



# SOLVING the Puzzle

# Progress Update

April 2013

## A two-year assessment of progress

Two years ago the Pembina Institute released *Solving the Puzzle* — our report outlining 19 policy solutions aiming to protect air, forests, wildlife and fresh water, along with a credible approach to reducing greenhouse gas pollution and establishing a world-class environmental monitoring system. Given the intensifying scrutiny on management of the oilsands, it is worthwhile to evaluate the extent to which the urgently needed policies to responsibly develop the oilsands have been implemented.

With project approvals continuing to outstrip progress on environmental rules, it's more important than ever that the Government of Alberta complete the necessary steps to manage the pace and scale of regional and climate impacts. Here we evaluate progress on implementing the solutions presented in *Solving the Puzzle*, noting three categories: **Substantial progress**, **Moderate progress** and **Limited progress**.

## Substantial progress

### *Solving the Puzzle* recommendation

### Assessment



#### **Establish conservation areas**

The Alberta Government should legislatively protect at least 50% of its public forest lands from industrial development. Protected areas should be developed and co-managed with Aboriginal peoples.

The Lower Athabasca Regional Plan (LARP) that was released in August 2012 includes over 1.2 million hectares of new conservation areas and increases the percentage of the land in the Lower Athabasca area that is protected from industrial activity to over 20% of the region. Progress is needed to ensure that conservation areas continue to be established and co-managed in partnership with aboriginal communities. The identified conservation areas have not yet been legally established.



#### **Fund biodiversity monitoring**

Ensure full funding of the Alberta Biodiversity Monitoring Institute, either directly from government or through an equitable funding model that requires all natural resource developers who impact biodiversity to contribute as a mandatory component of the regulatory approval process.

The Joint Canada-Alberta Implementation Plan for Oil Sands Monitoring was announced in 2012. This high-level plan outlines an ambitious monitoring and research initiative that is scheduled for completion in 2015. Key achievements are that the plan identifies the Alberta Biodiversity Monitoring Institute (ABMI) as the major delivery agent for wildlife and biodiversity monitoring and that industry has supported full funding of ABMI monitoring in the Athabasca region. To fully complete this plan, the outstanding issues of governance and funding need to be addressed. Independent governance free from industry and government influence, plus a long-term and sustainable funding model, are the final key pieces that will determine the success of the plan.

# Moderate progress

## Solving the Puzzle recommendation

## Assessment



### Ensure groundwater protection

Ensure enforceable regulations are in place to protect non-saline groundwater resources by updating and implementing existing guidelines and definitions. To protect more of our finite water resources, the Alberta government should expand its definition of regulated groundwater from the current level of water containing less than 4,000 mg/l of total dissolved solids (or TDS, a measurement of mineral, salt and metal content) to include water with up to 10,000 mg/l TDS.

Interim regional groundwater quality limits have been identified in the Lower Athabasca Regional Plan. LARP states that:

“...a management response will not be a mandatory requirement of the regional plan until there is better understanding of the current state of groundwater in the region and final triggers and limits have been established.”

The definition of regulated groundwater has not been expanded to include water with up to 10,000 mg/l of total dissolved solids.



### Strengthen air pollution limits

Establish air emission limits to achieve the World Health Organization's Air Quality Guidelines to protect air quality and human health. Implement a progressive, multi-tiered system that requires varying degrees of action to prevent degradation of ambient air.

The Alberta Government has strengthened the Ambient Air Quality Objective for nitrogen dioxide, bringing the new limit much closer to the World Health Organization's guideline.

In addition, the LARP includes new management actions triggered at levels below the Alberta limit for nitrogen dioxide and sulphur dioxide. The management actions should help reduce emissions and avoid situations where the limit is exceeded in the LARP region.



### Require technology to prevent air pollution

Require oilsands operations to use equipment with the lowest achievable emissions or to deploy best-available technology for air emissions reductions.

The Air Quality Management Framework includes four levels of management actions. Only level 4 (the highest level approaching the limit) requires such options as “more stringent performance standards” and “approval conditions or restrictions”.

Opportunities exist for the deployment of best available emissions technologies as a standard practice.



### Expand air monitoring

Expand air monitoring to meet scientific needs. Monitoring design should be developed through a consensus-based approach with full stakeholder input, and with government implementing final decisions.

Environment Canada and the Government of Alberta have jointly begun to implement an improved air monitoring system. To date this has included some expansion of monitoring activities and satellite analysis of air emissions. At this time, it remains unclear how the existing network of continuous air monitoring stations will be evaluated and fully expanded.

To fully complete this plan, the outstanding issues of governance and funding need to be addressed. Independent governance free from industry and government, plus a long-term and sustainable funding model, are the final key pieces that will determine the success of the plan.



### Expand groundwater monitoring

Make a long-term commitment to fund a regional monitoring network to monitor and assess trends in groundwater levels and groundwater quality indicators.

Some limited progress on new groundwater monitoring stations for tailings lakes and the establishment of a regional groundwater monitoring network is proposed in the LARP plan. However, a long-term commitment to fund a regional monitoring network has not yet been made.

# Limited progress

## Solving the Puzzle recommendation

## Assessment



### Protect the Athabasca River

Alberta Environment should complete a water management plan that identifies a science-based Ecosystem Base Flow (EBF) for the lower Athabasca River, as a low-flow threshold below which all water withdrawals would cease. The EBF should be legally enforceable and all water permits issued by the Alberta Government at any one time should be accountable to meet that EBF. In the interim, the low-flow threshold for the lower Athabasca River should be at least 100 m<sup>3</sup>/s.

An update of the Phase I Water Management Framework for the Lower Athabasca River is overdue for a second time. The LARP committed to completing phase two of the framework by the end of 2012.

Stakeholders expect that when the water management framework is updated it will include a legally binding Ecological Base Flow (EBF), below which water withdrawals will be prohibited. The need for an EBF was first noted on the public record by the Joint Review Panel for the Kearl oil sands project. In 2007, the panel that noted the project's public interest determination relied on anticipated new rules that would halt river withdrawals during low flow periods.

The decision report for the Kearl project recommended that "Phase II of the Water Management Framework be implemented by January 1, 2011, in keeping with the stated commitments of the Governments of Alberta and Canada," and that the Department of Fisheries and Oceans and Alberta Environment "incorporate an ecological base flow into the final Water Management Framework for the Athabasca River."

Six years later, there is still no Phase II Framework or EBF in place.



### Strengthen greenhouse gas targets

Commit to an Alberta greenhouse gas emissions reduction target consistent with a fair Alberta contribution to prevent dangerous levels of global warming (defined as keeping the global average temperature increase to 2°C, relative to the preindustrial level).

The Government of Alberta has acknowledged that it is not on track to meet its target to reduce annual GHG emissions by 50 MT below business as usual by 2020. Since Alberta's GHG management plan is designed to support an increase in GHG emissions, it is not consistent with Canada's target to reduce emissions 17% below 2005 levels by 2020.



### Raise pollution levy

Implement an escalating carbon dioxide equivalent (CO<sub>2</sub>e) emissions price, as either a full auction cap-and-trade system or a carbon tax covering all combustion and almost all fixed process emissions.

Despite media attention about preliminary discussions to increase the intensity reduction targets and penalty levy for Alberta's Specified Gas Emitters Regulation, Alberta's GHG regulations have not been strengthened since they were first introduced in 2007.



### Mandate CCS for oilsands projects

Mandate the use of carbon capture and storage (CCS) technology to capture greenhouse gas emissions from all major new industrial sources by 2016.

Despite Alberta's emissions management plan stating that 70% of planned emissions reductions will come from CCS, Alberta does not mandate CCS for major industrial sources.

The planned TransAlta Pioneer CCS project was cancelled because a weak carbon price signal made the project uneconomic. The Shell Quest upgrader CCS project received regulatory approval and is proceeding, with the help of an \$865 million subsidy from Alberta and Canadian taxpayers. No other CCS projects have been proposed for the oilsands.

# Limited progress

## Solving the Puzzle recommendation

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### Set land disturbance limits

Land use plans should mandate that no more than 5% of any Alberta planning region is available to oilsands development at any time.

A land disturbance plan has not been developed for northeastern Alberta. The Lower Athabasca Regional Plan states that:

“A regional landscape management plan will also be developed for the public land in the Green Area by the end of 2013 to support achieving the economic outcomes and objectives defined in the plan, while addressing biodiversity through a well co-ordinated, planned and managed land disturbance footprint. Essential to this approach is the use of ILM by industrial operators, and introduction of land disturbance standards (such as limits and triggers).”

There has been no public update on the status of the regional landscape management plan.



### Establishment compensatory offsets for impacts to biodiversity and wetlands

Require establishment of biodiversity offsets for all oilsands development to offset impacts to all habitat types. To ensure a net positive environmental benefit and address existing cumulative effects, offsets should be established with a 3:1 offset ratio — three hectares of land should be conserved or restored for every hectare of new disturbance that occurs within the Boreal Forest Natural Region.

*Responsible Actions*, Alberta's previous oilsands plan, had the objective of implementing a conservation offset strategy in the oilsands by 2012. This has not been achieved.

Alberta is many years overdue in implementing a wetland policy to compensate for loss of wetland habitats from oilsands development.



### Reduce reclamation liability

Develop a new, transparent and risk-averse mine security program that ensures the Alberta government collects financial security equivalent to the total liabilities created by oilsands extraction.

Oilsands mine reclamation liabilities were estimated to be up to \$15 billion in 2008 — and as the industry expands, so do the liabilities.

Created in 2011, the Mine Financial Security Program uses a basic asset-to-liability approach. The value of the bitumen in the ground is used as collateral for any reclamation liabilities that are created. If a company crosses a certain threshold of assets to liabilities, then the Province requires the company to submit essentially a cash deposit. This problematic approach to collecting reclamation security from oilsands mining companies places taxpayers at undue risk should the oilsands industry (or individual companies) cease to be competitive.



### Protect woodland caribou

Follow the recommendations of the Alberta Caribou Committee and demonstrate that all caribou ranges in Alberta meet science-based objectives to maintain caribou populations through a combination of establishing protected areas, setting thresholds on maximum levels of development in caribou habitat, and establishing biodiversity offsets in caribou habitat.

Woodland caribou continue to decline in northeastern Alberta and emergency measures have not been identified to conserve and manage remaining critical habitat. The establishment of some new conservation areas within the LARP was a small step forward, but caribou remain vulnerable. Even the 2012 federal recovery plan for caribou is inadequate in supporting the recovery of the four major caribou ranges underlain by oilsands deposits — just 24% of caribou habitat (on average) remains undisturbed, far below the federal recovery plan target of 65%. Range plans for Alberta's herds remain incomplete.

Alberta urgently needs to implement new protected areas, employ conservation offsets and set a disturbance limit to stabilize caribou populations in northeastern Alberta.

# Limited progress

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### Manage groundwater withdrawals

Measure and map the quantity and quality of groundwater and surface/groundwater interactions, to determine both the short and long-term sustainable yield of non-saline groundwater in the Lower Athabasca's groundwater management areas. Set legal requirements to implement and enforce the sustainable yield of groundwater.

The Lower Athabasca Regional Plan Groundwater Management Framework will not be completed and implemented until 2014. The plan does not identify a limit on licensing for regional withdrawals of groundwater. LARP does identify an indicator for groundwater withdrawals (change in groundwater surface elevation) but notes that it is "not yet established." While data may be deficient, no interim regional limits or triggers are identified in the LARP.



### Clean up tailings

New mines should not be approved until the operation adopts a proven technology that eliminates the creation of wet tailings. In the interim, all current mines must be required to conform to the new tailings rules.

ERCB Directive 074 was introduced 2009 as the first regulations on future tailings growth. The rules do not address legacy tailings and only target a proportion of new tailings growth, meaning that absolute volumes of tailings will grow as mineable production ramps up. To date, there has been inadequate enforcement of the directive. Furthermore, operator's compliance reports are not publicly available.

As a first step, Directive 074 should be enforced and compliance reports should be made publicly available.

A new tailings management framework for mineable oilsands operations is being developed (originally promised for the end of 2012), and it is uncertain if new mines will continue to be approved using traditional wet tailings technologies. As noted in the Lower Athabasca Regional Plan, the framework "could include a regional limit for fluid fine tailings and will focus on the development and implementation of new technologies over the next 10 years." This limit should be binding and enforceable.



### Prohibit end pit lakes

Mine applications that propose the storage of tailings under end pit lakes as their reclamation strategy should not be approved. Existing operations with approved end pit lake plans should be modified to eliminate the need for end pit lakes as long-term storage sites for toxic tailings waste.

To date, approximately 29 end pit lakes have been proposed by the oilsands industry, of which half will be utilized as a permanent tailings repository. These lakes could contain a billion cubic metres of tailings waste underneath a "cap" of fresh water. Regulators have approved a number of end pit lakes (subject to demonstration) as suitable and permanent sites for toxic tailings waste, despite the fact that capping tailings with fresh water has never been done before and no end pit lakes currently exist in the oilsands.



### Enhance surface water monitoring

Disband the Regional Aquatics Monitoring Program and replace it with a comprehensive, scientifically robust monitoring system that is adequately resourced and free of industry influence.

The Governments of Alberta and Canada launched an online portal that will house information and data collected through the joint monitoring program activities under the federal/provincial monitoring plan. The joint portal complements Alberta's existing online oil sands information portal, a web-based tool that provides public access to oilsands water data and other key environmental indicators. These tools have increased the public transparency and accessibility of oilsands data. However, LARP still relies on RAMP, and the need for independent governance and long-term funding of the water monitoring system remain unaddressed.

Want More Information?

Read the Pembina Institute's report *Solving the Puzzle: Environmental responsibility in oilsands development* to learn more about our recommendations.

Download the report at: [www.pembina.org](http://www.pembina.org)