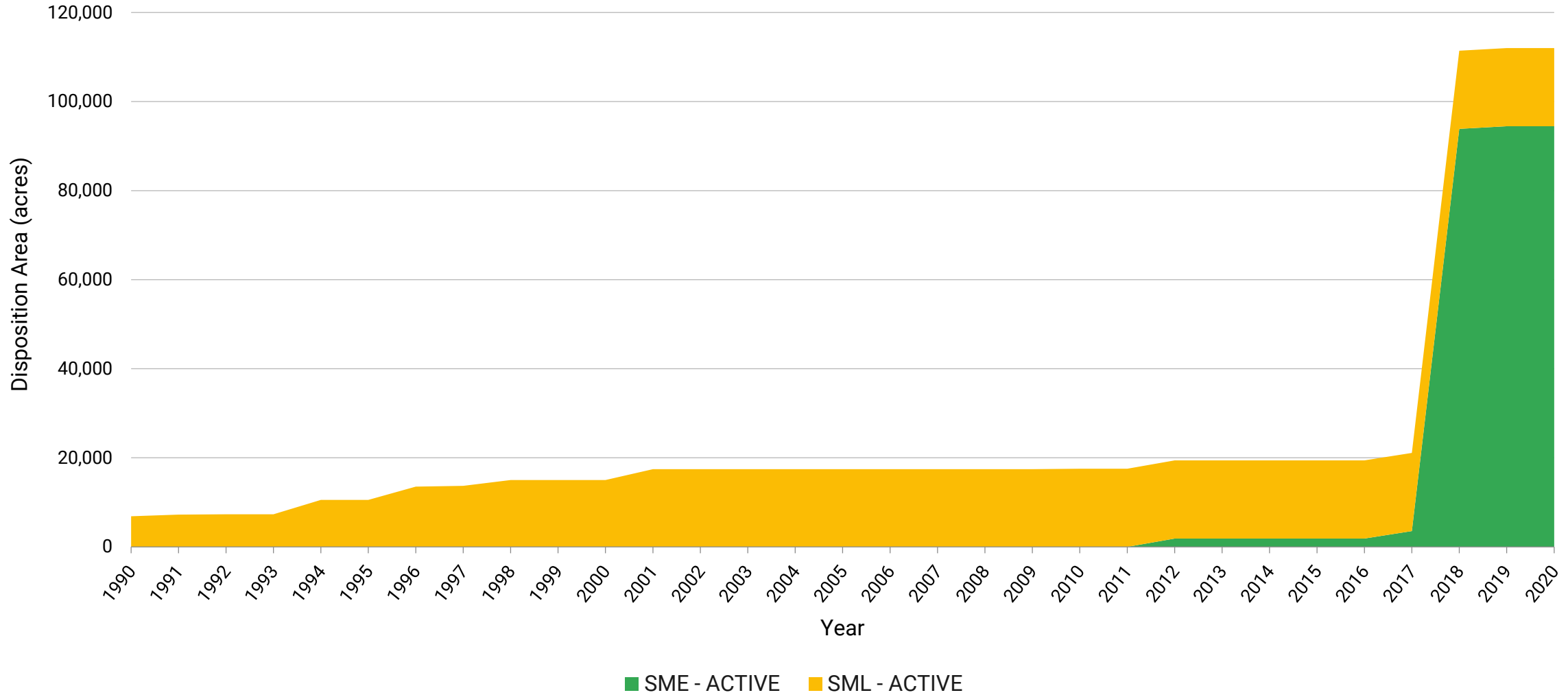


Key Aspects

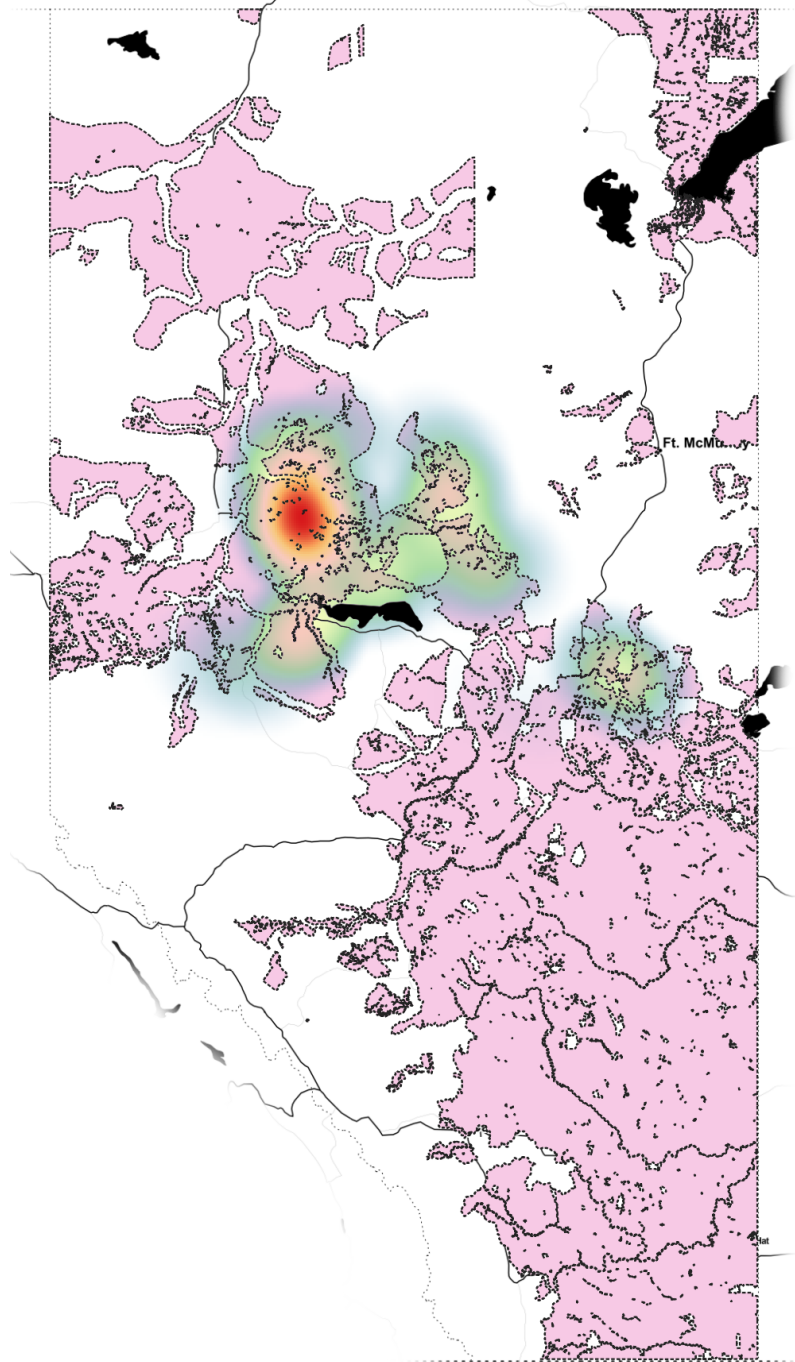


Industry Application Reaction

Applications By Area



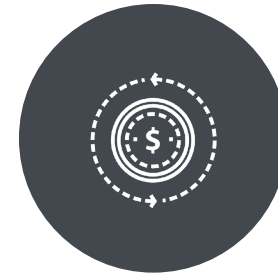
Were the concerns addressed?



Environmental Protection



Stakeholder Engagement



Economic Security



Industrial Impact



AER OneStop

A web based regulatory tool

Key Aspects



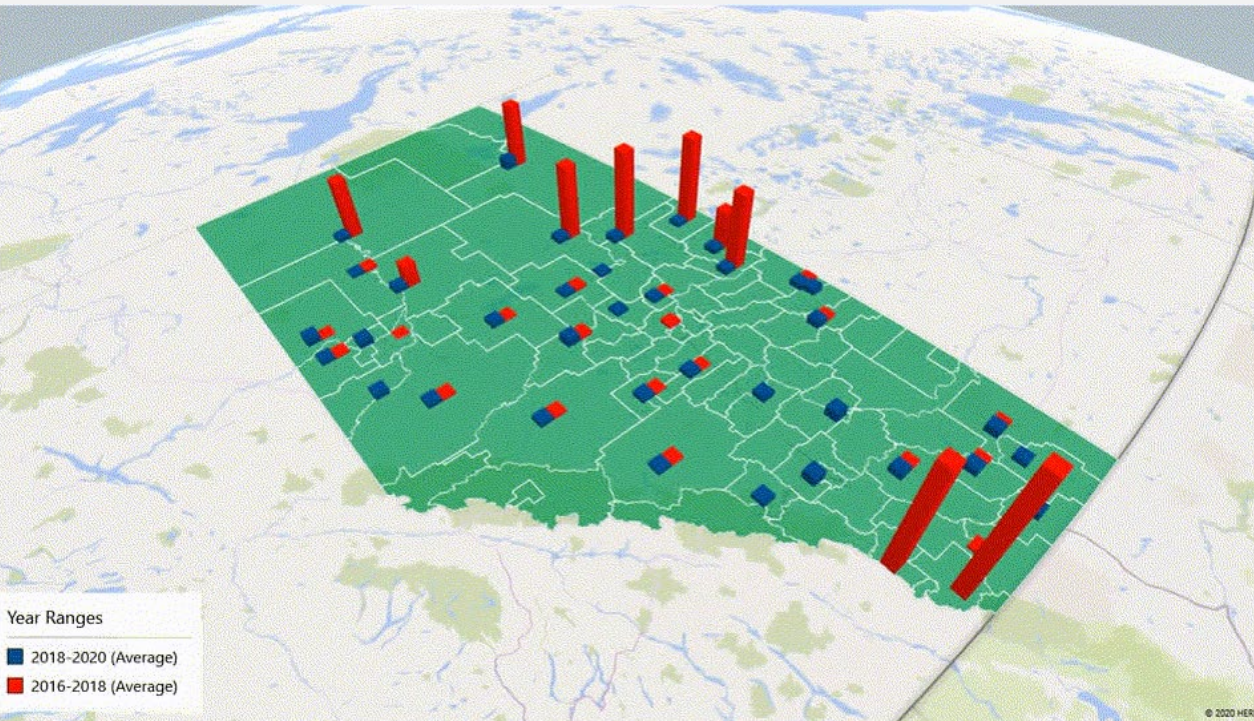
Single Application Portal



Automated Application Processing



Risk Based Assessment



Spatial & Temporal Comparison

Let's look at the MSL stats from 2018-2020 compared to 2016-2018

8% Increase in Well Pad Applications

1655 Applications

1792 Applications

80% Decrease in Average Approval Time

282 Days

56 Days

83% Decrease in in Approval Time Deviation

490 Days

82 Days

Were the concerns addressed?



Environmental Protection



Stakeholder Engagement



Economic Security



Industrial Impact

Issues Identified

- Learning curve for users to adopt the new system
- Not all applications are submitted through OneStop

Valuable Take-aways

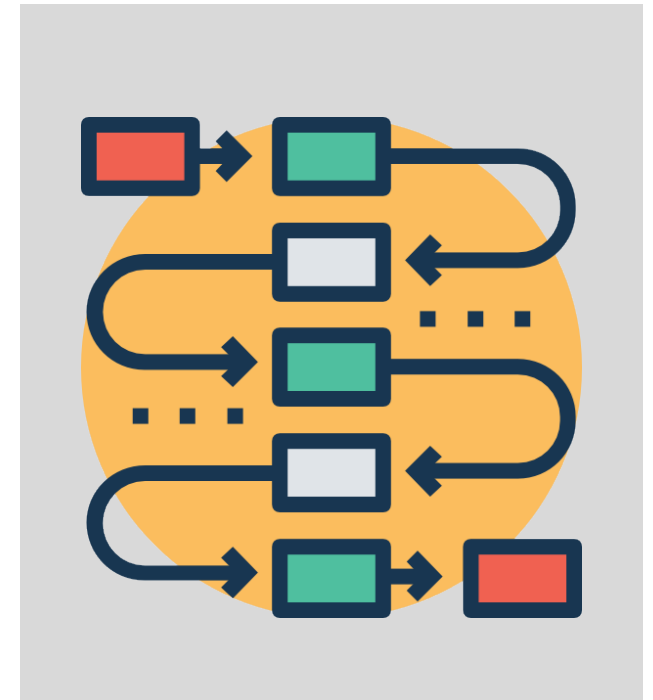
Balanced From the Start



Understanding Industry Mindset



Assessing Upstream and Downstream Consequences



Authors and Co-Author



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M.Sc. on Rock
Mechanics and
Geotechnics



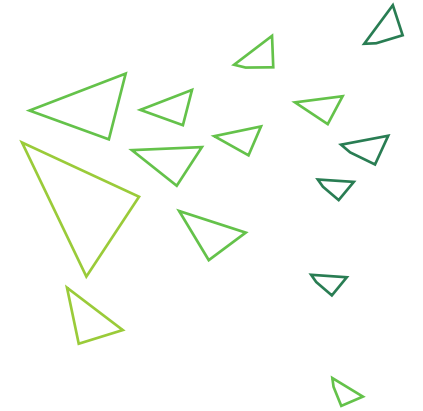
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M.Sc. on
Environmental
Geotechnics



Derek Apel

Ph. D. in Mining
Engineering



An aerial photograph showing a dense green forest on the left and a large, light-colored concrete structure on the right. The concrete structure has several circular openings along its edge. A black rectangular box is overlaid on the center of the image, containing text.

QUESTIONS?

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