Carbon Competitiveness Incentive Regulation

Presentation to Smart Prosperity Economics and Environmental Policy Research Symposium

February 28th, 2018

Climate Leadership Plan November 2015

- Coal Phase Out
- Energy Efficiency
- Cap on Oil Sands Emissions
- Methane
- Carbon Pricing

Carbon Competitive Incentive Regulation (CCIR)

- Meaningful emissions reductions
- Supports competitiveness of highly EITE industry
- Made-in-Alberta
  - Extensive engagement
  - Sensitive data and modelling
  - Stringency set through: price, tightening rate, benchmarks and baseline
- Risk of leakage addressed through:
  - Free allocations
  - Sector benchmarking
  - Phase-in and transition support
- Transparency
  - Defines EITE and competiveness in regulation
- Continuous improvement and review periods

CCIR by the Numbers

- Economic sectors covered: 13
- Percentage of Alberta economy that is EITE: 20%
- Facilities regulated: 130
- CCIR share of Alberta emissions in 2018: 57%
- Total forecast GDP for 2018: $352B
- GDP represented by CCIR sectors: 27.4%
- Stakeholders consulted in reg. development: 200
- Full-day sessions held to develop regulation: 12
- Face-to-face meetings with ENGOs, Industry, Academics: hundreds
- Permutations of output-based allocations analyzed: 685
- Data points generated: millions
- Gigabytes worth of information: 4
- Hours briefing Executive Council: dozens
- Average policy cost per barrel of in situ bitumen: $0.50
- Market differential per barrel of heavy crude: around US$28/bbl
- Innovation funding to support industry transition: $1.4B
- Carbon levy rebates to Albertans over three years: $1.5B

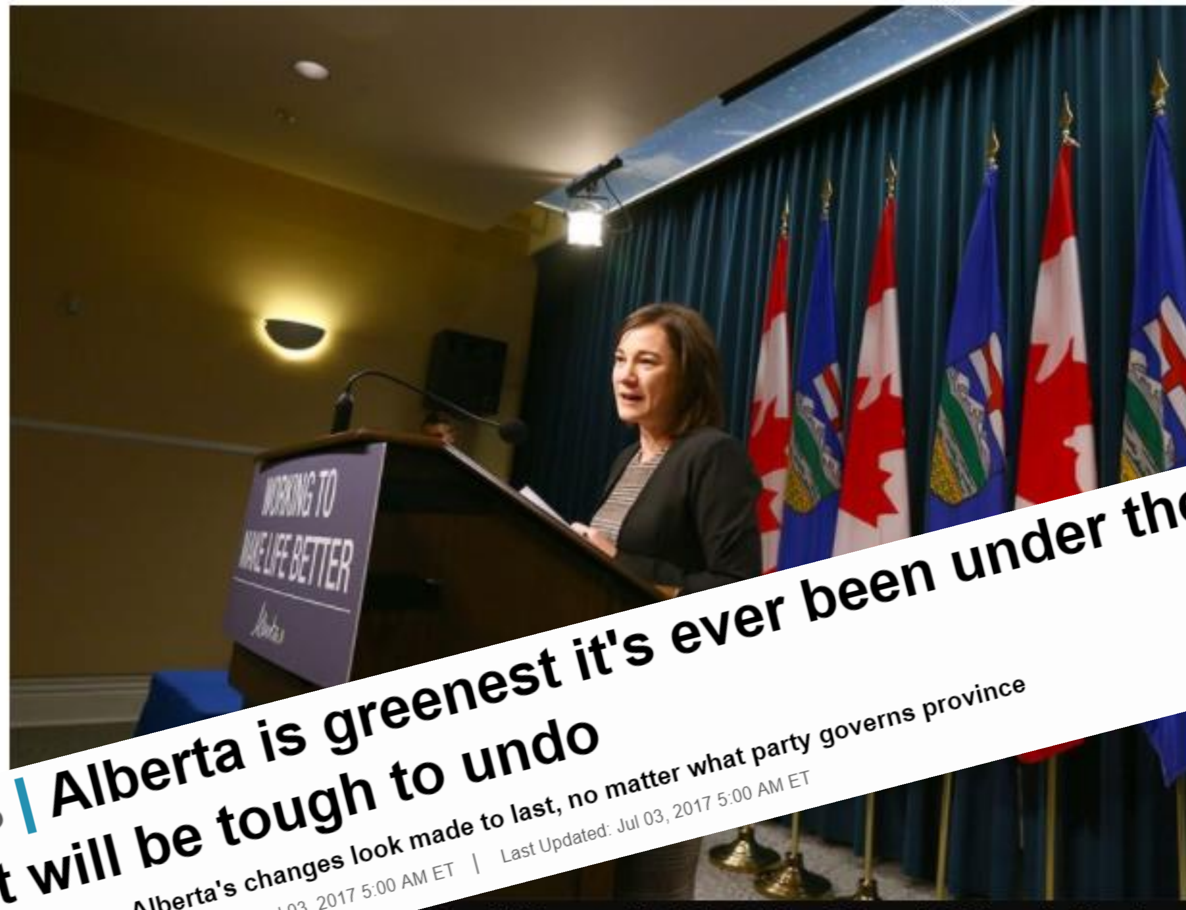
Alberta

Varcoe: Alberta's new carbon tax on industry will cut emissions, but drive up costs

CHRIS VARCOE, CALGARY HERALD

More from Chris Varcoe, Calgary Herald

Published on: December 7, 2017 | Last Updated: December 7, 2017 10:07 AM MST



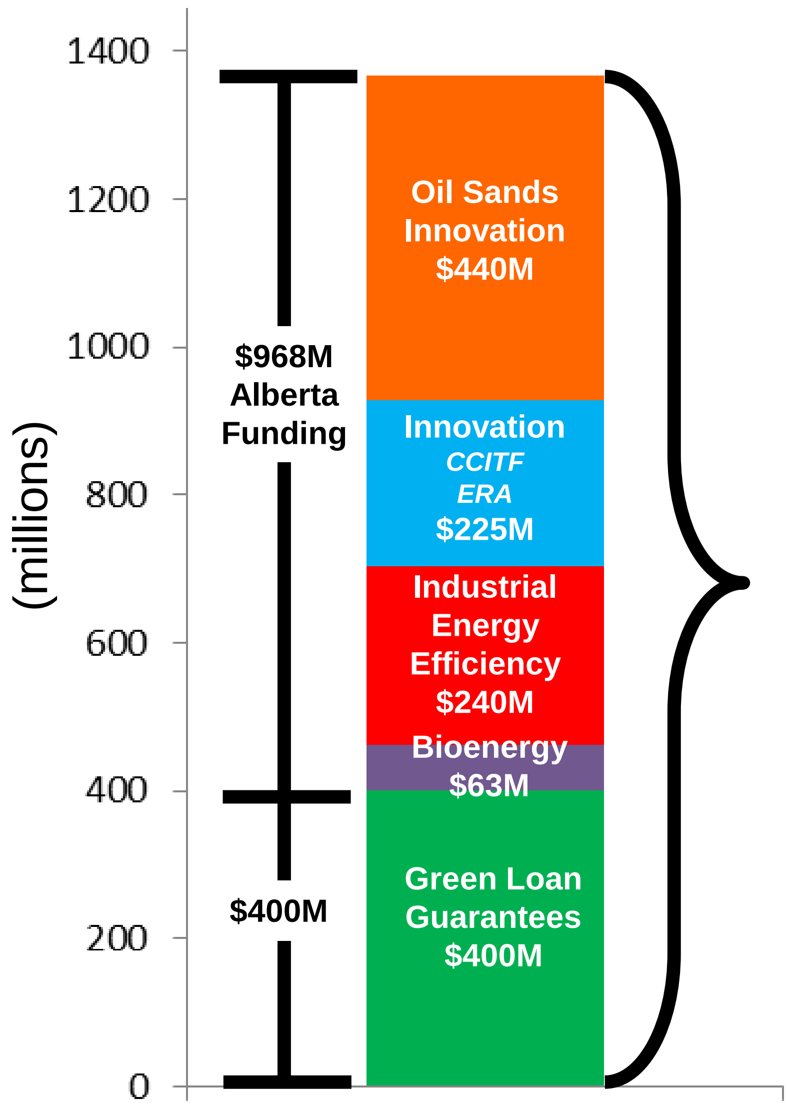
...nt and Parks and Minister responsible for Climate Change Office speaks in Calgary about the carbon ... on Wednesday, December 6, 2017. Jim Wells/Postmedia

ANALYSIS | Alberta is greenest it's ever been under the NDP and that will be tough to undo

...ths into carbon plan, Alberta's changes look made to last, no matter what party governs province

...son, CBC News Posted: Jul 03, 2017 5:00 AM ET | Last Updated: Jul 03, 2017 5:00 AM ET

Innovation Funding



Announcement
$1.4 Billion

Success Factors

- Commitment of Premier and Cabinet
- Role of market-access meta-objective
- Governance Structure
  - Cabinet Committee
- Stakeholder and public engagement
- Made-in-Alberta – levers
  - Phase in and review period
- Data
- External and academic expertise
  - Climate Leadership Panel Report

Competitiveness

Blake Shaffer @bcshaffer

Following

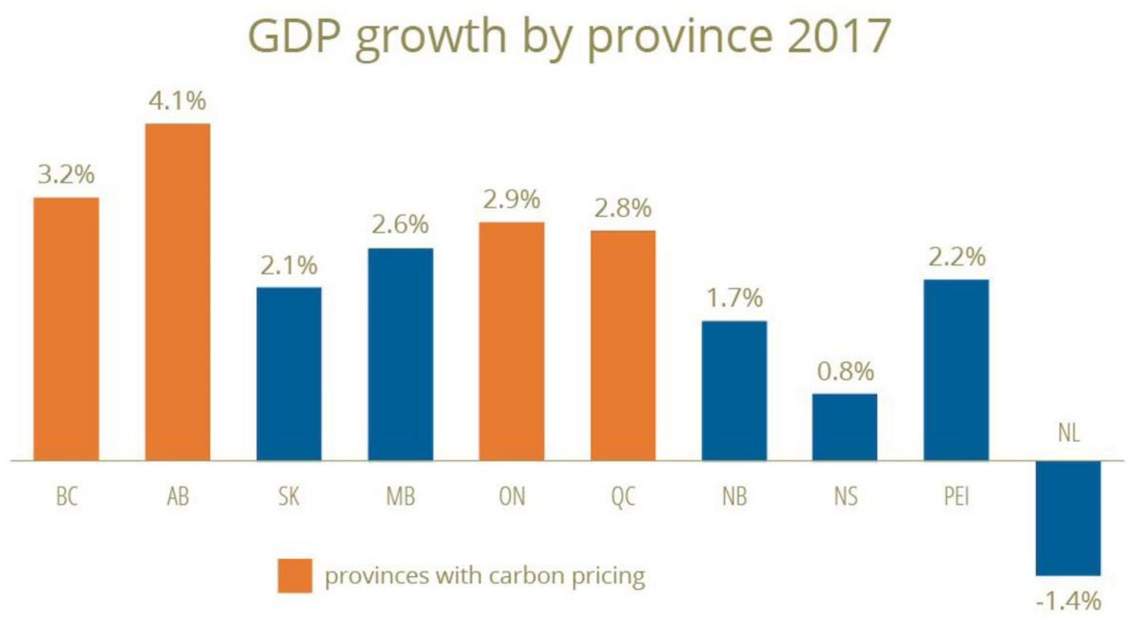
This, plus Suncor's recently announced 700MW cogen slated for 2022, means a sizeable shift towards gas gen in Alberta's power grid is coming very soon.

TransAlta @TransAlta
We're moving up our #coaltogas conversions for Sundance 3-6 and Keephills 1 & 2 to 2021-2022, a year earlier than originally planned. Once converted, the units are anticipated to be able to run to 2031-2039 – a...

10:26 AM - 6 Dec 2017

Competitiveness

4 provinces led Canada in economic growth. **All while pricing carbon pollution.**



PEMBINA institute

Research Questions

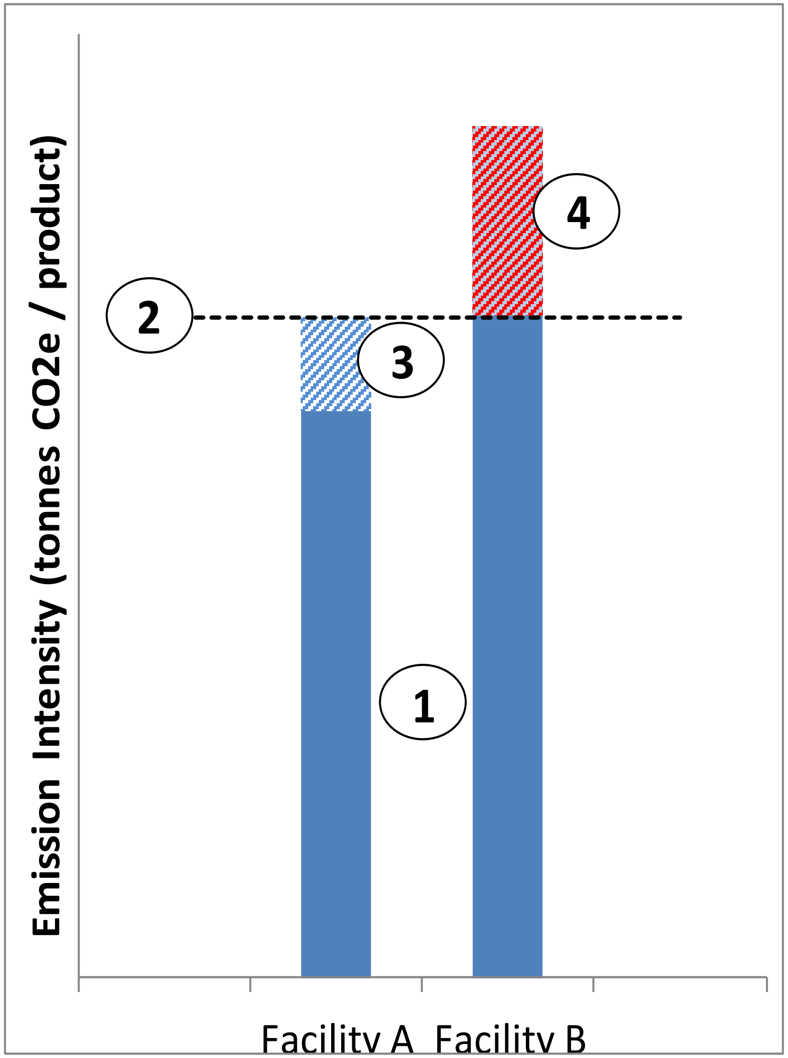
- Correlation with environmental regulation and economic growth – see OECD Chief Economist Catherine Mann
- Comparing stringency and competitiveness across sectors
- Measuring commitment of government and correlating to policy structure
- Importance of institutions and governance structures
- Role of elites (Engagement, Lobbying, Outcomes)
  - Public intellectuals
  - Industry, ENGOs
- Path dependency
  - How did existing policy framework and institutions shape outcomes?
- Best predictors of policy durability

Questions?

Background Slides

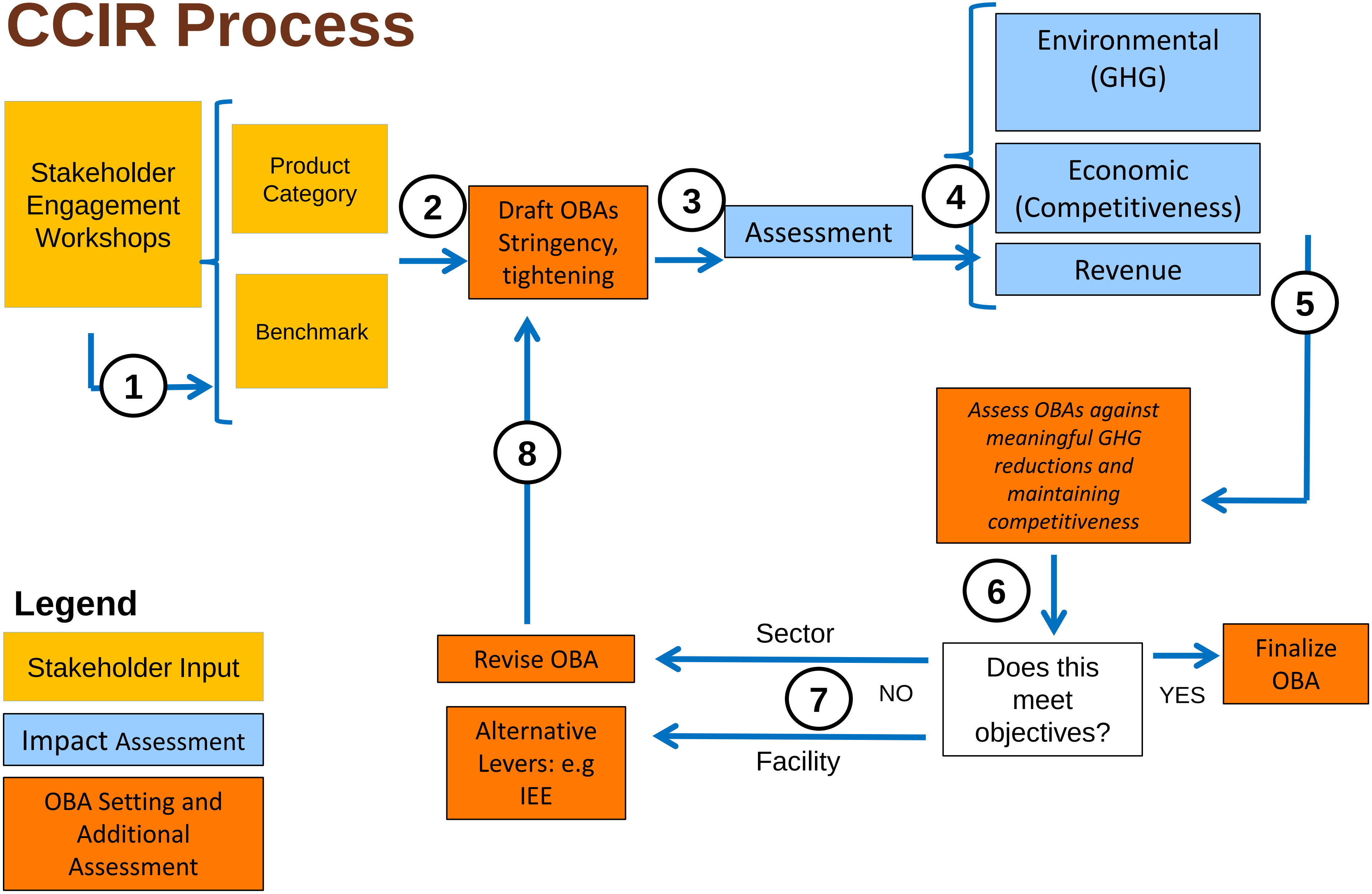
What is an OBA?

1. Product emissions intensity (solid blue).
2. OBA is set at top-quartile (or similar) performance. Emissions below the OBA are not priced.
3. Emissions below OBA generate credits.
4. Emissions above OBA have a compliance obligation – payment or submission of offsets or emission performance credits.



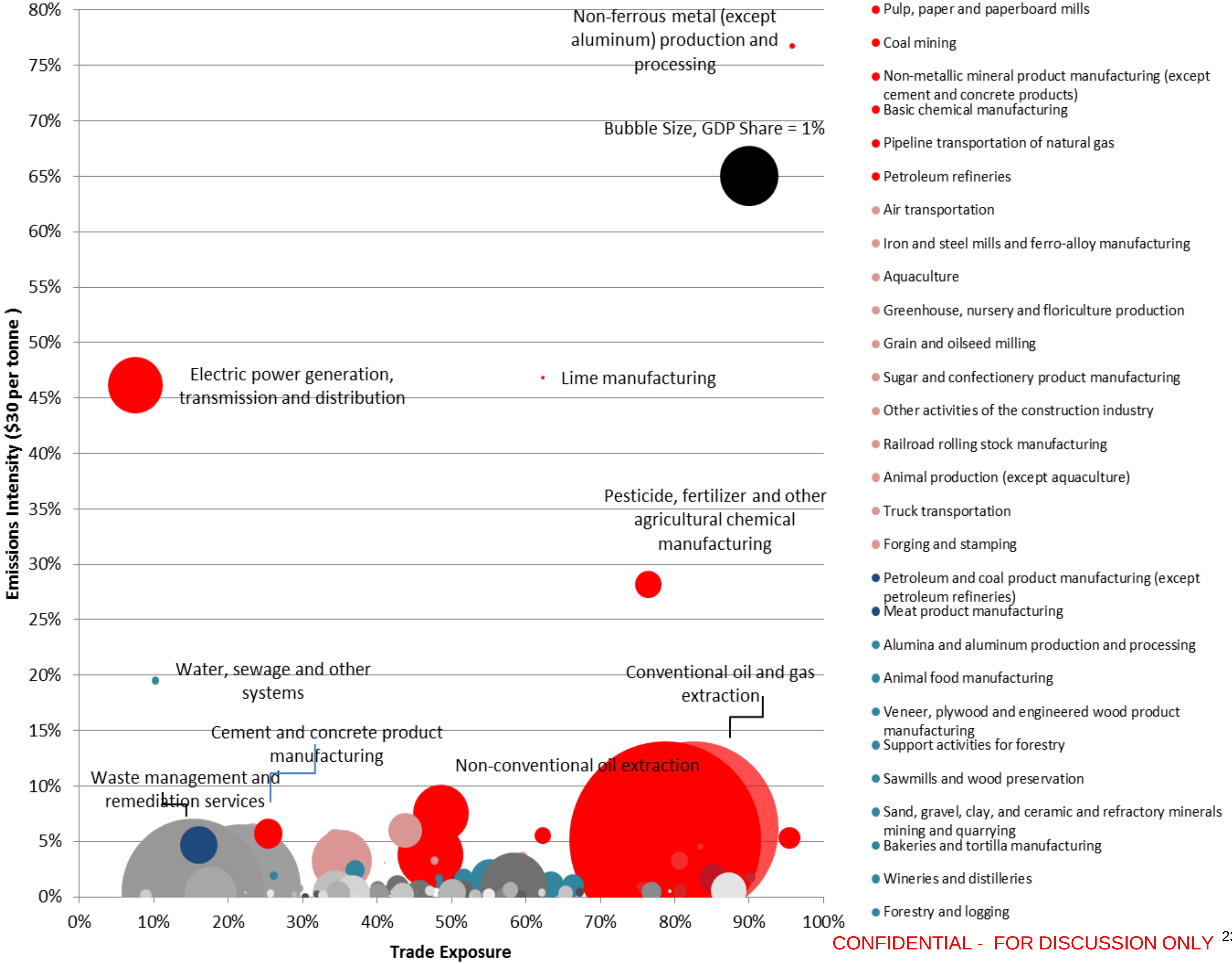
CONFIDENTIAL ADVICE TO CABINET

CCIR Process



EITE Criteria

- Combines two metrics – emissions intensiveness and trade exposure
  - Emissions intensiveness - Carbon costs per unit of gross value added
    - Carbon costs at $30 per tonne
    - Considered costs to the sector in the absence of the free allocations:
      - For sectors with facilities covered under SGER - carbon price applied to all emissions (i.e. combustion, process, fugitive emissions etc)
      - For other sectors – carbon price applied to emissions that would be covered by the carbon levy
  - Trade exposure = imports + exports / imports + production
    - Considered imports and exports to and from Alberta
- Based on review of criteria in other jurisdictions (e.g. California)


80%
75%
70%
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Emissions Intensity ($30 per tonne)
Non-ferrous metal (except aluminum) production and processing
Bubble Size, GDP Share = 1%
Electric power generation, transmission and distribution
Lime manufacturing
Pesticide, fertilizer and other agricultural chemical manufacturing
Water, sewage and other systems
Conventional oil and gas extraction
Cement and concrete product manufacturing
Waste management and remediation services
Non-conventional oil extraction
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Trade Exposure
Pulp, paper and paperboard mills
Coal mining
Non-metallic mineral product manufacturing (except cement and concrete products)
Basic chemical manufacturing
Pipeline transportation of natural gas
Petroleum refineries
Air transportation
Iron and steel mills and ferro-alloy manufacturing
Aquaculture
Greenhouse, nursery and floriculture production
Grain and oilseed milling
Sugar and confectionery product manufacturing
Other activities of the construction industry
Railroad rolling stock manufacturing
Animal production (except aquaculture)
Truck transportation
Forging and stamping
Petroleum and coal product manufacturing (except petroleum refineries)
Meat product manufacturing
Alumina and aluminum production and processing
Animal food manufacturing
Veneer, plywood and engineered wood product manufacturing
Support activities for forestry
Sawmills and wood preservation
Sand, gravel, clay, and ceramic and refractory minerals mining and quarrying
Bakeries and tortilla manufacturing
Wineries and distilleries
Forestry and logging

EITE Criteria

- Classifies sectors as High, Medium or Low EITE.
  - Only sectors falling under the High EITE category are defined as meeting the EITE criteria in the CCIR

Emissions Intensity	< 10% Low	10% - 20% Medium	20% - 60% High	> 60% Very High
> 30% Very High	High	High	High	High
15% - 30% High	Medium	High	High	High
3% - 15% Medium	Medium	Medium	High	High
1% - 3% Low	Low	Medium	Medium	Medium
< 1% Very Low	Low	Low	Low	Low

Trade Exposure

EITE Calculations

- 2013 Statistics Canada data
- Sectors primarily evaluated at a 4-digit NAICS code level
- Emissions information derived from fuel use data – checked against NIR and SGER data

High EITE Sectors that include at least one facility over 50,000 tonnes between 2013-2015

NAICS	Name
211113	Conventional oil and gas extraction
211114	Non-conventional oil and gas extraction
212100	Coal mining
221100	Electric power generation, transmission and distribution
311200	Grain and oilseed milling
311300	Sugar and confectionery product manufacturing
322100	Pulp, paper and paperboard mills
324100	Petroleum and Coal Product Manufacturing
325100	Basic chemical manufacturing
325300	Pesticide, fertilizer and other agricultural chemical manufacturing
327000	Non-metallic mineral product manufacturing (including Lime and Cement and Concrete Product Manufacturers)
331110	Iron and steel mills and ferro alloy manufacturing
331400	Non-ferrous metal (except aluminum) production and processing
486210	Pipeline transportation of natural gas

Note – conventional oil and gas facilities exempt from the carbon levy under section 15(1)(d) of the Climate Leadership Act will not be permitted to opt-in.