IEEFA, New York, March 2015

Tzeporah Berman, BA, MES, LLD

- Policy Overview
- Financial Implications
- Political Context

Canada's Tar Sands


Photo: David Dodge Copyright © The Pembina Institute

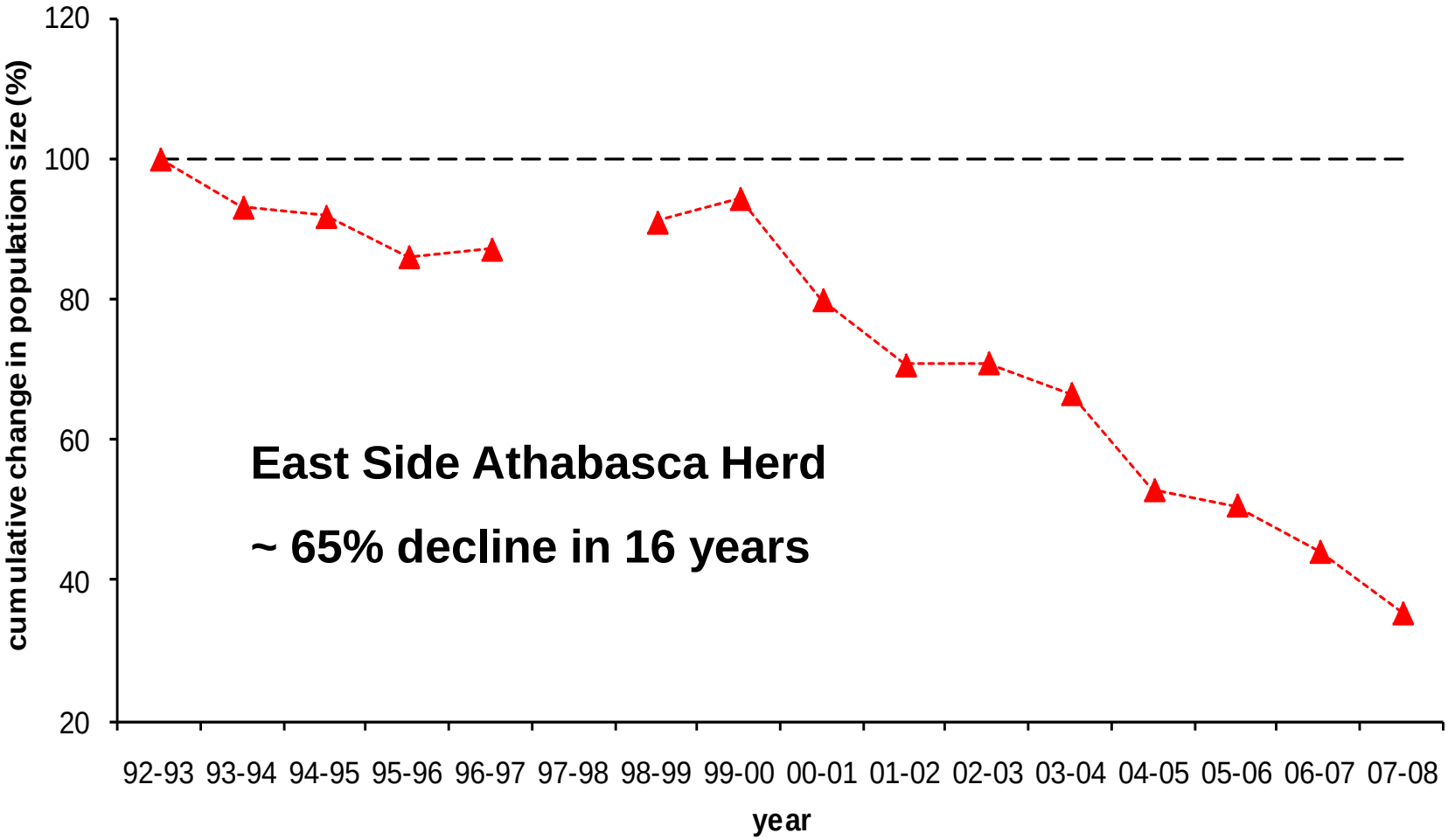
Land & Species #28

The boreal forest is a crucial habitat for wolves, grizzly bear, lynx and moose. Woodland caribou populations in the region have declined by 50 per cent over the past 10 years and studies predict caribou will become extinct if approved tar sands projects are implemented.

OIL SANDS
REALITY CHECK

oilsandsrealitycheck.com

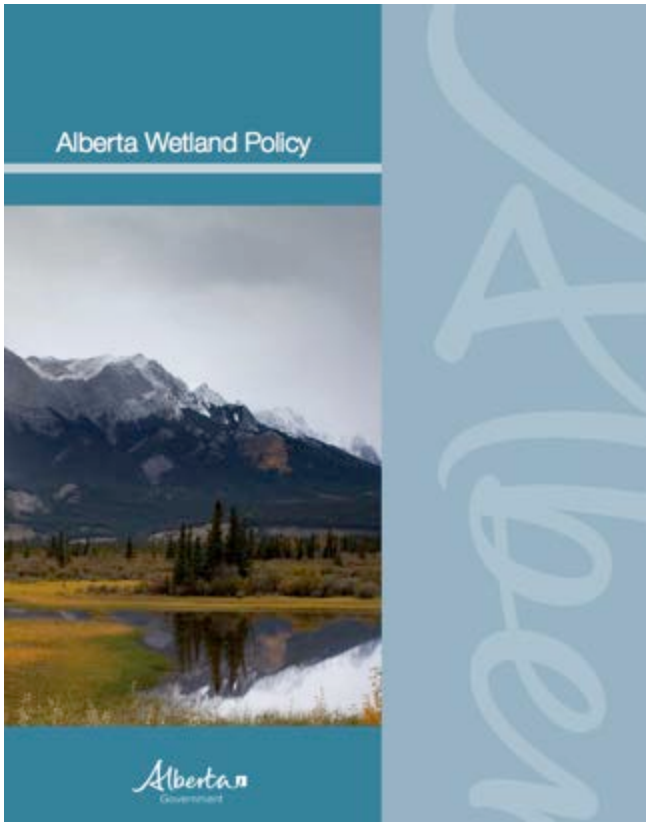
Alberta's caribou herds are very unlikely to survive



Would this be legal under US Endangered Species Act?

New wetland policy exempts oilsands projects

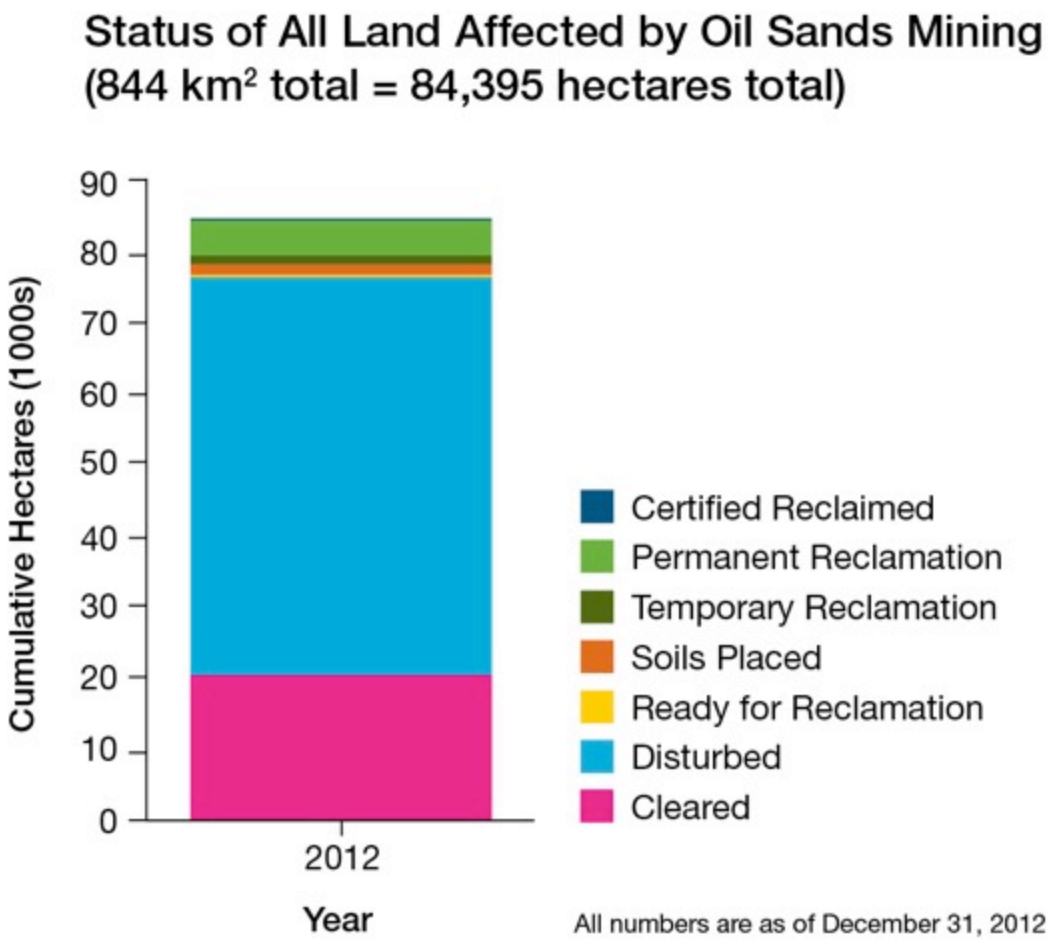
- Eight years in the making
- 195 operating, approved and projects in application **exempt** from the new wetlands policy provisions until 2015
- Non-restorative options allowed: research, education, monitoring
- **Stronger policy would cost companies $0.07 per barrel***



*More details here: http://www.pembina.org/blog/750

Reclamation

- **71,500 hectares** of land have been disturbed by oilsands mining operations
- **104 hectares** is certified by the government as reclaimed
- **Less than 1%** of the disturbed area has been certified as reclaimed



Oil Sands Reality Check

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OIL SANDS
REALITY CHECK

ABOUT | CONTACT

Climate | Economy | Water | Human Rights | Air | Land & Species

JPEG

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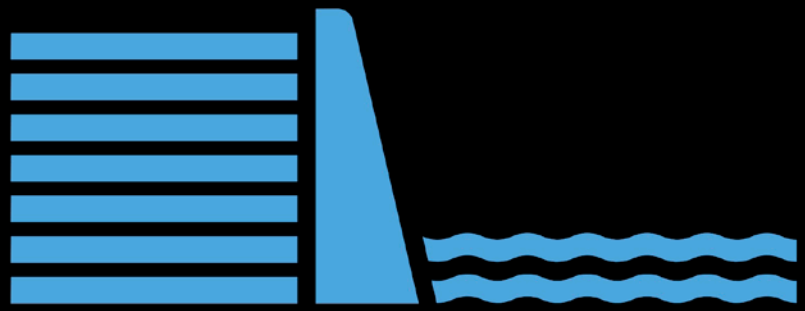
The second largest dam in the world by volume of construction material was built to hold toxic tailings.

The only dam larger than it is the Three Gorges Dam in China, which 13 cities were flooded and over 1 million people displaced to build.



Read More


250 Million Litres per day
Photo: © Garth Lenz

Toxic compounds present in tailings waste

- Contain residual bitumen, cyanide, napthenic acids, heavy metals
- Contamination of surface water and groundwater systems – seeping 2.9 million USG per day
- Toxic air pollutants such as methane, VOCs and H_2S emissions

No company meeting tailings rules – *no enforcement or penalties*

Performance: July 1, 2011 to June 30, 2012

	Tailings capture requirements	Actual tailings captured
	(% of tailings in oil sands feed)	
Suncor	30.0	8.5
Syncrude Mildred Lake	12.0	8.8
Shell Muskeg River	23.5	8.8
Shell Jackpine	15.0	0.0

No company is meeting Directive 074

Source: Alberta Energy Regulator,
Tailings Management Assessment Report, 2011-2012.
Released June 2013.

Impacts on the Athabasca River

The Athabasca River is also the primary source of water for oilsands mining in Alberta

More than 95% of the water withdrawn for operations is too polluted after use to be returned to the river

- Polluted water is stored in tailings lakes

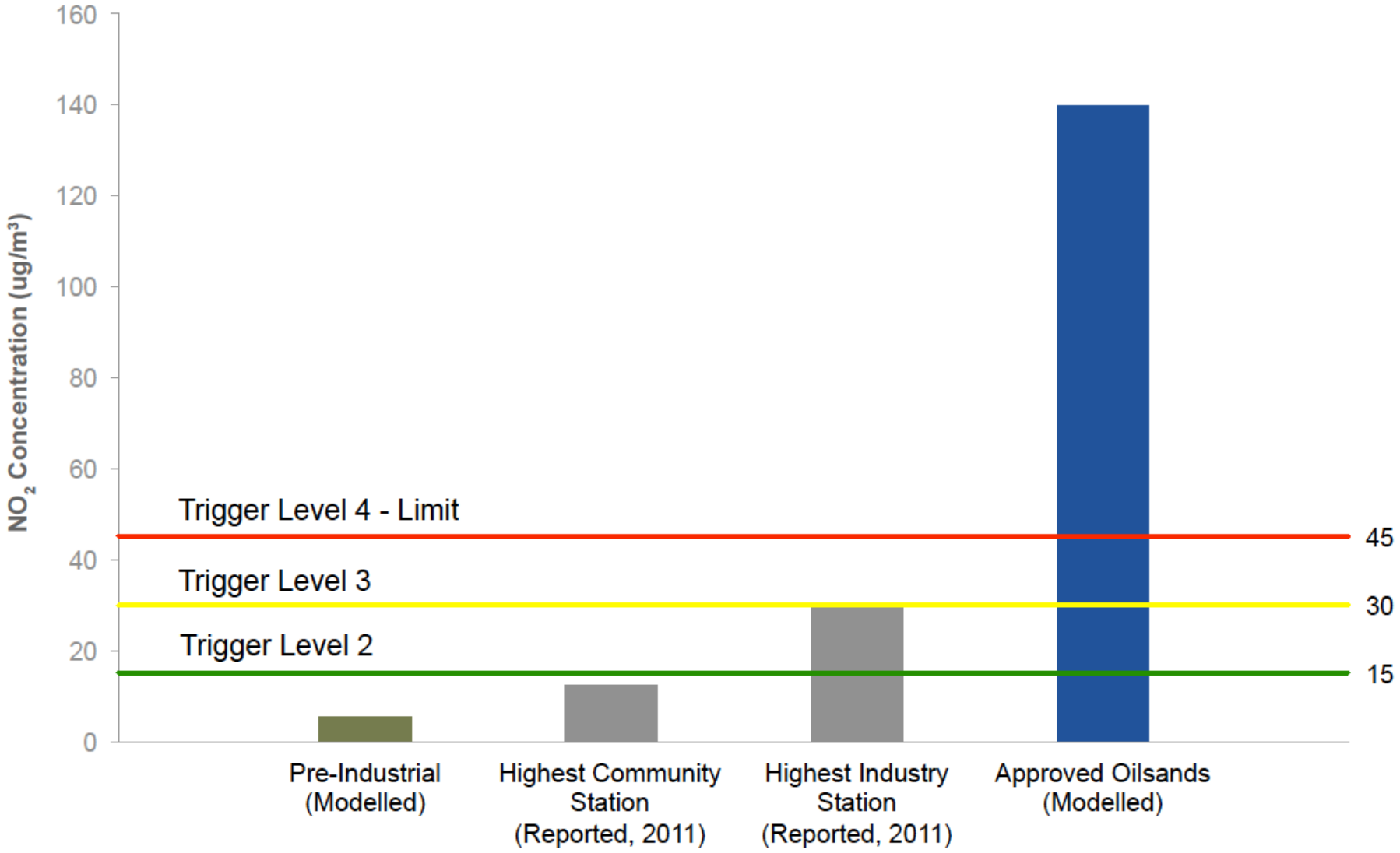
Water withdrawals for mining reduces downstream flows in the Athabasca River

- This affects the physical and biological functions of the river ecosystem

Air quality

- Oilsands extraction is a major point source of air pollutants such as nitrogen dioxide and sulphur dioxide
- Growth in oilsands production will result in absolute growth in air emissions
- Increased emissions result in air quality impacts for communities who reside in the region

Cumulative air impacts will exceed air guidelines



July 2013 study surveyed 9,000 reported incidents in Alberta's oilsands showed that fewer than 1% of likely environmental infractions drew any enforcement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Almost 20 per cent of Canada's entire natural gas production is used solely to extract oil from the tar sands. Enough is burned every day to heat six million homes or almost every single house in Alberta, Saskatchewan and Manitoba.
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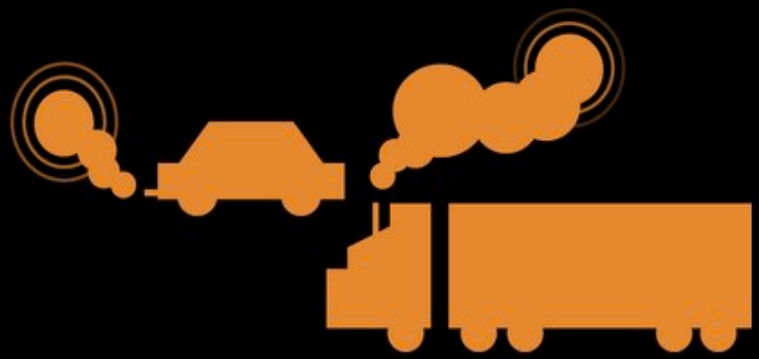
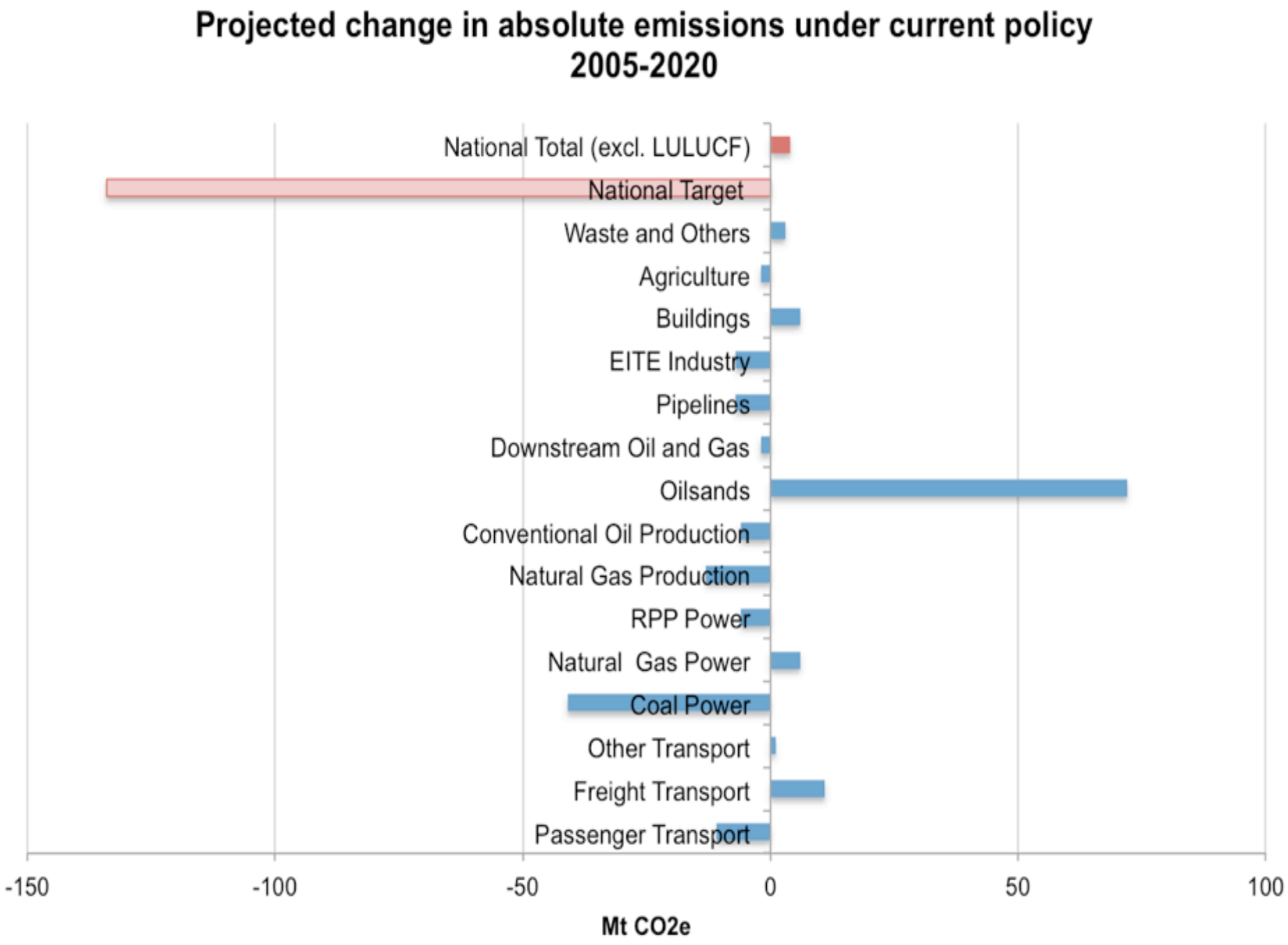
Oil sands production emits 3 to 4 times more greenhouse gases than producing conventional crude oil. This makes it one of the world's dirtiest forms of fuel.

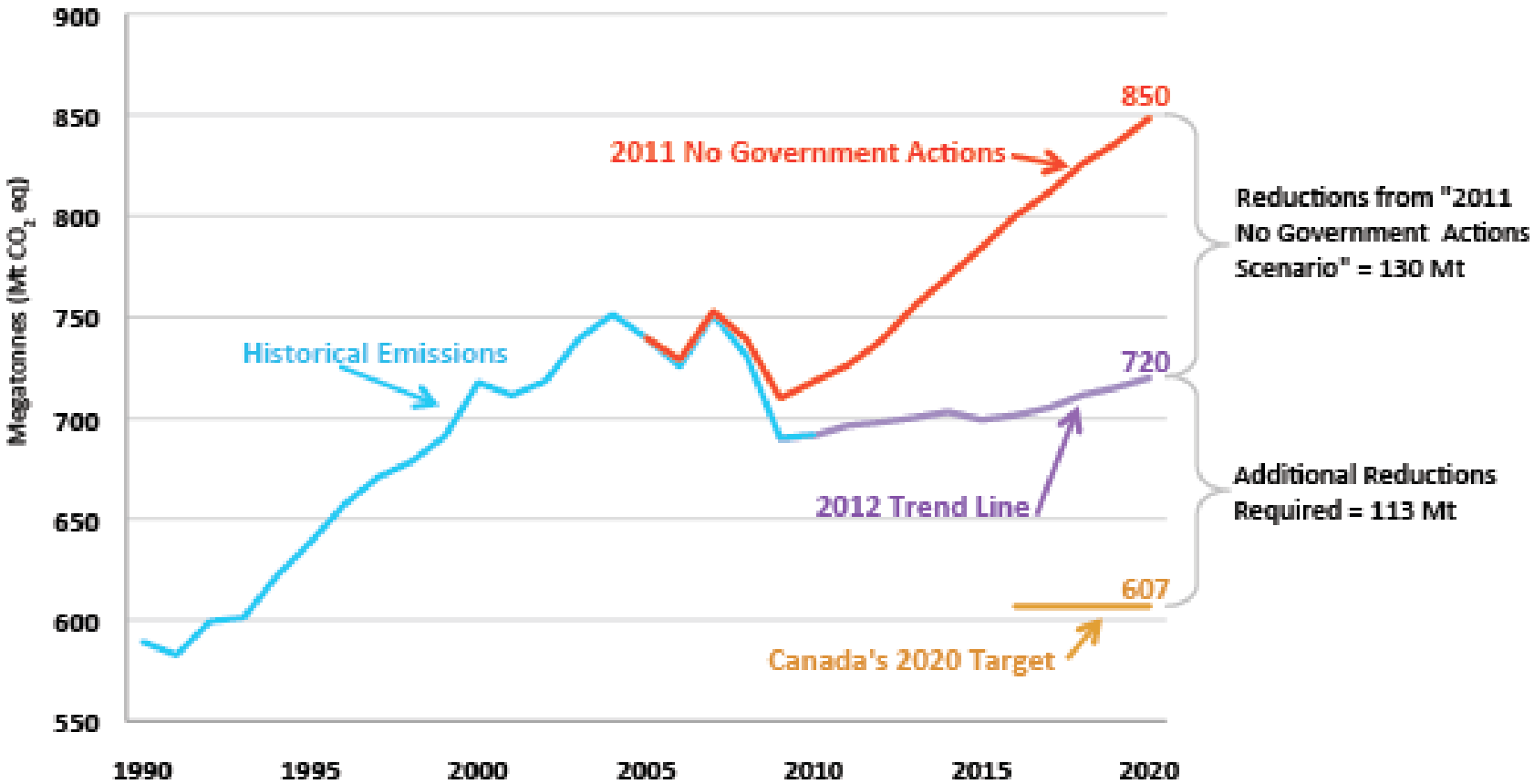


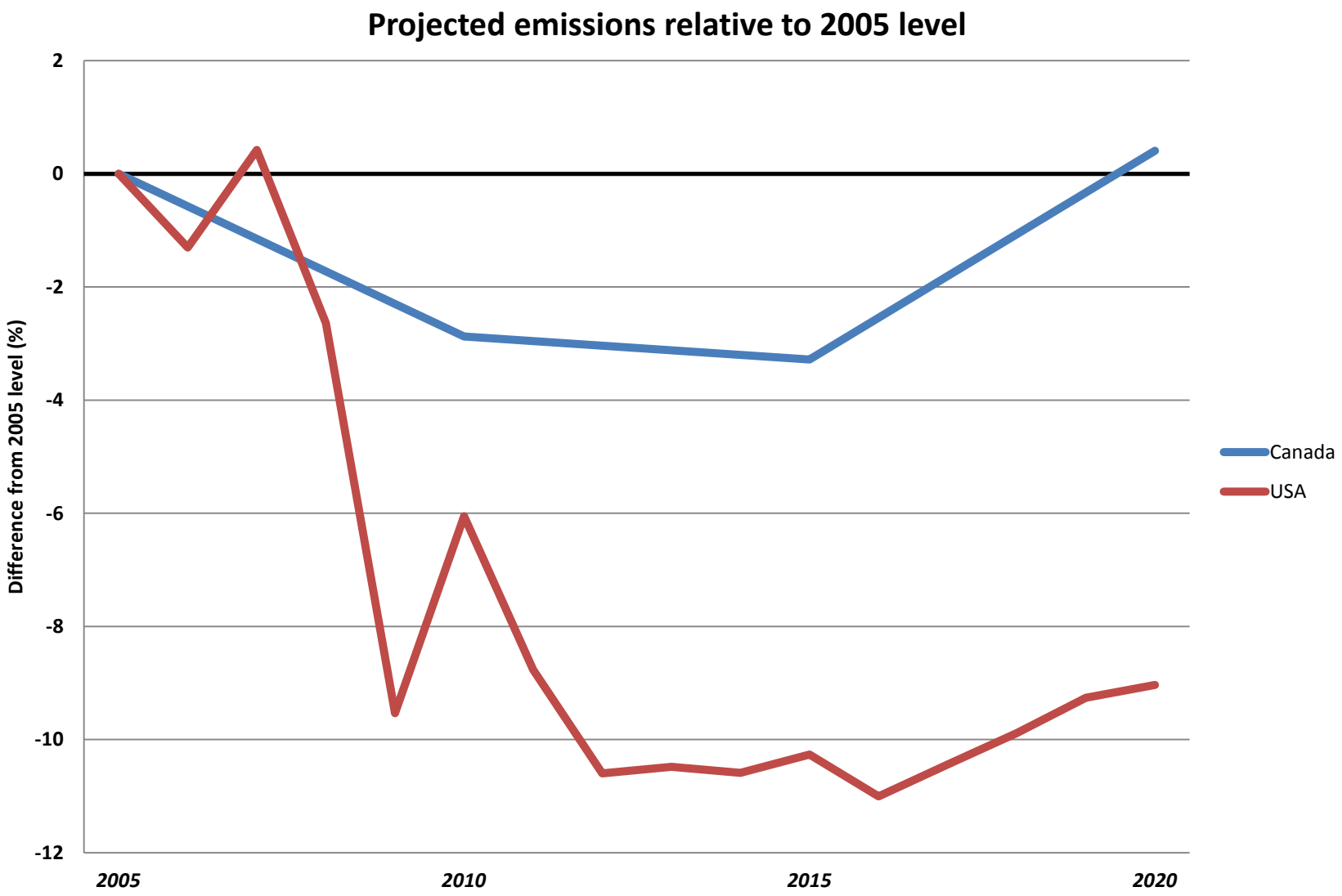
Oilsands GHG Emissions

- Emissions growth from the oilsands effectively cancels out all the other reductions taking place elsewhere in Canada's economy
- Environment Canada projects that oilsands emissions will more than double over the next decade, growing from 48 Mt in 2010 to 104 Mt in 2020
  - This is 14% of Canada's projected national total in 2020 (of 720 Mt)
- More than any other factor, the oilsands explain the difference in the emissions trajectories in Canada and the U.S.

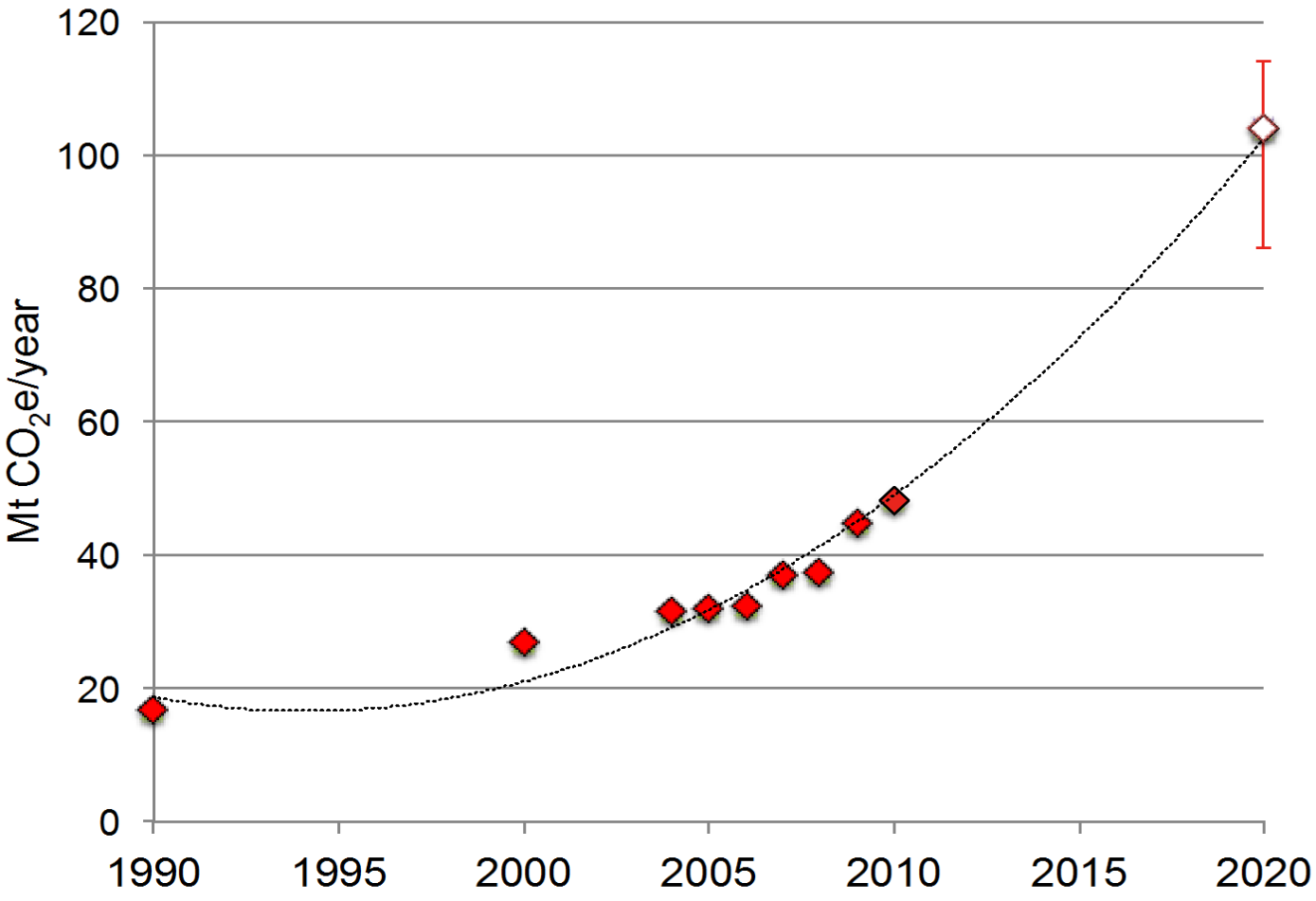

Projected change in absolute emissions under current policy
2005-2020
National Total (excl. LULUCF)
National Target
Waste and Others
Agriculture
Buildings
EITE Industry
Pipelines
Downstream Oil and Gas
Oilsands
Conventional Oil Production
Natural Gas Production
RPP Power
Natural Gas Power
Coal Power
Other Transport
Freight Transport
Passenger Transport
-150
-100
-50
0
50
100
Mt CO2e

Canada's Emission Target



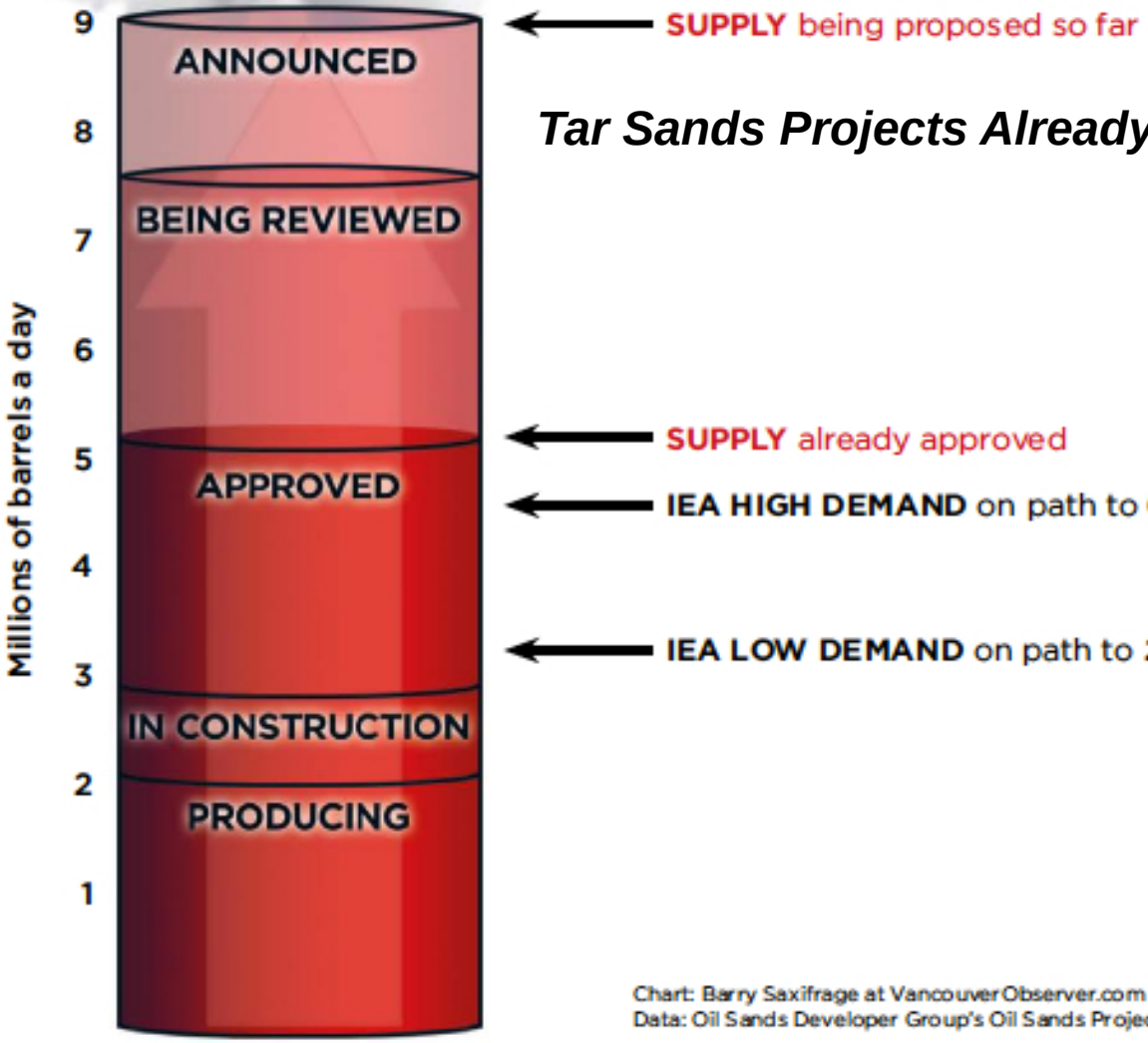

Projected emissions relative to 2005 level
Difference from 2005 level (%)
2
0
-2
-4
-6
-8
-10
-12
2005
2010
2015
2020
Canada
USA

Total emissions will double in 10 years



Source: Environment Canada National Inventory (1990-2008), Environment Canada GHG Forecast 2012

Figure 2: Canadian tar sands projects vs. IEA scenarios.



Tar Sands Projects Already Above Climate Limits

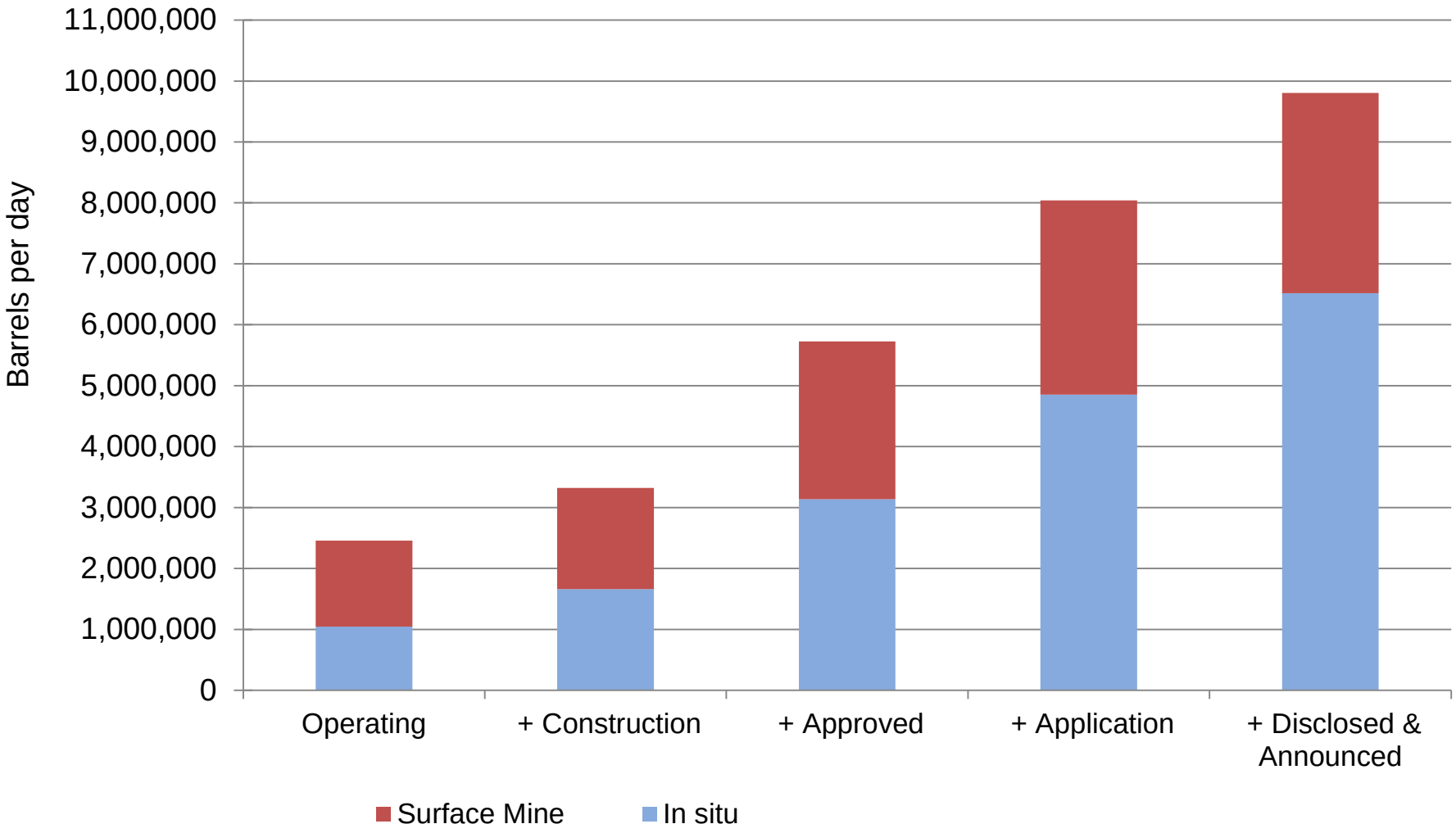
OILCHANGE INTERNATIONAL

Chart: Barry Saxifrage at VancouverObserver.com and VisualCarbon.org.
Data: Oil Sands Developer Group's Oil Sands Project List (Oct. 2012) and IEA World Energy Outlook 2010.

Conclusions

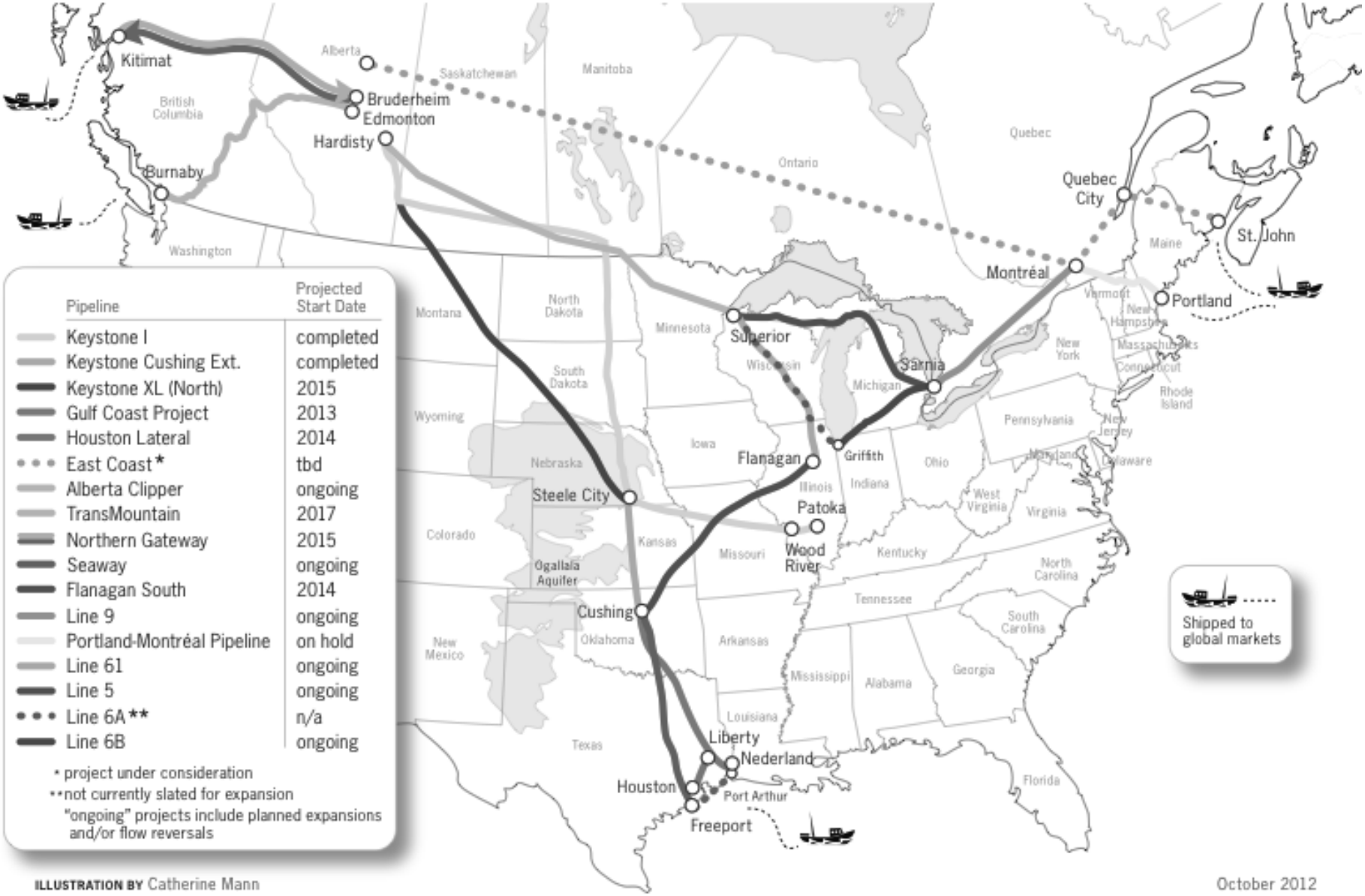
1. Oilsands expansion is inconsistent with a climate safe future
2. Species at risk in the oilsands are in critical decline
3. Reclamation has not kept pace with habitat destruction
4. Governments not addressing consequences of development – not enforcing existing laws

Pace of development



Source: Oilsands Review Magazine, Oilsands Datasets, February 2014

THE TAR SANDS PIPELINE BOOM



Pipeline	Projected Start Date
Keystone I	completed
Keystone Cushing Ext.	completed
Keystone XL (North)	2015
Gulf Coast Project	2013
Houston Lateral	2014
East Coast*	tbd
Alberta Clipper	ongoing
TransMountain	2017
Northern Gateway	2015
Seaway	ongoing
Flanagan South	2014
Line 9	ongoing
Portland-Montréal Pipeline	on hold
Line 61	ongoing
Line 5	ongoing
Line 6A**	n/a
Line 6B	ongoing

* project under consideration
**not currently slated for expansion
"ongoing" projects include planned expansions and/or flow reversals

ILLUSTRATION BY Catherine Mann

October 2012


CANADA DROPS OUT OF
KYOTO PROTOCOL
RT
NEWS
SYRIA WANT TO CREATE HUMANITARIAN CRISIS TO

nature.com

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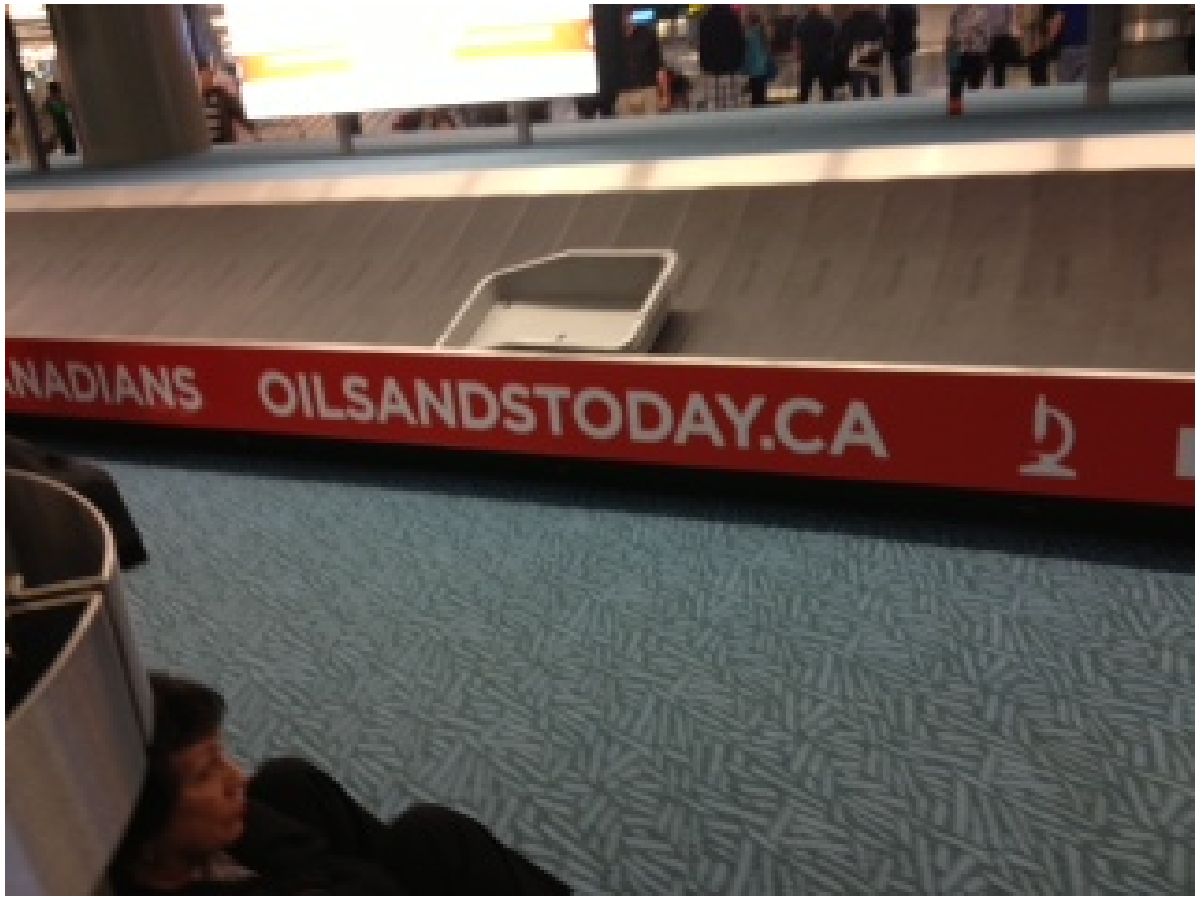
- prominent researchers have been prevented from discussing published, peer-reviewed literature. Policy directives and e-mails…. reveal a confused and Byzantine approach to the press, prioritizing message control and showing little understanding of the importance of the free flow of scientific knowledge…it is time for the Canadian government to set its scientists free.


193 COUNTRIES DEVOTED TO FINDING SOLUTIONS FOR GLOBAL DESERTIFICATION
1 COUNTRY OPPOSED
CANADA IS THE ONLY COUNTRY TO PULL OUT OF THE UN CONVENTION TO COMBAT DESERTIFICATION
PLEASE SHARE

"THE land MATTERS."

A forest should look and feel like a forest. Thirty years ago, reclamation meant planting trees. Today, we create a much more diverse and natural landscape, including wetlands and a variety of trees, shrubs and plants. We want to leave restored land that makes everyone proud.


NADIANS
OILSANDSTODAY.CA

Chelsie Klassen, Imperial Oil

The oil sands are funding hospitals, schools, social programming....

- More about how the oil sands has a positive impact

Unfortunately, there are ***"environmental and other radical groups"*** that would seek to block this opportunity to diversify our trade. Their goal is to stop any major project no matter what the cost to Canadian families in lost jobs and economic growth.

These groups threaten to ***hijack our regulatory system*** to achieve their ***radical ideological agenda***. They seek to exploit any loophole they can find, stacking public hearings with bodies to ensure that ***delays kill good projects***. They use ***funding from foreign special interest*** groups to undermine Canada's national economic interest.


2012 BUDGET
IMPLEMENTATION
ACT
BILL C-38

Budget Bill C-38

Canadian Environmental Assessment Act ditched

Canadian Environmental Protection Act undercut

National Roundtable on the Economy and Environment killed

Canadian Environmental Assessment Agency seriously weakened

Kyoto Protocol Implementation Act killed

Fisheries Act seriously weakened
Energy Board Act neutered
Nuclear Safety Control Act undermined.
Water and Environmental Monitoring Cut

Prince Rupert January 2012


SAVE
OUR
COAST


SaveCanada
PROTECT NORTH BAY'S DRINKING WATER
FROM AN OIL SANDS BITUMEN PIPELINE


FREEDOM TRAIN 2012 • TORONTO
NO OIL PIPELINES OR TANKERS


RESPECT MOTHER EARTH
AGAINST ENBRIDGE
NO ENBRIDGE
SAY YES TO SAFETY
SAY NO!
I'M AN ORCA AGAINST ENBRIDGE
BROKE

"There should be a pause on approval of new projects until the province can catch up with problems stemming from development and rising emissions."

Don Braid, Calgary Herald
January 21st, 2014

- 71% of Albertans believe Government of Alberta should suspend new oilsands approvals until infrastructure and environmental management issues have been addressed

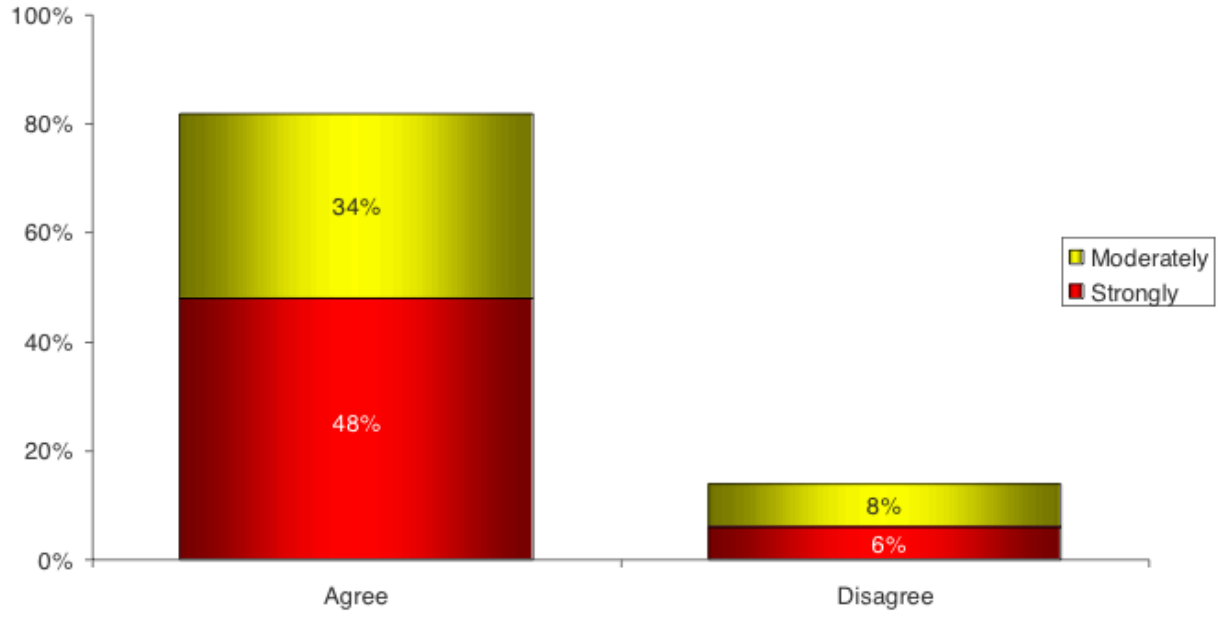
Protection of wildlife and oil sands development

A large majority of Albertans believe that wildlife, such as woodland caribou, should be protected, even if this reduces opportunities for oil sands development. Among Albertans surveyed, 82% felt that protecting wildlife should be a priority.

Probe Research Inc. Statement:

"Wildlife such as woodland caribou should be protected, even if this reduces opportunities for oil sands development." (n=500)

Probe Research Inc. Results:



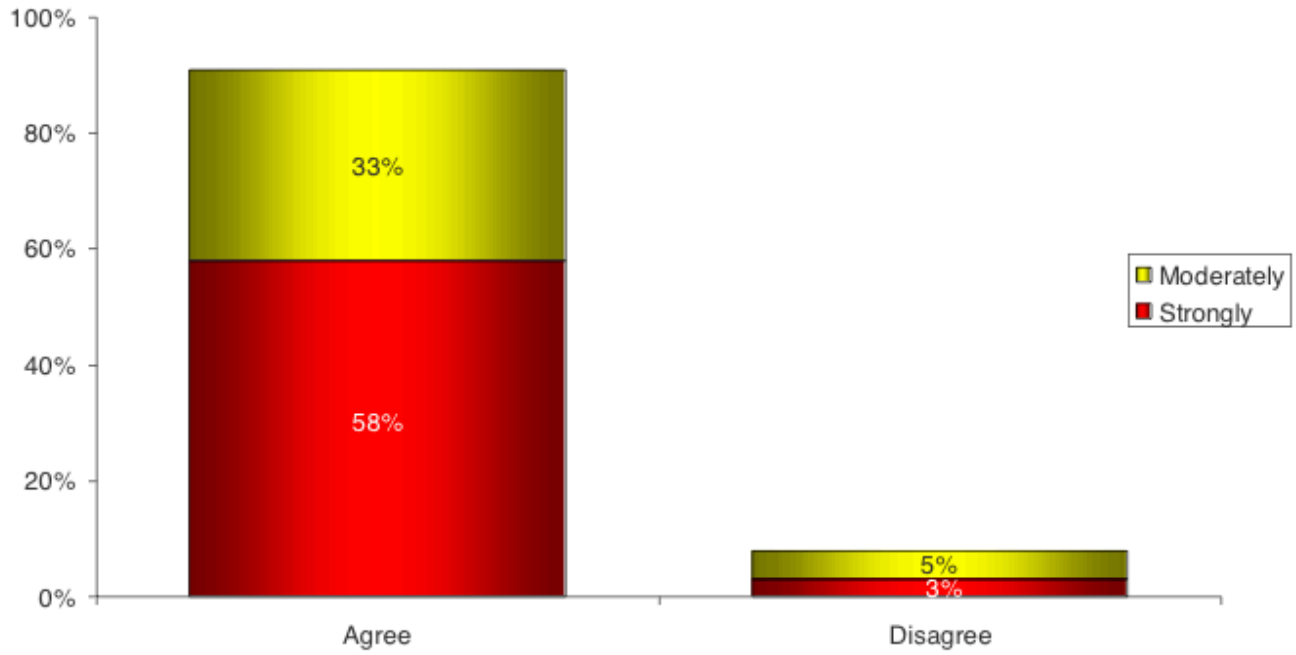
Environmental trade-offs and oil sands development

An overwhelming majority of Albertans (91%) expect protection of the environment, even if this slows down opportunities for oil sands development.

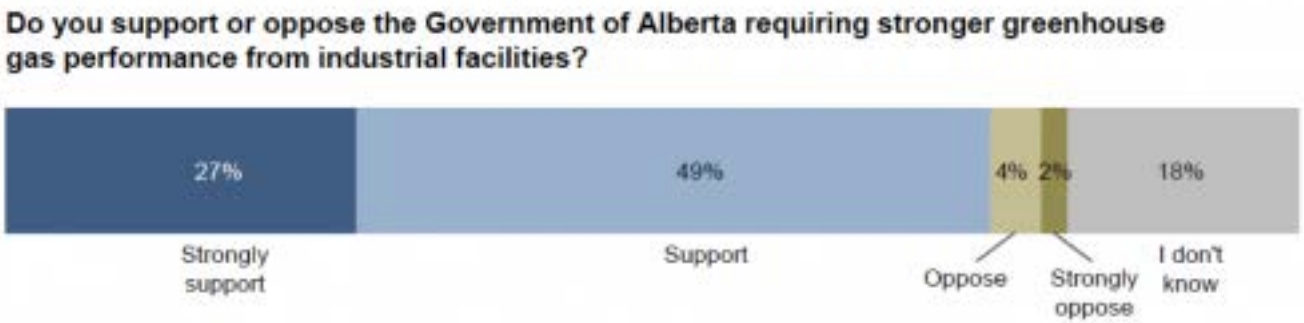
Probe Research Inc. Statement:

"Protecting the environment is important, even if it means oil sands development occurs more slowly." (n=500)

Probe Research Inc. Results:



76% of respondents support or strongly support the Government of Alberta requiring stronger emissions performance regulations for industrial facilities.

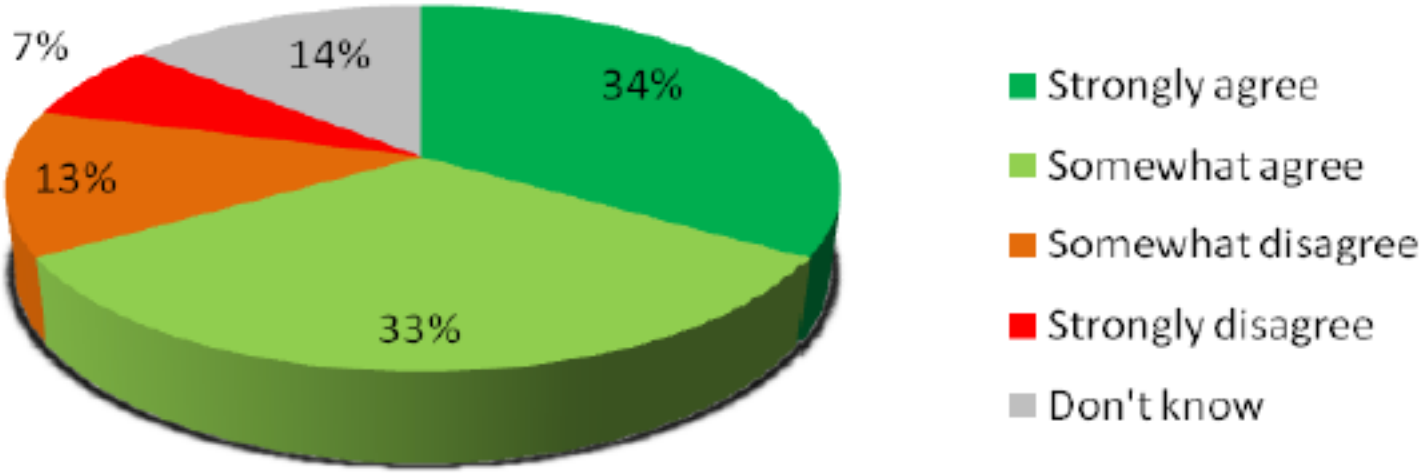


802 Albertans surveyed

A large majority, 66%, of Canadians agree that Canada should be working towards an economy strategy less dependent on the oil sands.

Some people say that Canada should be working towards and economic strategy that is less dependent on the oil sands.

Do you strongly agree, Somewhat agree, Somewhat disagree, Strongly disagree, Don't know?

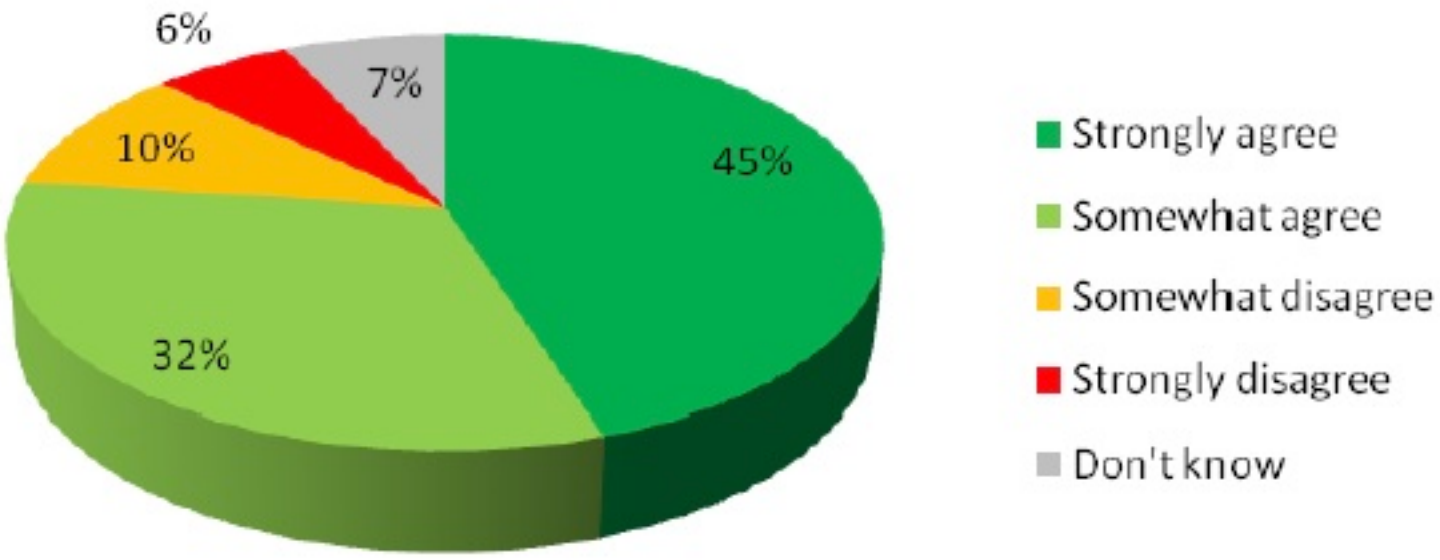


1107 Canadian adults polled

A striking majority, 76%, of Canadians believe that given climate concerns, we should be moving away from dependence on fossil duels towards cleaner energy.

How strongly do you agree of disagree with the following statement:

Given concerns about climate change, Canada should be shifting its energy strategy away from dependence on fossil fuels and toward cleaner energy?

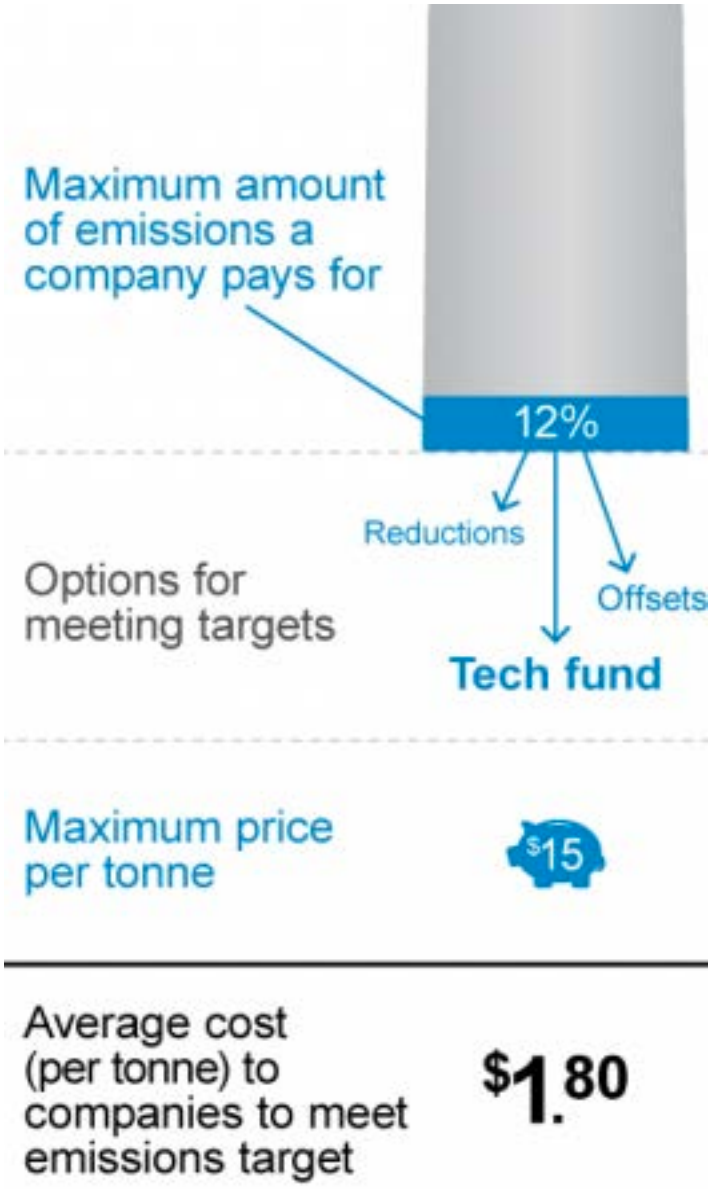


1107 Canadian adults polled

Cap it. Clean It Up. Transition Out.

- Current environmental **impacts are addressed**
- First Nations no-go areas and Treaty Rights are respected
- Science-based **environmental limits** are established
- Future development **occurs within science-based limits**
- Revenue from oilsands development used to **transition to a clean energy economy**

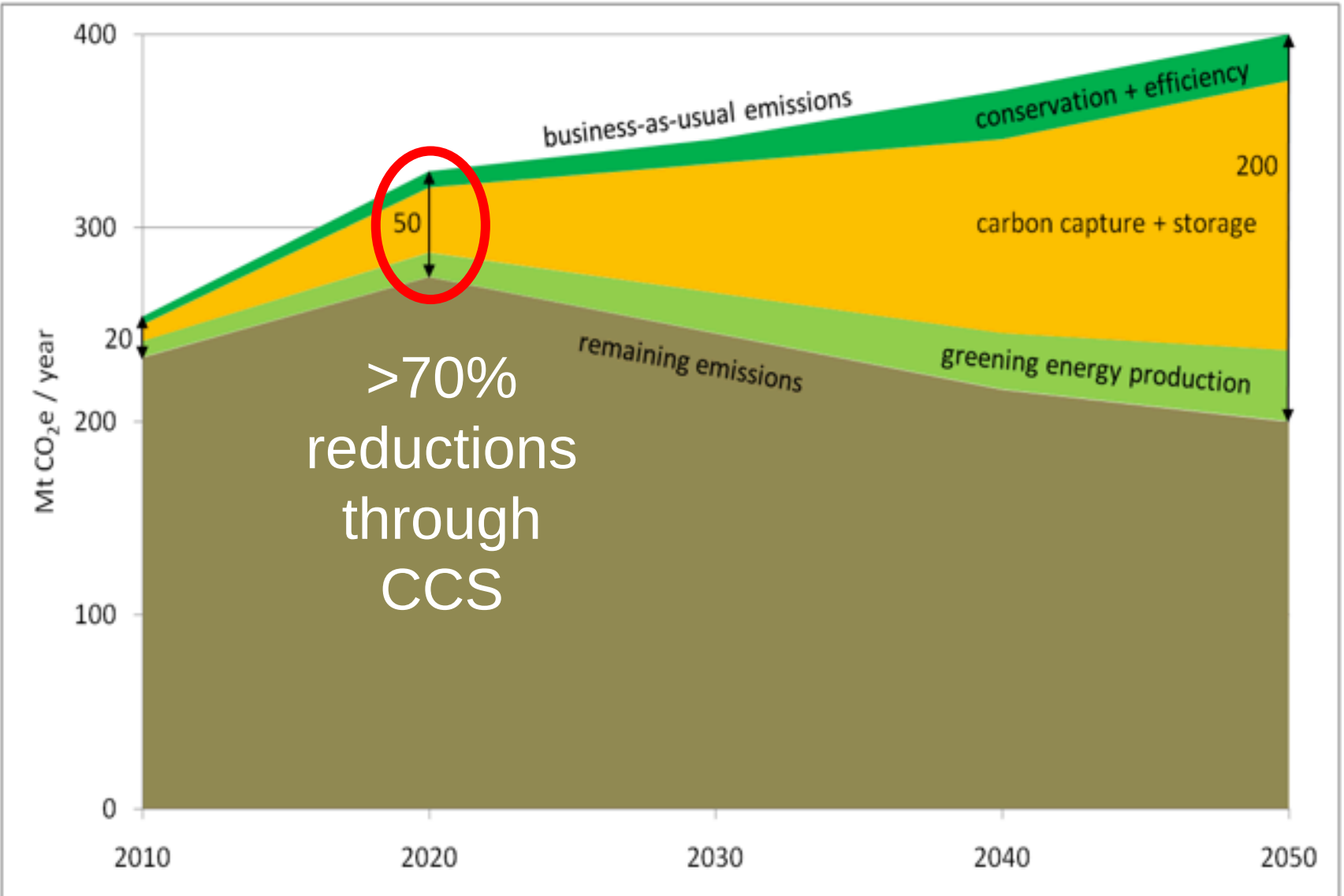
Alberta's Carbon Price



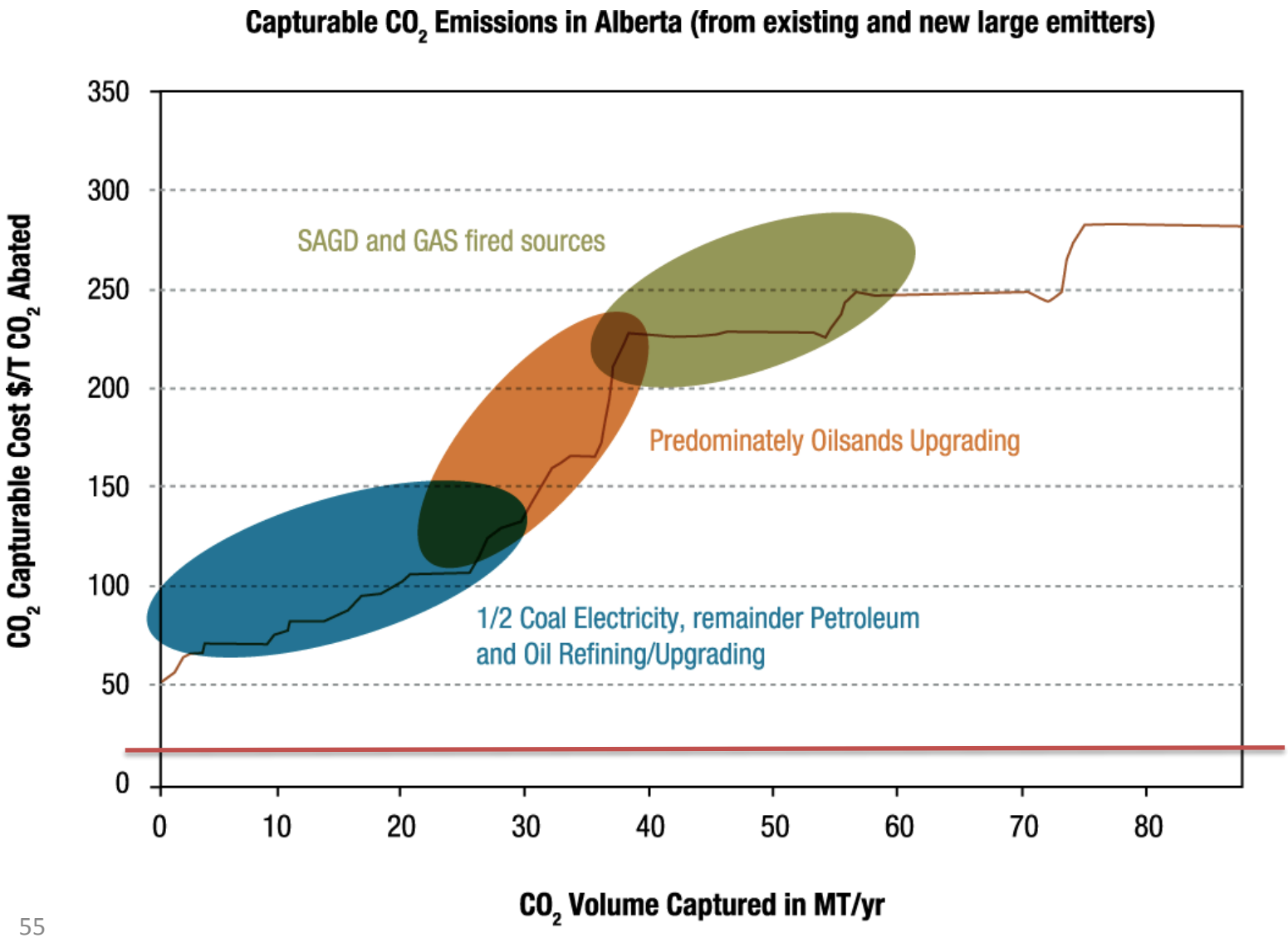
Alberta's 2020 target is to reduce **50 Mt** below "business as usual"

Policies deliver less than **14 Mt** of the 50 Mt reductions planned

Alberta's climate change strategy relies heavily on carbon capture and storage



Oilsands carbon capture costs



Cost of CCS: $100 to $280 per tonne

Impact of GHG price and Downstream Coverage on Project Returns

Oil sands project internal rates of return		Carbon Price ($CDN/tonne)					
		25.00	50.00	75.00	100.00	EPA SCC 3% avg.	EPA SCC 95th%
Incidence of downstream GHG price on upstream revenues	Mining (base case IRR of 12.54% under business as usual)						
	0%	12.35%	12.16%	11.96%	11.75%	12.41%	11.15%
	25%	11.77%	10.95%	10.08%	9.14%	12.12%	7.43%
	50%	11.17%	9.63%	7.87%	5.77%	11.82%	0.19%
	75%	10.53%	8.15%	5.08%	N/A	11.51%	N/A
	100%	9.87%	6.43%	N/A	N/A	11.20%	N/A
	In situ (base case IRR of 18.88% under business as usual)						
	0%	18.17%	17.45%	16.71%	15.96%	18.48%	14.35%
	25%	17.20%	15.39%	13.42%	11.26%	17.99%	6.95%
	50%	16.17%	13.07%	9.34%	4.36%	17.51%	N/A
	75%	15.09%	10.36%	3.46%	N/A	17.01%	N/A
	100%	13.93%	7.05%	N/A	N/A	16.49%	N/A

Project type		In situ			Mine		
Policy		Current SGER	Double-double	$30/tonne tax	Current SGER	Double-double	$30/tonne tax
Production							
Capacity	bbl/d	50000	50000	50000	180000	180000	180000
Cumulative Bitumen Production	mmbbl	485	485	485	3215	3215	3215
Supply Cost (10% after-tax IRR)							
WTI Price required, $2013	$/bbl	57.69	58.00	59.80	66.38	66.51	67.41
Change	$/bbl		0.31	1.80		0.14	0.90
Internal Rate of Return (IRR), after taxes and royalties							
IRR	%	12.96%	12.88%	11.85%	9.05%	9.01%	8.74%
Change relative to current policies	%		-0.08%	-1.10%		-0.04%	-0.31%
Emissions and Compliance							
Total Emissions	Mt	35.14	35.14	35.14	121.99	121.99	121.99
Emissions Intensity	t/bbl	0.072	0.072	0.072	0.038	0.038	0.038
Total compliance obligation	Mt	1.65	5.28	35.14	13.32	26.64	121.99
New compliance obligation	Mt		3.63	33.49		13.32	108.67
Average GHG costs	$/t	0.47	4.51	30.00	0.91	6.55	30.00
Average compliance costs	$/t	9.98	30.00	30.00	8.35	30.00	30.00
Total Revenues and Costs (million $2013)							
Total Revenue	$mm	24,881	24,881	24,881	164,804	164,804	164,804
Capital and Debt Costs	$mm	3,941	3,941	3,941	26,225	26,225	26,225
Operating Costs	$mm	10,805	10,805	10,805	65,126	65,126	65,126
Condensate Costs	$mm	-	-	-	-	-	-
GHG Compliance Costs	$mm	17	158	1,054	111	799	3,660
Royalties	$mm	4,120	4,066	3,753	30,436	30,171	29,104
Taxes	$mm	1,587	1,565	1,423	11,352	11,247	10,810
Free Cash Flow	$mm	4,410	4,344	3,904	31,553	31,235	29,878
Policy Impact ($2013)							
GHG compliance costs	$mm		142	1,038		688	3,548
Royalties	$mm		(54)	(367)		(265)	(1,331)
Taxes	$mm		(22)	(164)		(105)	(542)
Free Cash Flow	$mm		(66)	(506)		(318)	(1,675)
Per Barrel Revenues and Costs ($2013/bbl bitumen)							
Total Revenue	$/bbl	51.26	51.26	51.26	51.26	51.26	51.26
Capital and Debt Costs	$/bbl	8.12	8.12	8.12	8.16	8.16	8.16
Operating Costs	$/bbl	22.26	22.26	22.26	20.26	20.26	20.26
Condensate Costs	$/bbl	-	-	-	-	-	-
GHG Compliance Costs	$/bbl	0.03	0.33	2.17	0.03	0.25	1.14
Royalties	$/bbl	8.49	8.38	7.73	9.47	9.38	9.05
Taxes	$/bbl	3.27	3.22	2.93	3.53	3.50	3.36
Free Cash Flow	$/bbl	9.09	8.95	8.04	9.81	9.72	9.29
Policy Impact ($2013/bbl bitumen)							
GHG compliance costs	$/bbl		0.29	2.14		0.21	1.10
Royalties	$/bbl		(0.11)	(0.76)		(0.08)	(0.41)
Taxes	$/bbl		(0.05)	(0.34)		(0.03)	(0.17)
Free Cash Flow	**$/bbl**		(0.14)	(1.04)		(0.10)	(0.52)

Summary of Recommendation Costs

Recommendation	Base Cost	Cost Range
Recommendation 1: Establish 50% protected areas	$1.03/Bbl	N/A
Recommendation 2: Implement a wetlands and biodiversity offset policy	Mining: $0.17/Bbl In Situ: $0.02/Bbl	Mining: $0.03 – $0.32/Bbl In Situ: $0.008 – 0.04/Bbl
Recommendation 3: Set maximum levels of development	N/A – Insufficient information	
Recommendation 4: Reform the approach to reclamation liability management	Mining: $1.44/Bbl	Mining: $0.09-2.79/Bbl
Recommendation 5: Conserve woodland caribou	N/A - No direct costs if Recommendations 1-3 are implemented	
Recommendation 6: Protect the Athabasca River from water withdrawals during low flow periods	Mining: $0.47/Bbl	Mining: $0.44-0.49/Bbl
Recommendation 7: Define sustainable groundwater yield	$0.009/Bbl	N/A
Recommendation 8: Protect non-saline groundwater resources	In Situ: $0.21/Bbl	In Situ: $0.11-0.30/Bbl
Recommendation 9: Eliminate wet tailings production	New: $2.05/Bbl Current: $1.82	New: $1.81-2.28/Bbl Current: $1.58-2.05/Bbl
Recommendation 10: Eliminate end pit lakes	Mining: $2.37/Bbl	Mining: $1.28-3.46/Bbl
Recommendation 11: Implement world-class air quality standards	N/A – Insufficient cost information	
Recommendation 12: Require best available technology to address air emissions	$0.45/Bbl	N/A
Recommendation 13: Set science-based greenhouse gas reduction targets	2 deg: $7.89/Bbl	2 deg: $6.54-13.56/Bbl
Recommendation 14: Place an appropriate price on greenhouse gas pollution	Federal 2020 Target: $4.46/Bbl	Federal: $3.93-6.78/Bbl
Recommendation 15: Require carbon capture and storage for oilsands operations	In Situ: $1.8/Bbl	In Situ: $1.5-2.1/Bbl
Recommendation 16-19: Improve Monitoring of the oilsands	> $0.06/Bbl (JOSM Commitment)	N/A
Total Cost*	Mining: $12.51/Bbl In Situ: $8.04/Bbl	Mining: $8.90-17.44/Bbl In Situ: $6.86-10.53/Bbl

*** The total cost estimate per barrel of bitumen shown is representative of new mining operations and both current and new in situ projects meeting the federal 2020 greenhouse gas targets. The average per barrel cost estimate for current mines is $12.28, representing a lower cost from more lenient tailings capture requirements for current mines (Recommendation 9). The average per barrel cost estimate for new mining and current and new in situ projects meeting the 2°C climate change target is $15.94 and $11.47 respectively, representing an additional cost from stricter greenhouse gas reduction requirements (Recommendations 13 and 14).**

Alberta Politics

- Conservatives have held power without interruption since 1971
- Wild Rose Party defeated in part due to climate denial
- Premier Prentice responding to oil price in budget, revising climate policy
- Changing demographics Alberta

“To criticize government decisions and promote alternative positions is contrary to Alberta’s democracy.”

Alberta Minister of Energy in response to Alberta’s own Auditor General criticism of low royalty rates

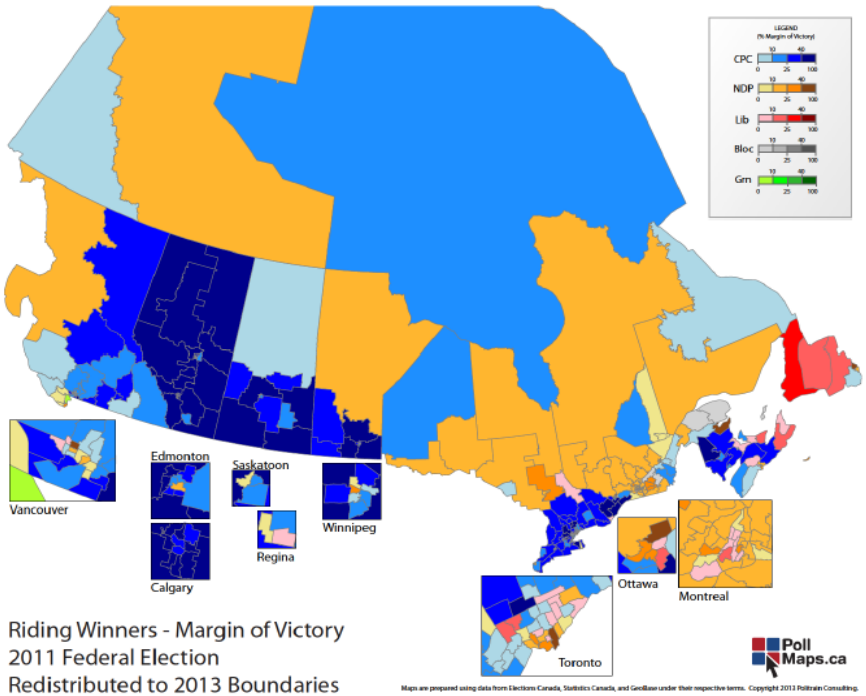
Federal Politics

- Canada fixed election date October 19, 2015
- Harper majority only 6 seats (of 308)
- Won majority with 39% of vote; 26% of eligible voters
- Difference in marginal seats for seat majority less than 6,500 total votes

Current Polls

- Liberals and Conservatives bouncing around 1/3 of vote; NDP around 20%
- Seat projection is minority government for either Lib or Cons, with NDP holding balance power

Battle grounds: Ontario, Quebec and BC



- An independent process added 30 new ridings
- Analysis shows the most vulnerable Conservatives (lighter blue on map)
- Now only a 6 seat majority, but upwards of 50 may be in play

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