Will the Clean Fuel Standard Create a Market Opportunity for Wood Pellets?

September 25th, 2019
Wood Pellet Association of Canada Annual Conference
Ottawa, ON

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Key Messages

1. The Clean Fuel Standard will be an impactful policy

2. The CFS could dramatically increase wood pellet demand

3. Current draft CFS regulations specifically EXCLUDE the opportunity to fuel switch to pellets from heating oil and propane (& natural gas?)

4. Solid biomass is the dominant approach for heat decarbonization in the EU

5. Exclusion of pellets will significantly increase the cost of compliance

6. Current policy design favours urban consumers at expense of rural

7. Existing regulatory design for EVs can be adapted for wood pellet boilers
CFS – What is it?

• Policy of Pan Canadian Framework on Clean Growth and Climate Change
• Reduce GHG emissions by 30 Mt CO$_2$e/yr by 2030
• Key elements:
  ➢ Market-based, flexible – compliance credit market
  ➢ Life cycle carbon intensity (Cl): g CO$_2$e/MJ
  ➢ Applies to all Primary Fuel Suppliers
  ➢ Fuel classes: Solid, Liquid, Gaseous
  ➢ Multiple compliance options
  ➢ Additional to carbon pricing
CFS – What is it?

• Similarities to Low Carbon Fuel Standards in CA and BC (transportation)

• Primary Fuel Suppliers:
  ➢ Liquid (2022) – refineries, fuel importers
  ➢ Gaseous (2023) – natural gas distributors/utilities, refineries
  ➢ Solid (2023) – coal/coke/petcoke importers, producers (?)

• Fuel Life cycle CI – defaults, ECCC LCA modelling tool

• Reduce fuel CI by 0.8 g CO$_2$e/MJ/yr

<table>
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<th>Fuel</th>
<th>2016</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
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<td>91.4</td>
<td>90.6</td>
<td>89.8</td>
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**CFS – Compliance**

**Compliance Credits:** create, purchase, sell

**Category 1: Reduce CI of Fossil Fuels**
- Upstream actions to reduce life cycle emissions
- Actions must be additional to other legal requirements
- Examples: CCS, electrification of processing equipment, biocrude co-process

**Category 2: Blend Low CI Fuels**
- Blend lower CI fuels – namely biofuels – to reduce average CI
- Examples: ethanol, renewable diesel, biodiesel, biopropane, RNG

**Category 3: End-Use Fuel Switching in Transportation Applications**
- Technology switch to EVs, hydrogen fuel cells, RNG
- Credit creation to OEMs (e.g., Tesla), charging stations/networks
CFS – Proposed Exemptions

1. Fuel exported from Canada
2. Fuels in transit through Canada
3. Coal combusted at facilities covered by coal-fired electricity regulations
4. Fuels used for non-combustion purposes (e.g., chemicals, plastics)
5. Remote communities
6. Liquid fuels for international marine use
7. Liquid fuels international aviation use
8. Aviation gasoline
CFS – Objectives

1. 30 Mt CO$_2$e/yr reductions by 2030 throughout lifecycle of fuels
2. Enable low-cost compliance
3. Stimulate investments and innovation in low-CI fuels

Exclusion of End-Use Fuel Switching in Stationary (Heat) Applications will:

A. Make compliance higher cost
B. Reduce flexibility
C. Limit the supply of high quality renewable diesel for transportation markets
D. Accelerate energy poverty in rural and Atlantic Canada (↑ 50%)
E. Inhibit investment in wood pellet production and boilers
Renewable Energy in the EU

Total: 8.5 EJ

Bioenergy: 60% of energy >210 Mt CO$_2$e/yr
A Problem for Rural & Atlantic Canada

• Current design: blend renewable diesel for compliance
  ➢ Outside storage prohibits biodiesel blending
  ➢ Low initial CI (84 vs. 100 for diesel): upstream reductions limited

• Renewable diesel pricing: $2.00-2.50/L ($55-70/GJ)

• Combine with carbon pricing: 50% real increase in cost of heating homes

• All renewable diesel will come from outside of market/region

• Users of heating oil already at higher risk of energy poverty

• Why not use local fuel, reduce energy poverty, & lower fuel costs?
Heating Fuel Market Share (Commercial)

- **AT**
  - Heavy Fuel Oil
  - Heating Oil
  - Propane
  - Natural Gas
  - Electricity

- **ON**
  - Heavy Fuel Oil
  - Heating Oil
  - Propane
  - Natural Gas
  - Electricity

- **CA**
  - Heavy Fuel Oil
  - Heating Oil
  - Propane
  - Natural Gas
  - Electricity
Biomass generation has dropped from 318 GWh in 2005 to 212 MWh in 2016 (3.7% vs. 2.2%)
Life Cycle Carbon Intensity of Heating Fuels

- Wood
- Natural Gas
- Propane
- Heating Oil
- Electric (ON)
- Electric (NS)

g CO2e/MJ
The Opportunity

Heating Oil Consumption: ~3 BL

Energy content: 108,000,000 GJ

CI reduction mandate: 12%

CI reduction of heating oil to pellets: 88%

Pellets required: 850,000 – 900,000 tonnes; Atlantic Canada = 50% of demand

Potential boilers: 75,000 – 150,000

Heating oil is <10% of natural gas consumption
The Mechanism

• Must have fossil fuel baseline & track pellet consumption
• Modern wood pellet boilers can measure both fuel input & heat output
• Upload data to a cloud
• Compliance credit creators:
  1. Bulk pellet delivery
  2. OEMs/boiler distributors (for bagged pellets)
  3. District energy system operators (if applicable)
• Must have CI of pellets supplied (pellet producers use ECCC life cycle tool)
• Must not double count, so central database/coordination of bulk delivery/OEMs required
• Scale required in order to justify accounting and transaction costs
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How to reduce Canada’s GHG emissions by 75 Mt CO$_2$e per year using solid fuels

Download at:

www.pellet.org/images/solidfuels.pdf
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