

Water Use Policy Overview for Oil and Gas Development

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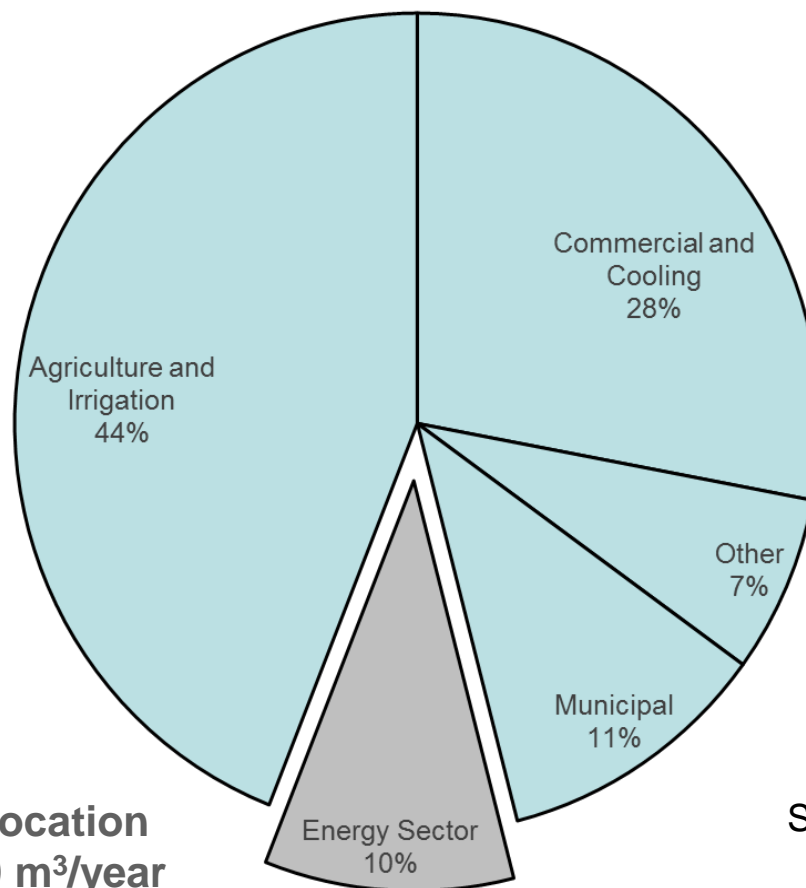
**Wapiti Area Synergy Partnership
June 12, 2018**

Presentation Outline

- **Water Conservation Policy for Upstream Oil and Gas Operations (draft)**
- **Directive for Water Licensing of Hydraulic Fracturing Projects: Area of Use Approach (released Feb 2018)**
- **Water Reuse and Stormwater Use Policy (under development)**

Context

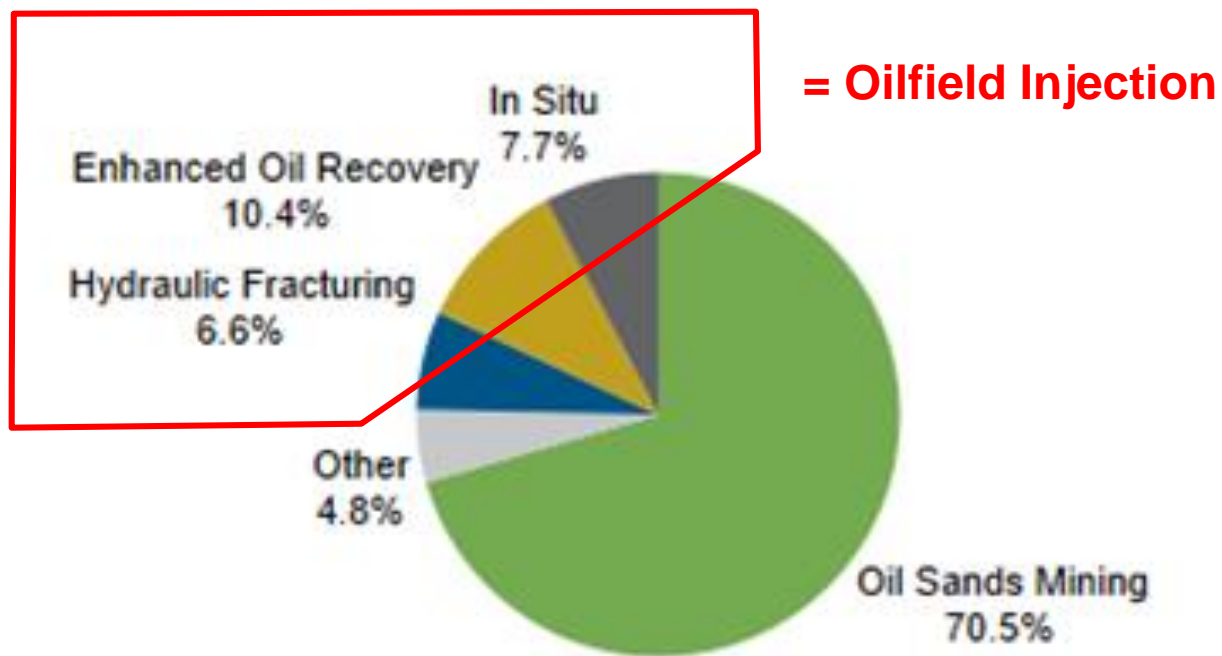
Total Water Allocations in Alberta in 2016



Total Water Allocation
10,198,101,000 m³/year

Source: AEP 2016.

Breakdown of Energy Industry Water Allocations in 2016



Total Energy Sector Allocation (m3)

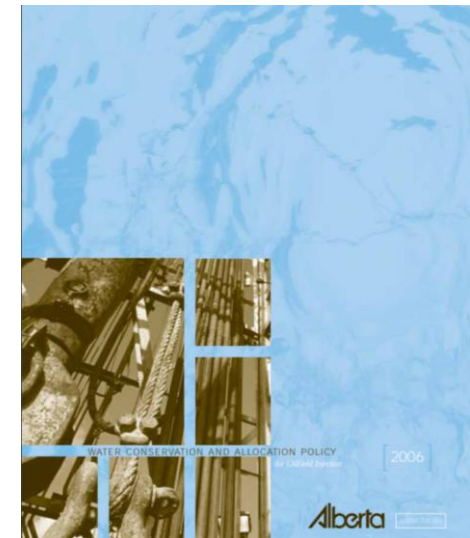
998,738,855

Water Conservation Policy for Upstream Oil and Gas Operations

(Draft)

Background

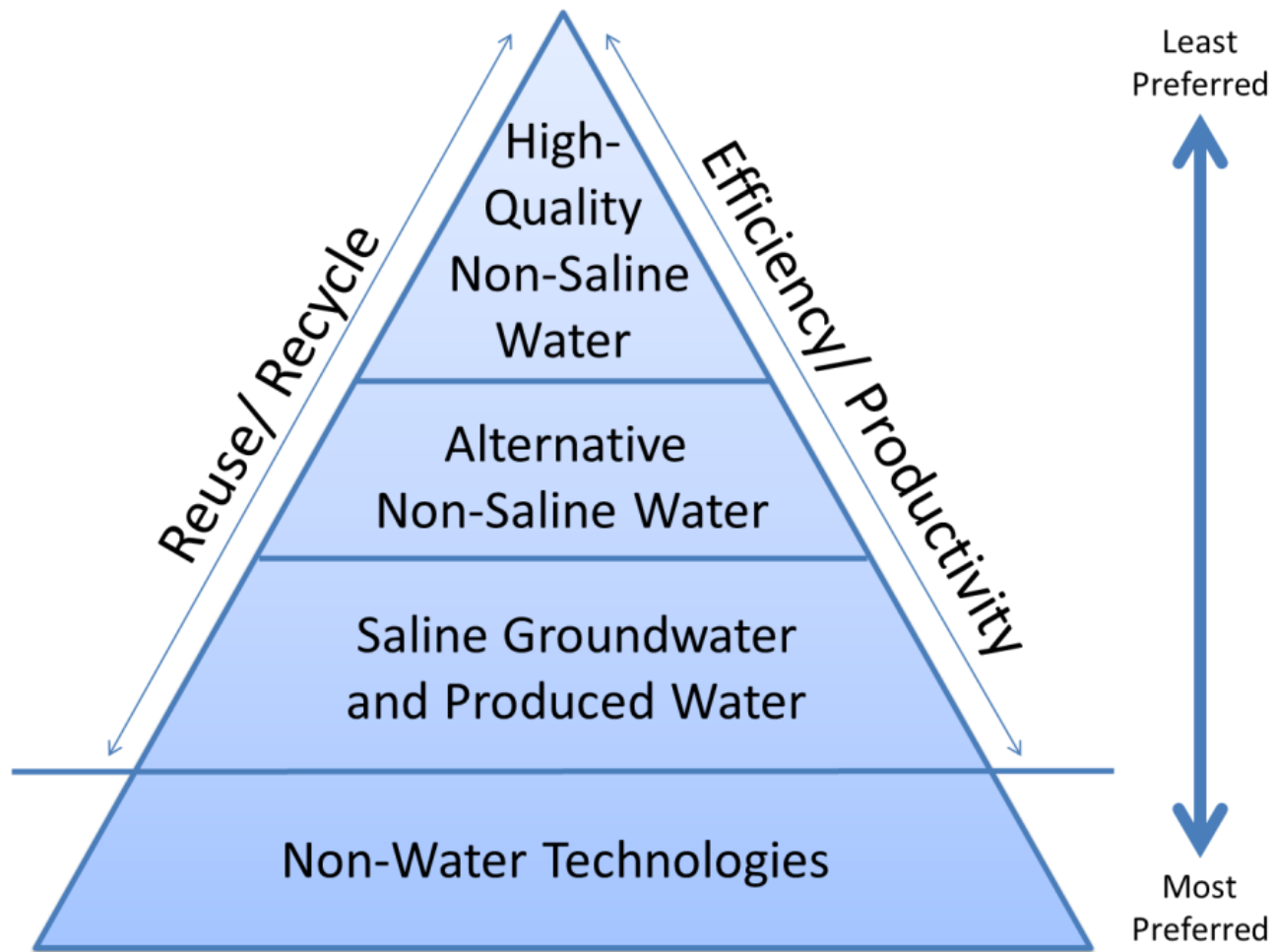
- Significant non-saline (fresh) water demands are projected for upstream oil and gas industry
 - Increasing volumes of water required for commercial-scale multi-stage hydraulic fracturing operations
 - Oil sands mining largest water user – 70% of volume allocated to oil and gas sector
- These two subsectors not covered by *Water Conservation and Allocation Policy for Oilfield Injection (2006)*



Draft Policy Overview

- **Maintain general intent of 2006 *Water Conservation and Allocation Policy for Oilfield Injection***
- **Expand to oil sands mining and multi-stage hydraulic fracturing in horizontal wells**
- **Greater emphasis on the use of alternatives to non-saline sources such as municipal/industrial wastewater and impaired quality groundwater**
- **Assessment of environmental net effects of various water source options**
- **Specific water policy and direction for the 4 subsectors**
- **Detailed subsector specific tools to be developed by AER to implement the policy (not oil sands mining)**

Water Source Hierarchy



Draft Policy Objective

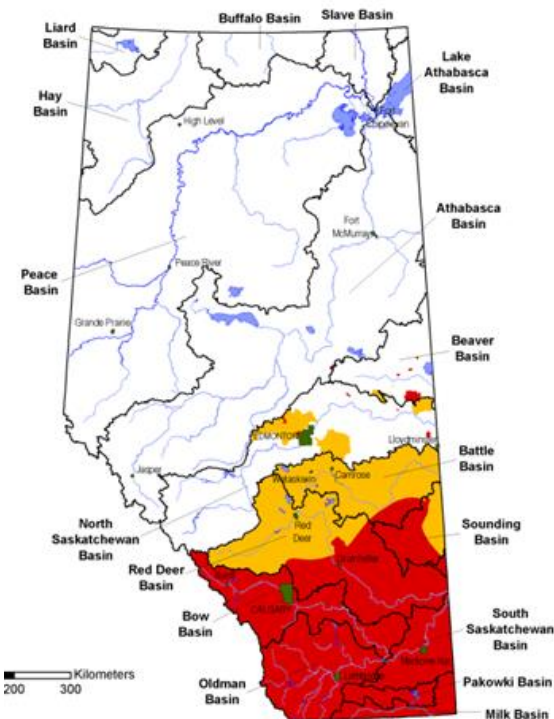
To enhance the conservation and protection of provincial water resources by managing water use for upstream oil and gas operations by recognizing:

- **the preferred use of saline groundwater or alternative non-saline water sources;**
- **opportunities to minimize high-quality non-saline water use;**
- **that water is needed to continue the development of energy resources in Alberta;**
- **that conservation measures will be proportional to regional water availability and demand.**

Evaluation of Water Sources

- Evaluation of alternative sources according to a risk classification system
 - More rigorous evaluation in water-short areas or other areas of water stress
- Evaluation balanced by an environmental net effects assessment
- Alternative source evaluation, environmental net effects assessment, and other relevant information submitted with a non-saline water application.

Water-short Areas Assessment



Alternatives to High-quality Non-saline Water Sources



- Sources preferred to the use of high-quality non-saline water include saline groundwater, produced water and alternative non-saline sources.
- Alternative non-saline sources include:
 - recycled or reconditioned industrial and municipal wastewater, taking return flows into perspective;
 - oil sands mining tailings pond water;
 - non-saline water in direct contact with bitumen deposits;
 - naturally occurring non-saline water containing petroleum hydrocarbon compounds (excluding methane) within formations that contain both water and hydrocarbon resources;
 - non-saline groundwater that is demonstrated to be economically and technologically impractical to use for drinking water or livestock watering purposes, taking into consideration connectivity with surface water and availability of other water supplies in the area.

Environmental Net Effects

- **Quantifiable assessment of air, land, ecosystem impacts of specific water source options, identified by the applicant, for a water allocation decision.**
- **Rigour of evaluation will differ according to place-based water availability and overall risk**
- **Major assessment parameters:**
 - Air (GHG, NOX, venting)
 - Land (disturbed area, wetlands)
 - Energy Use
 - Waste (solid, liquid)
 - Ecosystems (habitat, species at risk, biodiversity, road density)
 - Contamination risks (pipelines, surface storage)

Multi-Operator Water Plans (MOWP)

- **Collaborative water management activities within a sub-regional area (i.e. “play”)**
- **Scale and associated collaborative activities will differ from area to area**
- **Escalating regulatory requirements according to development stage**
- **Infrastructure and water source sharing**
- **Regional assessment of water resources, IFN evaluation, baseline information collection as examples of additional collaborative activities**
- **AER provides regulatory oversight for the development, review and approval of MOWP**

Area Based Regulation Pilot

- Multi-stakeholder panel met Sept 2016 to May 2017
- MD Greenview, focus on water use
- 23 recommendations to AEP/AER to better enable the use of alternatives to fresh water for hydraulic fracturing (June 2017)
- Report available at <https://talk.aer.ca/area-based-regulation>



Enabling the Use of Alternatives to High-quality Non-saline Water by the Oil and Gas Sector in the MD of Greenview

RECOMMENDATIONS TO THE ALBERTA ENERGY REGULATOR
AND ALBERTA ENVIRONMENT AND PARKS
FROM THE MULTI-STAKEHOLDER PANEL
FOR THE
AREA-BASED REGULATION PILOT PROJECT

June 21, 2017

Directive for Water Licensing of Hydraulic Fracturing Projects: Area of Use Approach

Released February 2018

Background

- **Conventional approach to licensing is difficult to apply to longer- life hydraulic fracturing projects**
- **Precise locations of hydraulic fracturing are not known at the time of licence application**
 - **Geographic areas of use are known**
- **Hydraulic fracturing water allocation has largely been done through Temporary Diversion Licences (TDLs)**
- **Longer term, multi year licences allows better management of cumulative effects and improves regulatory certainty**
- **Government of Alberta provides direction to the AER on the licensing approach**
 - **Ensures consistency and alignment with GoA policy and legislation**

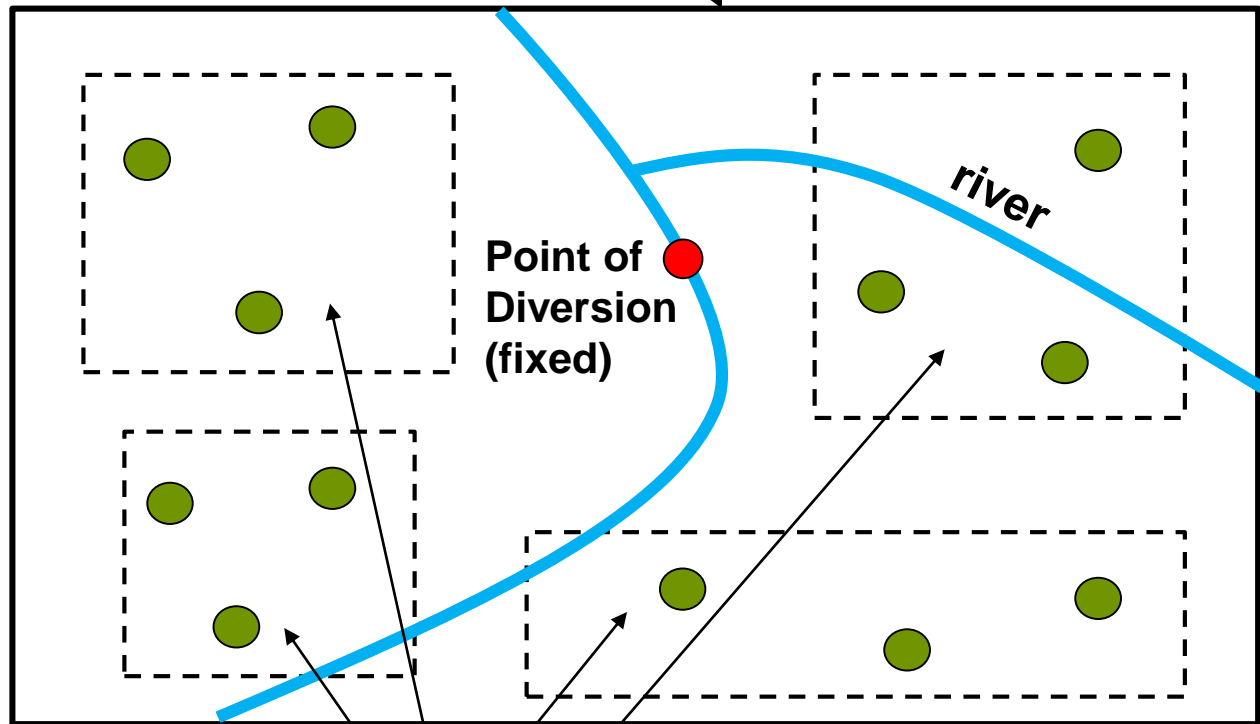
Directive Components

- Alternatives Assessment
- Demonstrated Need for Water – **volume fixed**
- One Point of Diversion per Licence
- Point of Use Area
 - **Boundary** – aligns with mineral lease area, small buffer, cannot be expanded
 - **Size** – maximum 16 townships, exceptions where environmental benefit is demonstrated
- Term length – **10 years, renewable**
- More information

<http://aep.alberta.ca/water/legislation-guidelines/default.aspx>

Area of Use Approach

Point of Use Area Boundary



Mineral Leases

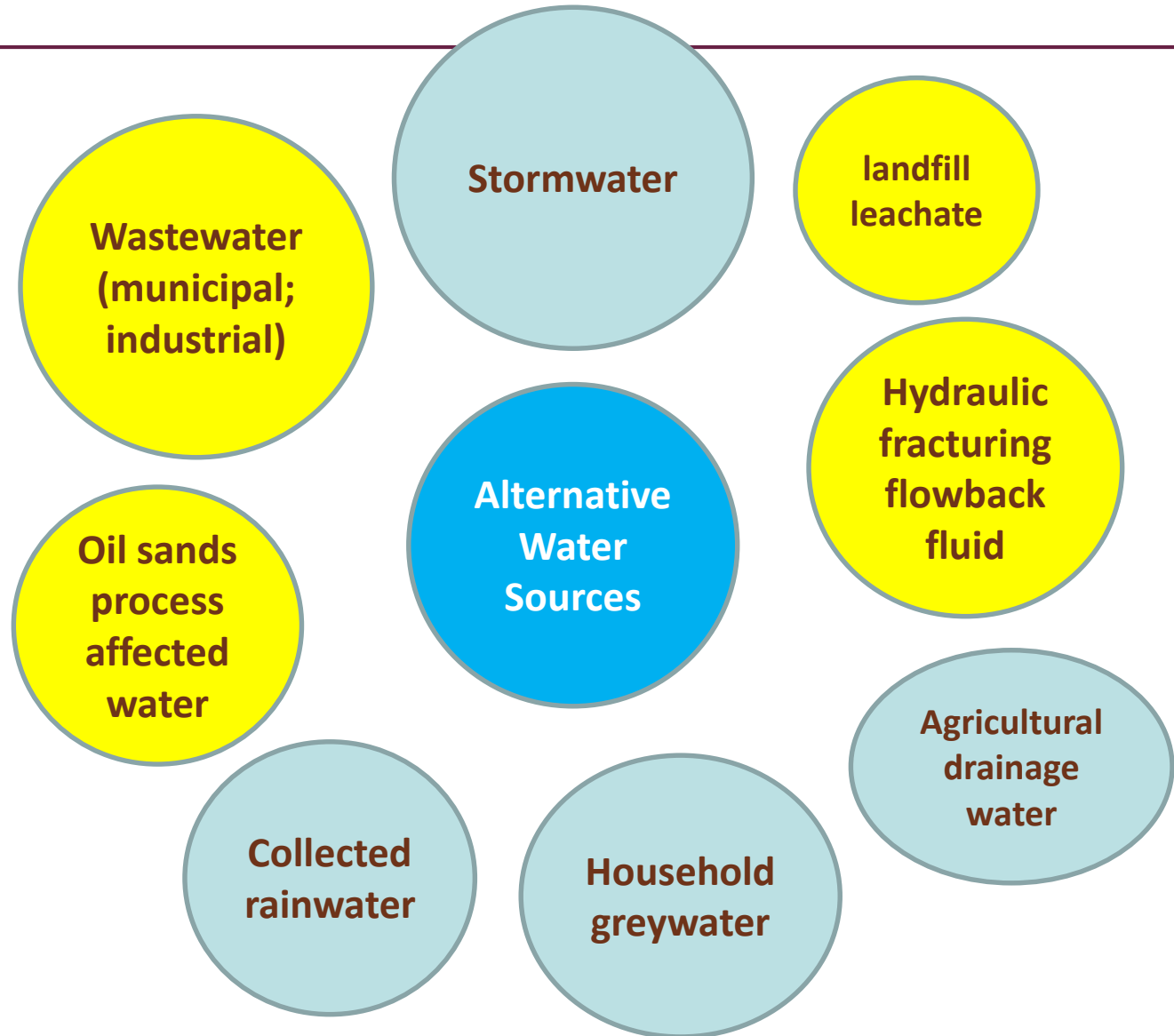


Points of Use
(specified upon use)

Water Re-use and Stormwater Use Policy

(under development)

Alternative Water Sources in Alberta



Many Regulators = Many Challenges

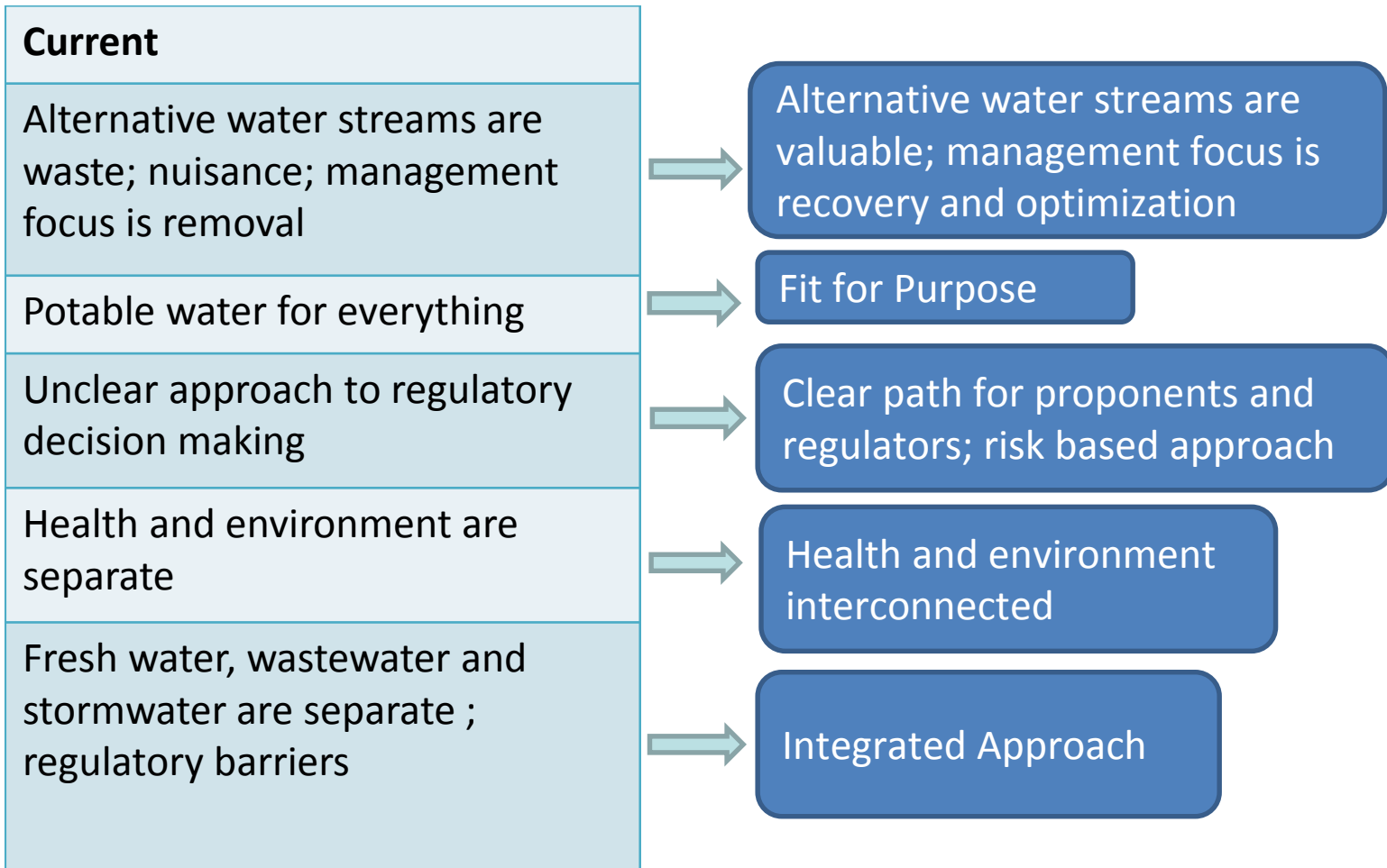
• Regulators

- Alberta Environment and Parks
- Alberta Energy Regulator
- Alberta Municipal Affairs
- Alberta Health
- Alberta Health Services
- Alberta Agriculture and Forestry
- Canada Food Inspection Agency
- Municipalities

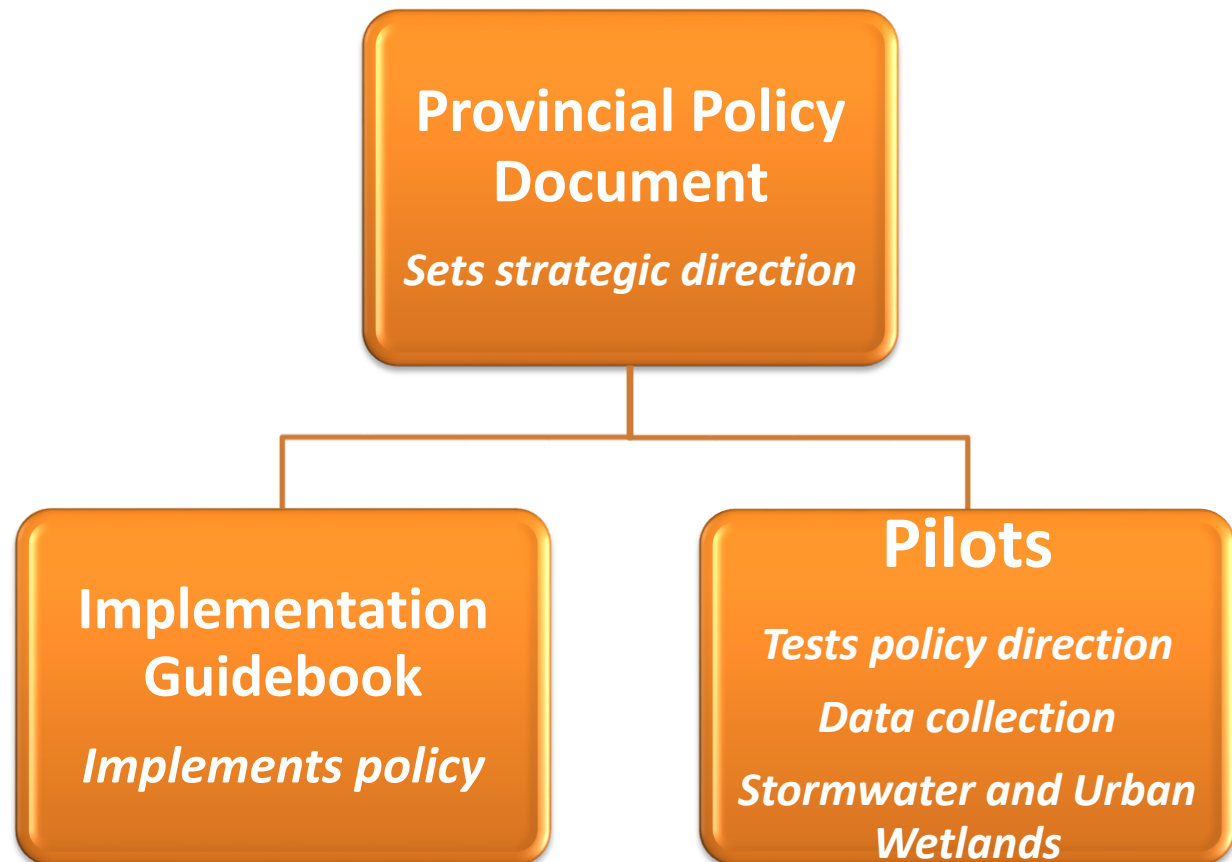
• Challenges

- Complicated regulatory system
- Health outcomes not set for end uses
- Regulators uncertain
- Proponents uncertain
- Unregulated projects going ahead
- Long processing times
- Inconsistent decisions
- Water quantity and quality legislation not written with re-use in mind

Desired Policy Shifts



Project Components



Future Policy

Intent








- **Offset fresh water use and augment existing water supplies**

Outcomes

- **Albertans understand the value of alternative water sources and how their use can contribute to effective water management.**
- **Environmental and human health risks of water reuse and stormwater use activities are managed and mitigated using a risk based approach.**
- **Water reuse and stormwater use activities increase over time**



Project Application Process

Step 1: General Project Description	Step 2: Regulatory Pre-Screening	Step 3: Legislative, Policy and Stakeholder Inventory	Step 4: Water Availability Assessment	Step 5: Risk Assessment	Step 6: Project Design and Operational Plan	Step 7: Monitoring Plan	Step 8: Government of Alberta approval
<p>Identify location, volumes, purpose, source, end use, demand, connection to water bodies</p> 	<p>Provides a general idea of the level of regulatory scrutiny their project may require</p> <p>Level 1: minimum level of regulatory oversight Level 2: moderate level of regulatory oversight Level 3: high level of regulatory oversight Level 4: unlikely to be approved</p>	<p>Early identification of applicable:</p> <ul style="list-style-type: none"> Legislation Policies Plans Directives Impacted Stakeholders 	<p>Determine Hydrologic impacts of project; volume of stormwater available</p> 	<p>Identify risk level of project</p> <p>Microbial and/or Chemical</p> 	<p>Mitigate potential hazards from source to end use; reduce risk of a hazardous event occurring</p> 	<p>Show how the system will be actively managed</p> 	<p>Submit package to Government of Alberta</p> 

Questions?

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