

Climate Change Impacts to the Oil & Gas Sector in Western Canada – How are we Preparing?

WEBINAR PRESENTATION

by

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Presentation Outline

- ◆ Project Team and Steering Committee
- ◆ Objectives and Background
- ◆ Methods
- ◆ Results and Recommendations
- ◆ Study Limitations
- ◆ Acknowledgements



Project Team

- ◆ **Melanie Karjala** – Resources North Association
- ◆ **Al Wiensczyk** – Trout Creek Collaborative Solutions
- ◆ **Dr. Shawn Morford** – Benchmark Social Research and Program Evaluation
- ◆ **Jason Morris** – University of Northern British Columbia

Steering Committee

- ◆ **Jenna Dunlop/Mikaela McQuade** – Canadian Association of Petroleum Producers (CAPP)
- ◆ **Amanda Affonso/Kai Horsfield** – Canadian Energy Pipeline Association (CEPA)
- ◆ **Howard Madill** – BC Oil and Gas Commission
- ◆ **Jennifer Pouliotte** – BC Ministry of Environment – Climate Change Secretariat
- ◆ **Kim Graybiel** – Sask. Ministry of Environment – Climate Change
- ◆ **Nicole Spears/Yvette Thompson** – Alberta Dept. of Environment and Sustainable Resource Development – Policy Division

Objectives

- ◆ Assess the current state of sector awareness and action on climate change adaptation
- ◆ Identify opportunities to improve awareness and preparedness
- ◆ Identify opportunities to coordinate efforts for climate change adaptation.

Background

◆ Why?

- Need to assess the current state of awareness and action on adaptation in the energy sector was identified as a priority by the Energy Working Group of the Adaptation Platform

◆ Where?

- Oil and gas sector in Western Canada (BC, AB and SK)

Background

◆ Climate Change Impacts

- Increased frequency and severity of extreme weather events (storms, floods, droughts)
- Increased frequency and severity of natural disturbances (forest fires, landslides)
- Changes to temperature and precipitation patterns

Background

- ◆ Potential impacts on oil and gas sector

- Physical damage

- ◆ Infrastructure

- ◆ Access

- Operations

- ◆ Shortened operating windows

- Reduced effectiveness of sector strategies and activities



Methods

- ◆ On-line survey – March 2014
 - Distributed by email to 191 potential recipients
 - Key energy sector leaders

- ◆ One-on-one Interviews – Aug.-Sep. 2014
 - 13 people, identified by project team and steering committee, were contacted and asked to participate in phone interviews

Research Questions

- ◆ Corporate culture and policy regarding climate change?
- ◆ Awareness of potential climate change impacts on operations and infrastructure?
- ◆ Barriers to adaptation?
- ◆ Strategies being developed?
- ◆ Information needs and best methods?

Response rate

- ◆ 28 responses to the survey
 - ◆ 15% response rate
- ◆ 6 people interviewed



Survey Respondent Demographics

- ◆ All oil and gas sector employees
- ◆ All business areas represented
- ◆ Experience ranged from <5yrs to >20yrs
- ◆ Age – majority >40yrs (70%)
- ◆ Education – All post secondary

Survey Respondent Demographics

◆ Location of operations

- ◆ 10 – Saskatchewan
- ◆ 22 - Alberta
- ◆ 13 – British Columbia
- ◆ Other – Newfoundland, Manitoba, Yukon and US

◆ Company size

- ◆ 10 < 100 employees (Small)
- ◆ 9 – 100-500 employees (Medium)
- ◆ 9 - > 500 employees (Large)

Interviewee Demographics

- ◆ 5 oil and gas company employees
- ◆ 1 consultant
- ◆ All three provinces represented
- ◆ All business areas represented with the exception of oil pipelines and oil and gas exploration
- ◆ Company Size: 4 Large, 2 medium

Results – Extreme Weather

- ◆ Wide variety of opinions and experiences regarding climate change and its potential impacts.
 - ◆ 46% had observed extreme weather events
 - ◆ Only 15% of those thought the event could be due to climate change.
 - ◆ 62% were not sure.
- ◆ For Saskatchewan
 - ◆ 90% had observed extreme weather events
 - ◆ Only 10% thought that they could be due to climate change
 - ◆ 67% were not sure.

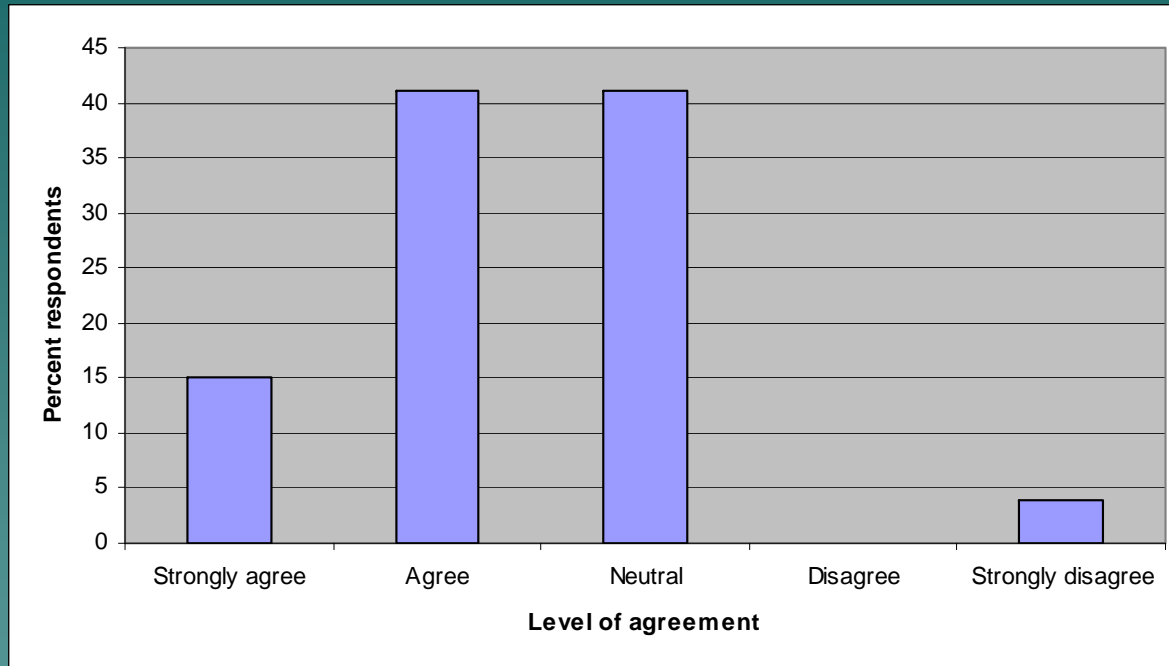
Results – Extreme Weather

“Connection between climate and weather difficult to ascertain.”

“Scientific facts do not support climate change. This was just a once in 50 year event.”

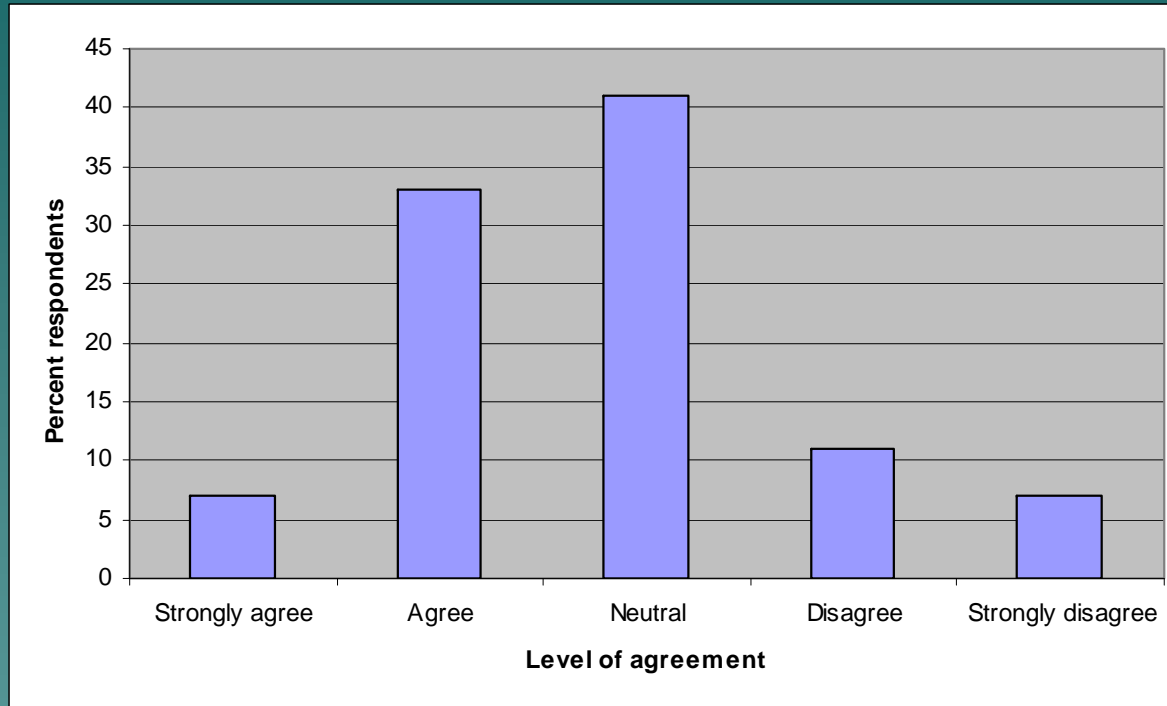
‘United Nations Panel on Climate Change has been found to have been cooking the books on the weather as being constantly warmer.’

Results – Changing Climate



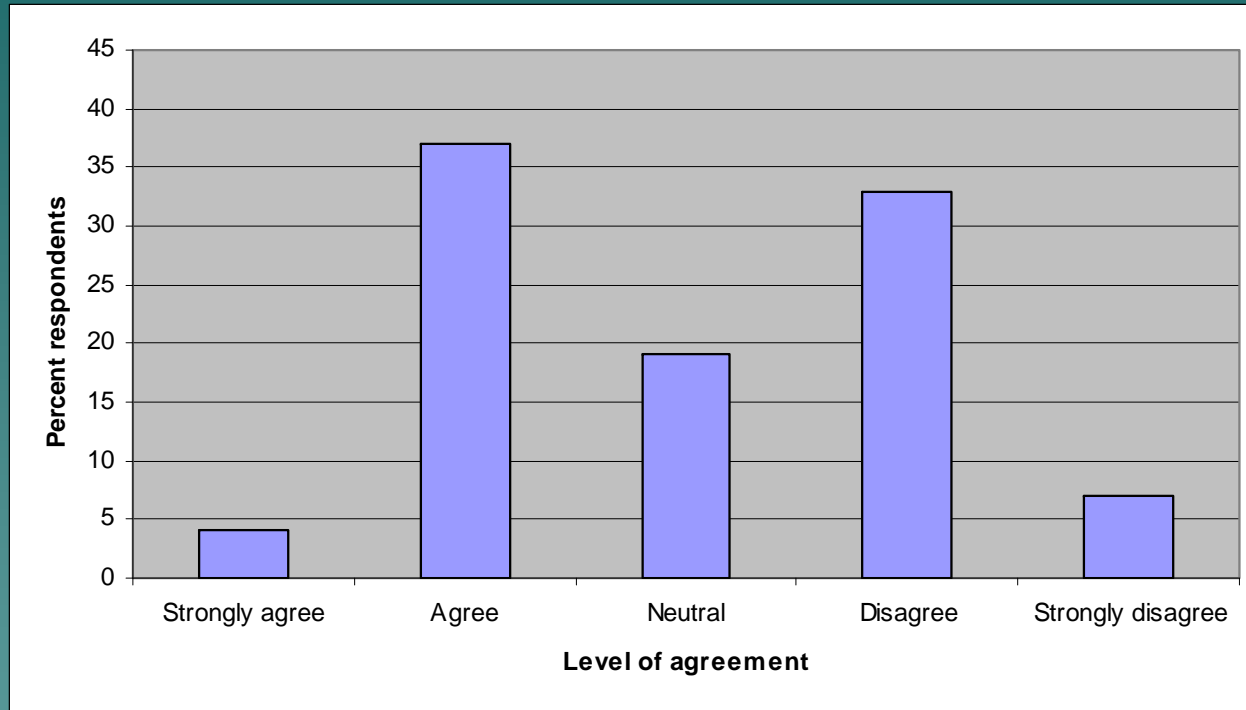
- ◆ Differences between provinces, company business area, company role and company size
- ◆ All interviewees agreed

Results – Potential Impacts



- ◆ Differences between company business area
- ◆ Potential impacts accounted for in design standards and criteria

Results – Decision Making



- ◆ Differences between provinces, company business area, company role and company size

Results – Decision Making

◆ Company decision-making and extreme weather

	Yes %		No %		Unsure %	
	All	Sk	All	Sk	All	Sk
Risk Management Planning	44	30	41	50	15	20
Operational decisions	26	30	63	60	11	10
Long-term forecasting/planning	37	40	52	50	11	10
Infrastructure design	37	30	48	60	15	10
Long-term strategic plans	26	20	52	60	22	20

- ◆ Differences between provinces, company business area and company size

Results – Decision Making

- ◆ All Interviewees indicated that their company or clients plan and implement preparatory activities
 - Not climate change specific but to mitigate risk
 - Risk management plans
 - Emergency preparedness plans/procedures

Temperature Change Impacts

- ◆ Timing of winter freeze/spring melt
 - Compressed winter field season
 - Access road upgrades

- ◆ Melting permafrost
 - Difficult summer operations
 - Negatively impact access

Precipitation Changes Impacts

- ◆ Increased winter snowfall/spring melt
- ◆ Increased rainfall in other seasons
 - Shortened field seasons
 - Increased groundwater monitoring
 - Increased risk of floods
 - Increased erosion
 - Changes to slope stability

Disturbance Pattern Change Impacts

- ◆ Increased need for forest fire preparedness and evacuation plans
- ◆ Increased local geological change monitoring
- ◆ Decreased access to sites
- ◆ Increased risk of damage to infrastructure from fires or flooding



Climate Change Strategies

- ◆ 40% of respondents said their company had a climate change strategy
 - ◆ Differences between Provinces, company business area and company size
- ◆ Saskatchewan – no respondents said that their company had a climate change strategy
- ◆ Infrastructure design
- ◆ Emergency preparedness plans

Government Regulations, Policies, and Standards

- ◆ 37% of respondents said current government policies and standards made it difficult to modify management practices
 - ◆ Differences between provinces, company business area and company size
- ◆ Saskatchewan – only 29%

Government Regulations, Policies and Standards

- ◆ Barriers to climate change adaptation
 - Most respondents (63%) neutral
 - ◆ Provincial differences, company business area and company size
 - Saskatchewan – 43% neutral.
 - Interviewees felt that there were some barriers
 - ◆ Regulatory process slow and lacked flexibility.

Summary of Key Messages

- ◆ Wide variety of opinions on climate change and its potential impacts
- ◆ Climate change adaptation low on priority list of junior and mid-sized oil and gas respondents
- ◆ Government policies seen as a hindrance to climate change adaptation

Summary of Key Messages

- ◆ Key information gap – local/regional climate change monitoring data and models/forecasting tools
- ◆ Industry Associations most trusted information source and best way to distribute information to sector leaders
- ◆ On-line survey not the most effective method for engaging the sector in the conversation about climate change.

Recommendations

- ◆ Multi-faceted and comprehensive outreach approach will be needed to engage sector in climate change adaptation discussions
 - Integrate climate change adaptation as a component of risk management outreach
 - Pay particular attention to small companies
 - Use risk and cost reduction context in discussions
- ◆ Increased efforts to gather local/regional monitoring data and develop models/forecasting tools

Recommendations

- ◆ Continued monitoring of infrastructure design criteria and standards
- ◆ Government policy analysis
- ◆ Industry Associations take lead role in identifying collaboration opportunities for coordinated climate change adaptation strategies
- ◆ “Extreme weather events” and “climate variability” better terms to use than “climate change”

Study Limitations

- ◆ Non-probability Sample Method
- ◆ Missed Responses
 - Incorrect email
 - Wrong person within the company

Acknowledgements

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Thank You!

- ◆ Full survey report and regional summaries are available online at www.resourcesnorth.org
- ◆ Contact me for further details at
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 - Phone: 250-614-4354

Questions?