

# BEHAVIORAL SUCCESS INDICATORS (BSIs): A REVIEW AND APPLICATION

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## BACKGROUND

### POSITIONING OF BSI WORK IN FES RESEARCH

Future Energy Systems (FES) is committed to using a multi-disciplinary approach to researching and designing methods to transition Alberta's current energy systems to a more mixed and balanced system, one that includes more renewables. As part of this transition, land and water reclamation for older systems needs to be improved and new forms of reclamation for technologies like geothermal and hydro need to be designed. Behavioral approaches to and indicators of success must also be developed and integrated into this design.

In the case of the Resilient Reclaimed Land and Water Systems Theme, the key components with which the BSIs are involved include "Disturbances," "Reclamation," "Risk," "Engagement," and "Governance" components.

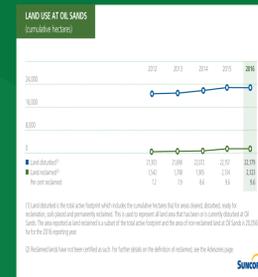
## AIMS AND OBJECTIVES

### IDENTIFYING BEHAVIORAL INDICATORS

The objective of our BSI project is to review and synthesize the organizations and management theory (OMT) literature on behavioral success indicators in order to develop potential measurement schemes for local energy land and water reclamation projects and then to be design tests of those measures.



Picture: Example of Wapisiw Suncor's Nikanotee Fen



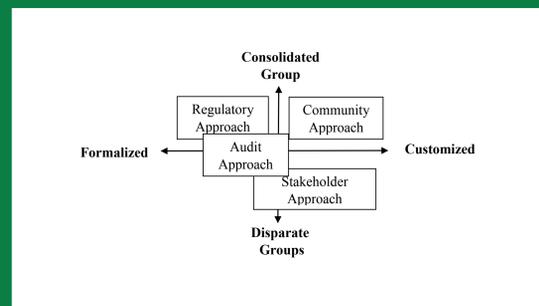
## RESULTS

### THE LITERATURE, INDICATOR TYPES AND VALUES, EARLY INDICATOR DESIGN

Through undirected and directed search and review, we have identified the regulatory, audit, stakeholder and community consensus approaches to BSIs. We have isolated some key components from each and are constructing and testing our own synthetic framework. The four approaches and their different nature are depicted to the right.

To help develop our framework, we are examining current critical indicators for land and water reclamation at the corporate level. To date, we have isolated critical indicators from regulatory and audit sources from local AB companies involved in land & water energy reclamation issues. A selection of some of these key indicators is shown in the table.

The preliminary framework on the behavioral side for combining them has two key processes – one involving key biophysical metrics from regulatory and audit schemes, and the other involving community stakeholder consensus measures. These two will wrap to create a new agreed upon set of indicators.



Canada's Oil Sands Innovation Alliance (COSIA)	Reclamation Land Certification After Operation
BP	
Canadian Natural	
Cenovus*	✓
Conoco Phillips	✓
Devon	✓
Imperial	
Nexen	
Suncor*	✓
Syncrude*	✓
Teck	✓

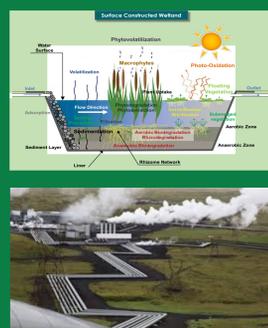
Key GRI Indicators	Global St. Comp	Reg. Trend Setter	Bolster Reputation	Proactive Beyond Audit
Companies				
Cenovus			V	V
Shell	V			
Suncor	V	V	V	V
Syncrude	V			V



## FUTURE DIRECTIONS

### FOCUS GROUP, PILOT EXPERIMENTS AND FIELD TEST ASSESSMENTS

We are designing an experiment to solicit feedback from Alberta community stakeholders about local passive absorption wetland design. The biophysical design (simplified to the right) is only one appealing version of a passive wetland, and perhaps not the main one preferred by the community of stakeholders. We hope to scope different designs with selected a focus group of stakeholders and then to test the designs biophysically and with a representative stakeholder community.



We are also collaborating with the geo-thermal project to examine land & water impacts from a biophysical and a socio-economic angle. This assessment will include the costs and benefits of the regional operation, along with assessing stakeholder engagement.

## PARTNERS

### RESILIENT RECLAIMED LAND AND WATER SYSTEMS PARTNERS AND FES PARTNERS

The partners for the BSI study of land & water reclamation BSIs include:



We are also part of the larger Resilient Reclaimed Land and Water Systems Theme, hence the wider set of partners (corporate, university-based, NGO, and governmental) are also partners on BSI development.

## FES PROJECT OVERVIEW

**Resilient Reclaimed Land and Water Systems:** Environmental issues associated with energy development, management and supply must be addressed for all energy systems. Regardless of the type, source or transport mode of energy, land and water will be affected. Hence, land and water will be integral components of all future, current and legacy energy systems, addressing land and water use, management, conservation and reclamation. After disturbance from energy focused activities, land and water require reclamation to resilient systems that support desired end land uses. Reclamation success can be achieved if metrics to determine trajectories and final outcomes are robust and science based, with good communication among stakeholders and practitioners. Our theme projects address a systemic approach to energy production and delivery and cross theme benefits.

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This research has been undertaken thanks in part to funding from the Canada First Research Excellence Fund.