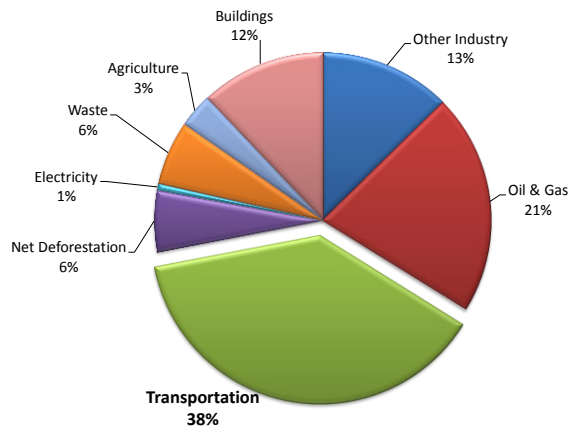


## Transportation contributed 38 percent of B.C.'s GHG emissions in 2012

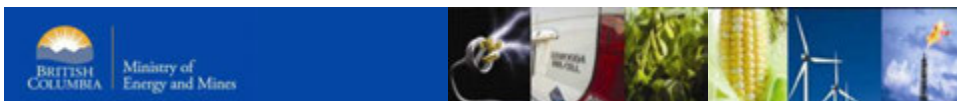




## Renewable and Low Carbon Fuel Requirements Regulation

### Goals

- Reduce B.C.'s reliance on fossil fuels
- Reduce environmental impact of transportation fuels
- Contribute to a new low-carbon economy



## Renewable and Low Carbon Fuel Requirements Regulation

### Part 2 - Renewable Fuel Requirement

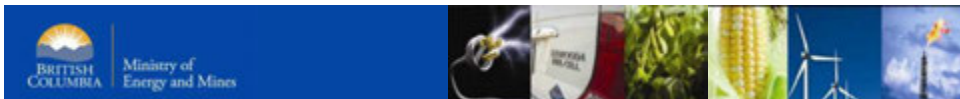
- 5% renewable content in gasoline
- 4% renewable content in diesel

### Part 3 – Low Carbon Fuel Requirement

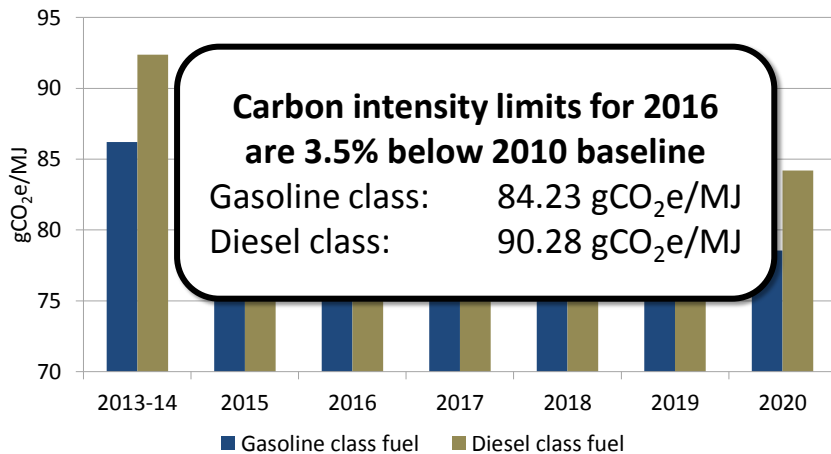
- Reduce carbon intensity 10% by 2020



## Carbon intensity represents the lifecycle GHG emissions of transportation fuels



## Carbon intensity limits

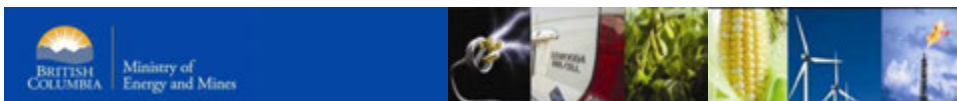
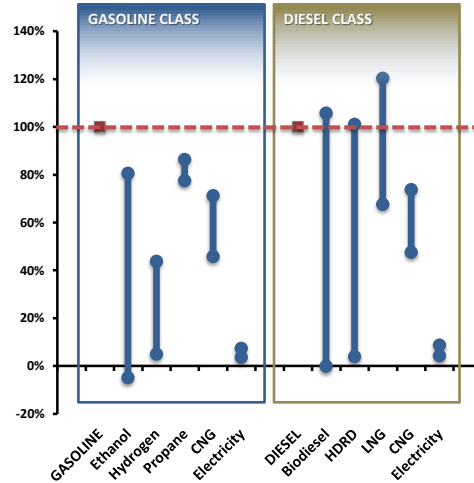




Part 3 fuel suppliers receive credits when they supply low carbon fuels

These credits are used to offset debits for supplying high carbon fuels

Net credits can be traded with other Part 3 fuel suppliers



## Impact of the Regulation 2010-2015

- The proportion of B.C.'s transportation energy provided by renewable and low carbon fuels increased from 1% to **6%**
- Carbon intensity of transportation energy
  - Part 3 requirement in Regulation: 2.5% reduction
  - Part 3 fuels actually supplied: **3.4% reduction**



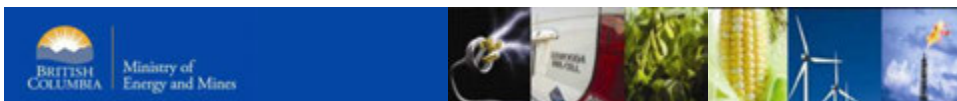
## Production and supply under the Regulation

### *Low carbon fuel producers...*

- Complete lifecycle assessments of the low carbon fuels they produce
- Apply to Ministry for approval of carbon intensity and B.C. fuel code
- Price low carbon fuels based in part on carbon intensity and B.C. fuel code

### *Part 3 fuel suppliers...*

- Purchase low carbon fuels with B.C. fuel codes
- “Supply” these fuels
  - Individual fuels
  - Finished fuel blends
- Report this supply to Ministry and acquire credits
- Use credits to offset debits, or sell credits to offset costs



## B.C. low carbon fuel codes

- Each code represents a unique fuel lifecycle (pathway)
- Assigned after Ministry verification of lifecycle assessment

Fuel	Active fuel codes	Carbon Intensity (gCO <sub>2</sub> e/MJ)		
		Weighted average	Lowest	Highest
Biodiesel	38	16.69	-15.74	98.96
HDRD	19	36.53	13.70	94.58
Ethanol	55	51.11	-2.77	74.91



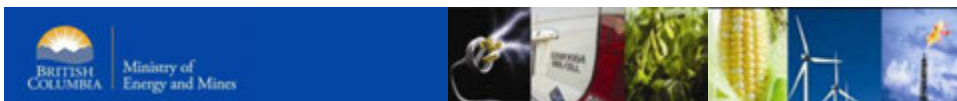
## Biofuel options for gasoline and diesel

### Gasoline

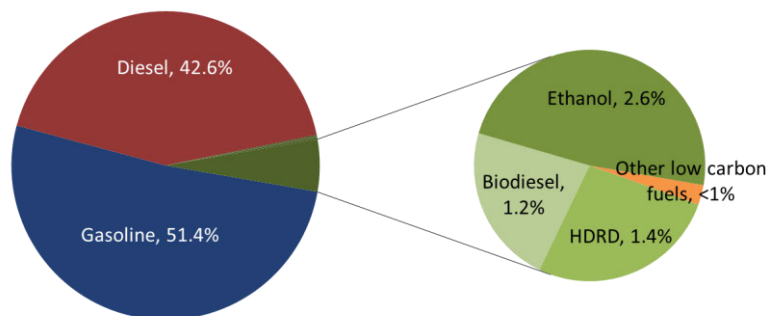
- Ethanol
- Renewable Gasoline from co-processed bio-crude
- Renewable Gasoline

### Diesel

- Biodiesel
- Hydrogenation-derived Renewable Diesel
- Renewable Diesel from co-processed bio-crude
- Renewable Diesel



## Transportation energy supplied in 2015





## The opportunity in British Columbia

- **Goal:** low carbon fuel production that leverages existing industrial facilities and B.C. feedstocks
  - A 250 million litre facility producing an ultra-low carbon diesel replacement could avoid over 500,000 tonnes of GHG emissions per year
- Challenges
  - What feedstock?
  - Which production process?



## Part 3 Agreements

- Provide credits to Part 3 fuel suppliers for actions that reduce CO<sub>2</sub>e emissions through the use of low carbon fuels
- Intended for projects and activities that would not occur without the credit incentive



## Part 3 Agreements

- A limited number of credits are available for Part 3 Agreements in each compliance year
  - ≤ 25% of gross debits reported in the previous compliance year
- Credits awarded through the Part 3 Agreement are additional to those earned through the sale of the low carbon fuel



## Part 3 Agreements

### Key principles

- Support the market penetration of low carbon fuels
- Award the greatest number of credits possible each year
- Equal credit is awarded for equal action, within project types

### Sharing project risk

- The risk that emission reductions may not be realised is that of the Ministry
- The risk that a project may not be completed is that of the proponent





## Part 3 Agreements

### Projects to date

- Largest agreement is for 120,000 credits over 4 years
- Smallest agreement is for 7,600 credits
- Agreements award an average of 22,000 credits per year



### Part 3 Agreements – example projects

#### 2014

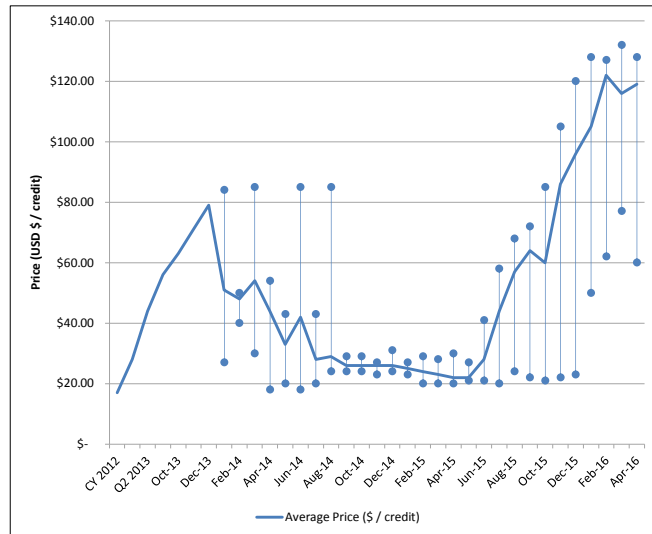
- Fuel terminal retrofits to enable increased ethanol supply
- Scrap-It incentive for the replacement of an older fossil fuel vehicle with an electric vehicle

#### 2015

- Bio-oil testing to produce conventional gasoline and diesel with renewable content
- Construction and operation of hydrogen fuelling station



## California's LCFS credit market



**Thank you**

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B.C. Ministry of Energy and Mines

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