



IEA Bioenergy

Technology Collaboration Programme

Task 39
IEA Bioenergy



Implementation Agendas Report: 2020-2021 Update (compare-and-contrast biofuels policies)

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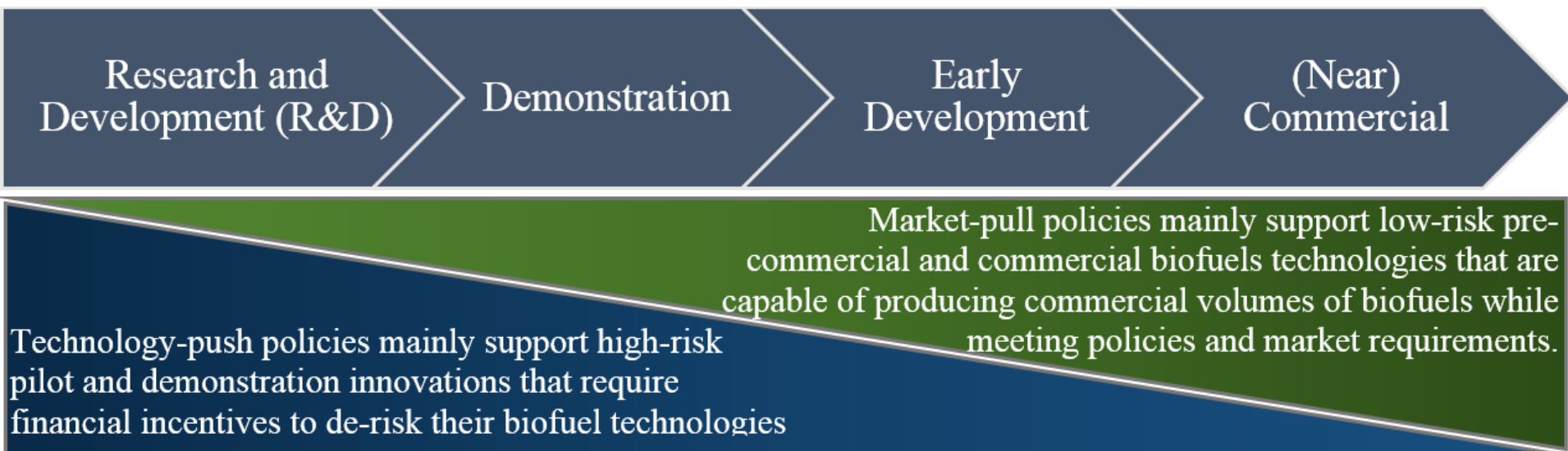
Technology Collaboration Programme

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Implementation Agendas Report

- Compare and contrast developments/policies regarding **transport biofuels production and use** in member countries
- Particular focus on **biofuel policies** and determining the extent to which these policies have been effective (or not!)
- Assess the measures taken by member countries **to develop or stimulate their respective biofuels sectors**, including incentives. For example, investment in research, development, demonstration and commercialization
- Update **the current status of assessing the “sustainability” of biofuels** and related discussions that factor into policy development

Existing policies and incentives for biofuel production and use



- **Market-pull policies:** bridge the price gap and access to the fuel market.
- **Technology-push policies:** De-risk the development and deployment of new biofuel technologies and their supply chains.

Published a peer-review manuscript from 2018-2019 Implementation Report

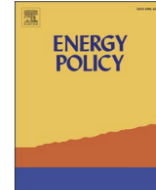
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Biofuels policies that have encouraged their production and use: An international perspective



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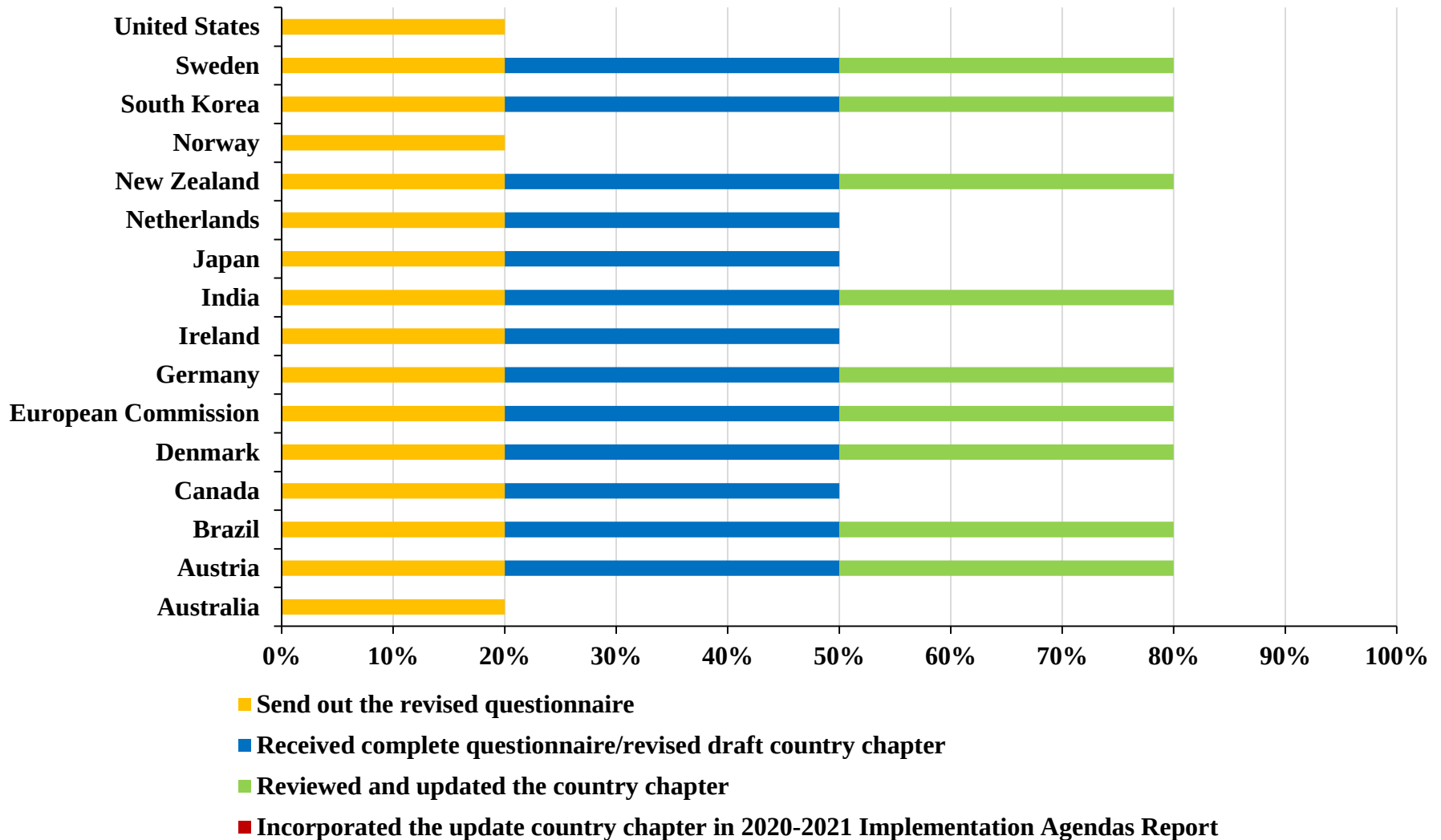
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- The manuscript summarizes the policies used to promote the greater production and use of biofuels in Task 39 member countries as well as India (which has since become a member of Task 39) and China.
- The manuscript can be viewed or downloaded here: <https://doi.org/10.1016/j.enpol.2020.111906>

Progress on update, so far (1)

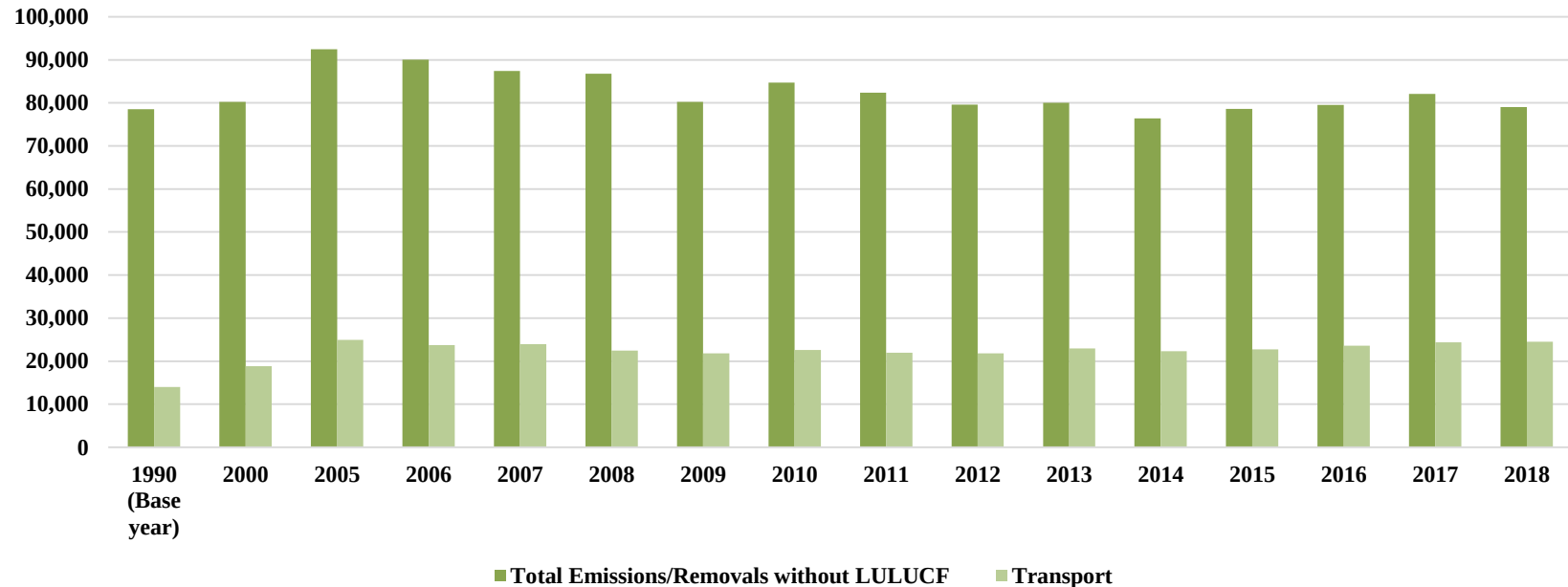
- Sent out the revised questionnaire with new additions and the country chapters to all Task 39 member countries on **May 5th 2020**
- So far, the completed questionnaire and revised draft (country) chapters were returned from 13 member countries: **Austria, Brazil, Canada, Denmark, EU, Germany, Ireland, India, Japan, the Netherlands, New Zealand, South Korea and Sweden**
- All of the returned country chapters (13 chapters) were updated, based on the information provided in the revised questionnaire, and returned to the respective member for their review.

Progress Summary- so far (2)



Examples of new additions to the update country chapters- National GHG emission data- **Austria**

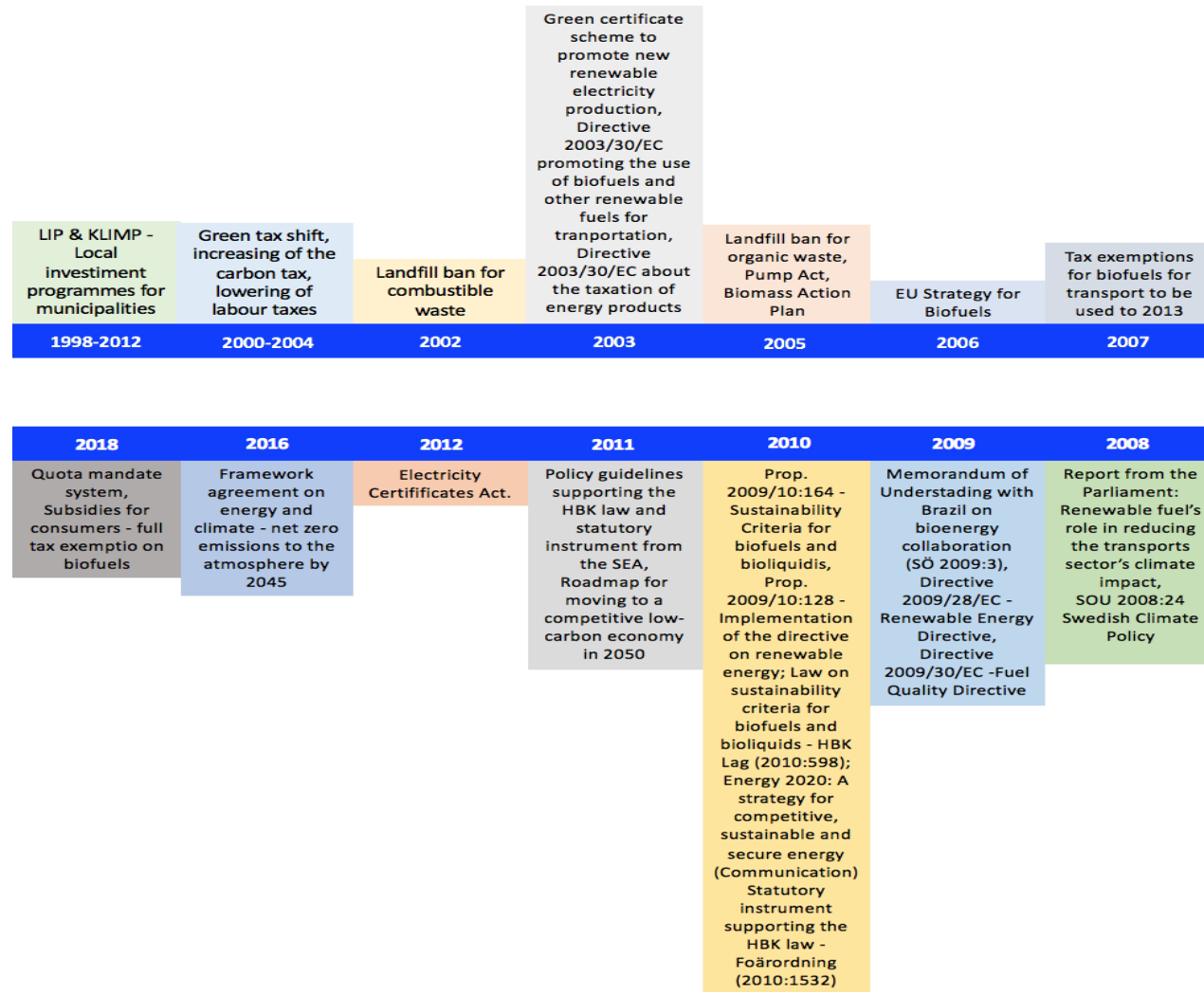
GHG emission in total and for transport (kt CO₂eq)



The main part of the total GHG emissions in Austria comes from the energy sector **with a contribution of 69%.**

The most important sub-category of the energy sector is the transport sector with **24 Mt CO₂eq which corresponds to 45% of emissions in the energy sector or 31 % of total national emissions.**

Examples of new additions to the update country chapters- timeline of biofuel policies- Sweden



Examples of new additions to the update country chapters- Import and Export of Biofuels- **Germany**

Import and export of bioethanol and biodiesel (FAME) from 2010 to 2019

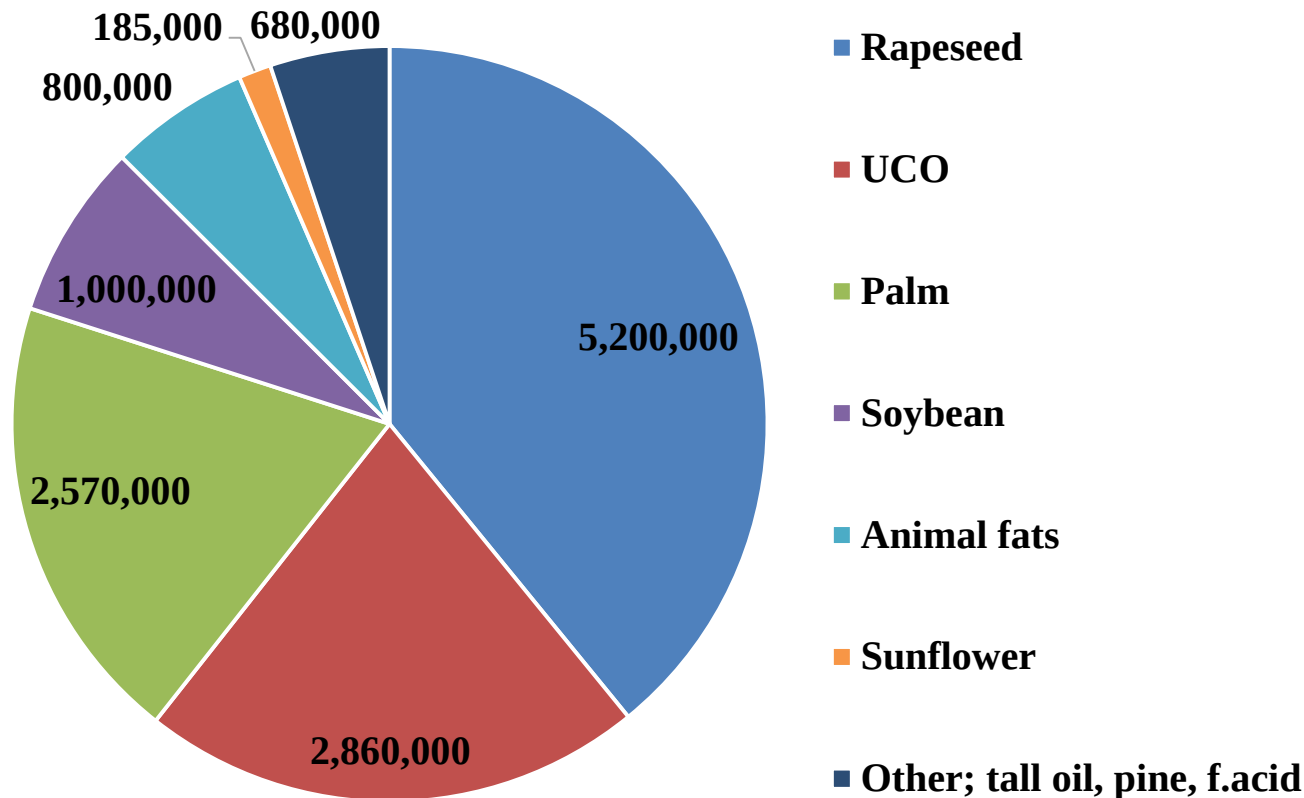
Year	Bioethanol		Biodiesel (FAME)	
	Import (ML/year)	Export (ML/year)	Import (ML/year)	Export (ML/year)
2010	1.343	343	1.426	1.320
2011	1.402	248	1.525	1.507
2012	1.400	203	849	1.380
2013	1.290	202	640	1.774
2014	1.104	240	663	1.946
2015	1.128	351	587	1.626
2016	1.123	407	815	1.724
2017	1.115	469	899	1.829
2018	1.300	448	1.383	2.117
2019	1.485	456	1.602	2.601

Examples of new additions to the update country chapters- Import and Export of Feedstock- **South Korea**

Export and import of biodiesel and feedstocks, 2010-2019

Year	Transport Biofuel (Biodiesel, FAME)		Feedstocks (used cooking oils, PFAD etc)	
	Import (M liter/year)	Export (M liter/year)	Import (M tonnes/year)	Export (M tonnes/year)
2010	0	0	0.28	0
2012	0	0	0.26	0
2014	0	76	0.22	0
2017	0	28	0.324	0
2018	0	35	0.433	0
2019	0	108	0.465	0

Examples of new additions to the update country chapters- Feedstock data- EU



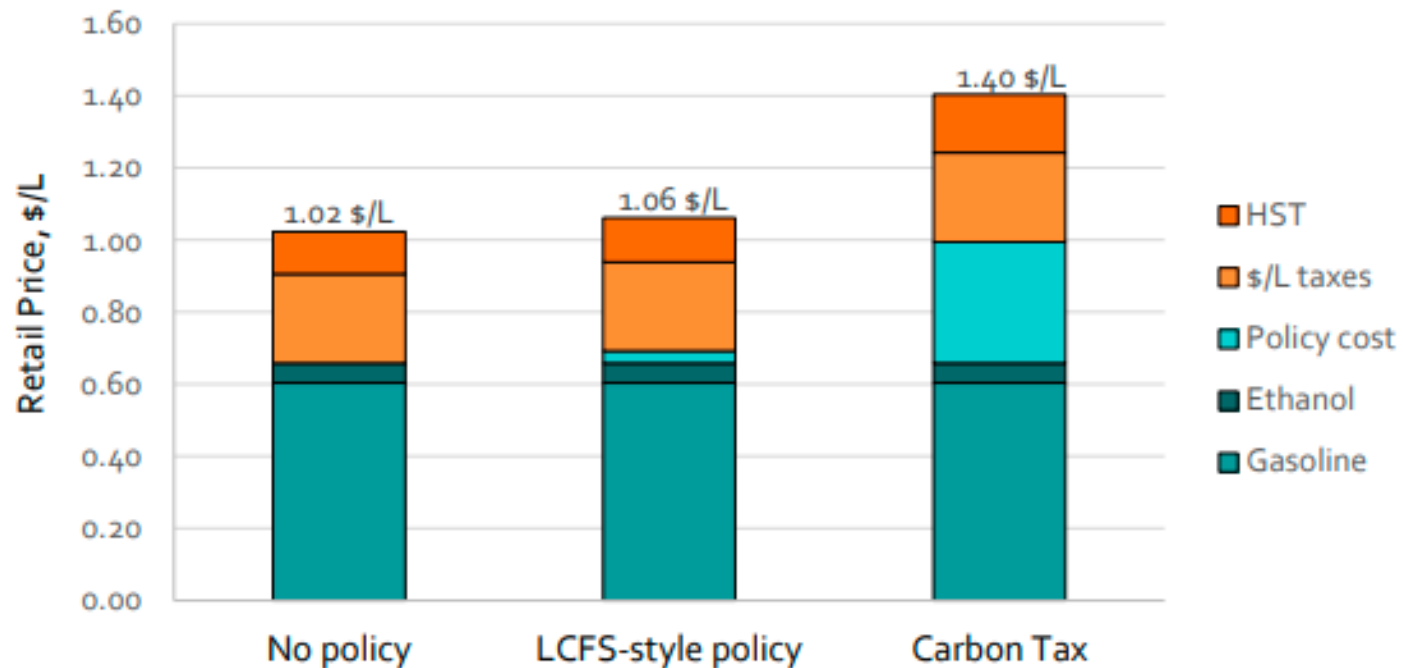
Examples of new additions to the update country chapters- Oil refineries and co-processing- **Brazil**



In 2007, the **Petrobras** developed a technology for renewable diesel production, called the HBIO Process. With this technology, the renewable raw material is mixed with fractions of petroleum diesel to be hydro-converted in **Hydrotreatment Units** (HDT).

Due to the higher costs of processing fossil diesel, there is no production of this fuel . It should be noted that in Brazilian legislation, HBIO is not considered a biofuel.

Examples of new additions to the update country chapters- Impact of biofuels policies on fuels price at the pump- **Canada**



- A LCFS credit price and a carbon price with the same \$/tCO₂e value have a very different impact on retail fuel prices.
- A LCFS policy with a credit price of 150 \$/tonne would result in an E10 price of 1.06 \$/L versus 1.02 \$/L without an LCFS. In contrast, a carbon tax of 150 \$/tCO₂e tax would increase that price to 1.40 \$/L (Figure 4), with a net price impact of 38 ¢/L.

Examples of new additions to the update country chapters- Non-compliance Penalty

Country	Non-compliance penalty for obligated parties (e.g. oil refineries)
South Korea	\$240/GJ
Austria	43 €/GJ for lack of substitution of fossil petrol and 19 €/GJ for lack of substitution of fossil diesel as non-compliance penalty
Germany	~47 EUR ct/kg CO ₂ eq
Brazil	One of the non-compliance penalty for the obligated parties in the Renovabio policy: The referred fine may vary, under the terms of the regulation, between R\$ 50 million and R\$ 100 million.

Updates on the sustainability criteria in the revised county chapters- EU

Summary of the sustainability criteria in RED II (2021-2030)

1 AGRICULTURE BIOMASS

Land criteria protecting:

- ✓ Carbon and biodiversity rich land
- ✓ Soil carbon and soil quality (for agriculture waste & residues)

2. FOREST BIOMASS

Forest management criteria ensuring:

- ✓ Sustainable wood harvesting
- ✓ Accounting framework for LULUCF emissions

End use criteria

3. GHG EMISSION SAVINGS

- ✓ -65% for new biofuels/biogas production (compared to fossil fuels)
- ✓ -70% (80% in 2026) for biomass-based heat & power (new large-scale plants above 20 MW)



4. BIOELECTRICITY EFFICIENCY (above 50 MW)

- ✓ 50-100 MW: CHP, CCS or best available technique (BAT) standard
- ✓ Above 100 MW: CHP, CCS or 36% electrical efficiency
- ✓ Exceptions for national risks of security of electricity supply



Updates on biofuels policies in the revised county chapters

- **India's** National Policy on Biofuels
- **EU**'REDII
- **Brazil's** RenovaBio
- **New Zealand's** the Climate Change Response (Zero Carbon) Amendment Act
- **Canada's** Clean Fuel Standard and **British Columbia's** Low Carbon Fuel Standard
- **South Korea's** the National GHG Reduction Target and the Renewable Fuel Standard (RFS)
- **Japan's** Basic Energy Plan
- **US's** Biodiesel Tax Credit and **California's** Low Carbon Fuel Standard
- etc.

Good progress being made!!

- Increased number of policies related to decarbonizing **long-distance transport such as aviation and marine**
- **Increased engagement of the oil-and-gas sector:** producing drop-in biofuels (via repurposing existing oil refineries, e.g. Neste/World Energy) and lower-carbon intensive fuels (via co-processing, e.g. BP)
- **Production of “advanced” biofuels is expected** to increase with LCFS-type policies encouraging their development. Ongoing concerns about the cost, sustainability and volumes available of “conventional” feedstocks (sugar, starch, lipids..) encouraging interest in other routes
- **“Technology Agnostic” policies such as the LCFS are working**
 - Relative success of LCFS policies in California and British Columbia, encouraging related policies in other jurisdictions (e.g. Canada Clean Fuel Standard and Brazil RenovaBio).
 - Likely that, in the mid-to-longer term, many biofuel policies will be modified to accommodate LCFS-type-policies in their compliance programs.