

# Harmonization opportunities for LCFS

Interstate and international

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# Harmonization – why?

- Environmental benefits
  - Reduce leakage/shuffling
  - Follow best practice/learn from experience
  - Larger markets for ultra-low carbon fuels
- Industry benefits
  - Reduce administrative burden/avoid patchwork
  - Follow best practice/learn from experience
  - Maximize product fungibility
- Regulatory benefits
  - Share burden of evaluation and verification
  - Don't reinvent the wheel/learn from experience

# Example environmental benefits

- Lifecycle analysis
  - Direct (attributional emissions)
  - Indirect (consequential emissions)
  - Avoid creating incentives to shuffle fuel

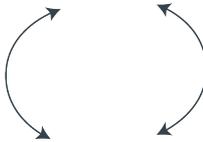
# Example – LCA driven shuffling

CI of canola biodiesel =

70 gCO<sub>2</sub>e/MJ

CI of soy biodiesel =

50 gCO<sub>2</sub>e/MJ



CI of canola biodiesel =

50 gCO<sub>2</sub>e/MJ

CI of soy biodiesel =

70 gCO<sub>2</sub>e/MJ



# Example environmental benefits

- Lifecycle analysis
  - Direct (attributional emissions)
  - Indirect (consequential emissions)
  - Avoid creating incentives to shuffle fuel
- Fossil fuel carbon intensity treatment
- Sustainability criteria
- Promotion of ultra-low carbon fuels

# Example industry benefits

- Chain of custody consistency
- Similar reporting requirements
- Reduced administrative overheads
- Ability to trade certificates (comply in most cost effective jurisdictions)?
  - Beneficial for multi-jurisdictional entities
  - Potentially bad for local opt-in entities

# Example regulatory benefits

- Use results from processes like '2A/2B' across jurisdictions
- Reduce the need to undertake new analysis for every region

# Interstate

- LCFS programs are under active consideration for:
  - Oregon
  - Washington
  - North-East States
  - Midwestern Governor's Association
- LCFS in action in British Columbia

# Interstate

- Each state wants a program tailored to local circumstances
- The expectation of boosting local economies is generally an important consideration
- iLUC remains a contentious issue
- Credit values could diverge substantially

# International

Region	US	Europe			
Jurisdiction	Federal	European Commission	European Commission	Germany	UK
<b>Policy name</b>	Renewable Fuel Standard (RFS) 2	Renewable Energy Directive (RED)	Fuel Quality Directive (FQD)	Biofuels Quota Act (BioKraftQuG) for mandate; Biofuels Sustainability Ordinance (BioKraft-NachV) for sustainability	Renewable Transport Fuel Obligations (RTFO)
<b>Type of policy</b>	Biofuel mandate	Renewable energy (biofuel) mandate for transport	Low Carbon Fuel Standard	Biofuel Mandate, switching towards Low Carbon Fuel Standard in 2014	Biofuel Mandate
<b>Implementing authority</b>	EPA	European Commission (DG Energy)	European Commission (DG Klima)	Customs (for mandate), BLE (for sustainability)	Department for Transport
<b>Year introduced</b>	2010	2011	2011	2007 for mandate; 2011 for sustainability	2008
<b>Targets</b>	36 billion gallons of biofuels by 2022	10% renewable energy in specified transport modes by 2020	6% reduction in GHG emissions by 2020	Mandate: 6.25% biofuels by energy (2011-2014). Sustainability: biofuels 35% lower GHG than petrol in 2011, 50% in 2017, 60% in 2018.	5% biofuel by volume in transport fuel by 2014.
<b>Opportunities for harmonisation?</b>	RINs, LCA, reporting	LCA, (iLUC?), sustainability, reporting	(Fossil fuel treatment?)	LCA, (iLUC?), sustainability, reporting	LCA, (iLUC?), sustainability, reporting

# International

Region	Rest of the World				
Jurisdiction	China	India	Canada	Mexico	Brazil
Policy name	National Plan	National Policy on Biofuels	Renewable Fuel Standard	Law for the promotion and development of bioenergetics	Mandatory Biodiesel Requirement; Ethanol fuel program
Type of policy	Biofuel production targets, financial incentives, blend mandates in 10 provinces	Biofuel mandate	Biofuel mandate	Regional biofuel mandates	Biofuel blend mandate
Implementing authority	State Council	Ministry of New and Renewable Energy	Environment Canada		Ministry of Mines and Energy, National Energy Policy Council, National Petroleum Agency
Year introduced	2004	2008	2010	2009	2005; 2007
Targets	Ethanol: 3 Mtonne/yr 2010, 10 Mtonne/yr 2020; Biodiesel: 300ktonne/yr 2010, 2 Mtonne/yr 2020. E10 in 10 provinces.	10% biofuel blending in 2008, rising to 20% in 2017.	5% ethanol in gasoline from 2010, 2% biodiesel in diesel and heating distillate oil from 2012	2% biofuels in Guadalajara (2011), Monterrey and Mexico City (2012)	5% biodiesel blend from 2010; 25% ethanol from 2007
Opportunities for harmonisation?	Limited?	Limited?	LCA, (iLUC?), sustainability, reporting	Limited?	Limited?

# Overall thoughts...

- Harmonization could deliver substantial benefits but is non-trivial
- Suggestion: focus on opportunities to harmonize from the bottom-up
  - Reporting and data collection
  - Burden of proof
  - Chain of custody
  - Data inputs and methodologies
- Others are better placed to comment re. in-state programs