



**IEA Bioenergy**  
Technology Collaboration Programme



Technology Collaboration Programme on  
**Advanced Motor Fuels**



# The Role of Renewable Fuels in Decarbonizing Road Transport

Dina Bacovsky, BEST

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*Renewable fuels,  
in addition to all forms of electric vehicles,  
can make an important contribution in  
decarbonizing the road transport sector,  
especially in the short and medium term  
and for all modes of transport.*



# Country assessments

## 5 vehicle categories

- passenger cars
- delivery vans & light-duty trucks
- buses & coaches
- medium-duty trucks
- heavy-duty trucks

## 6 propulsion systems

- spark ignited engine (SI)
- compression ignited engine (CI)
- (plug-in) hybrid electric vehicle with spark ignited engine (PHEV-SI)
- (plug-in) hybrid electric vehicle with compression ignited engine (PHEV-CI)
- battery electric vehicle (BEV)
- fuel cell electric vehicle (FCEV)

## 12 fuel options

- gasoline
- diesel
- CNG
- E5
- E10
- E27
- E85 / E100
- B7
- Drop-in hydrocarbons (FT-liquids, HVO)
- CBG
- electricity
- hydrogen

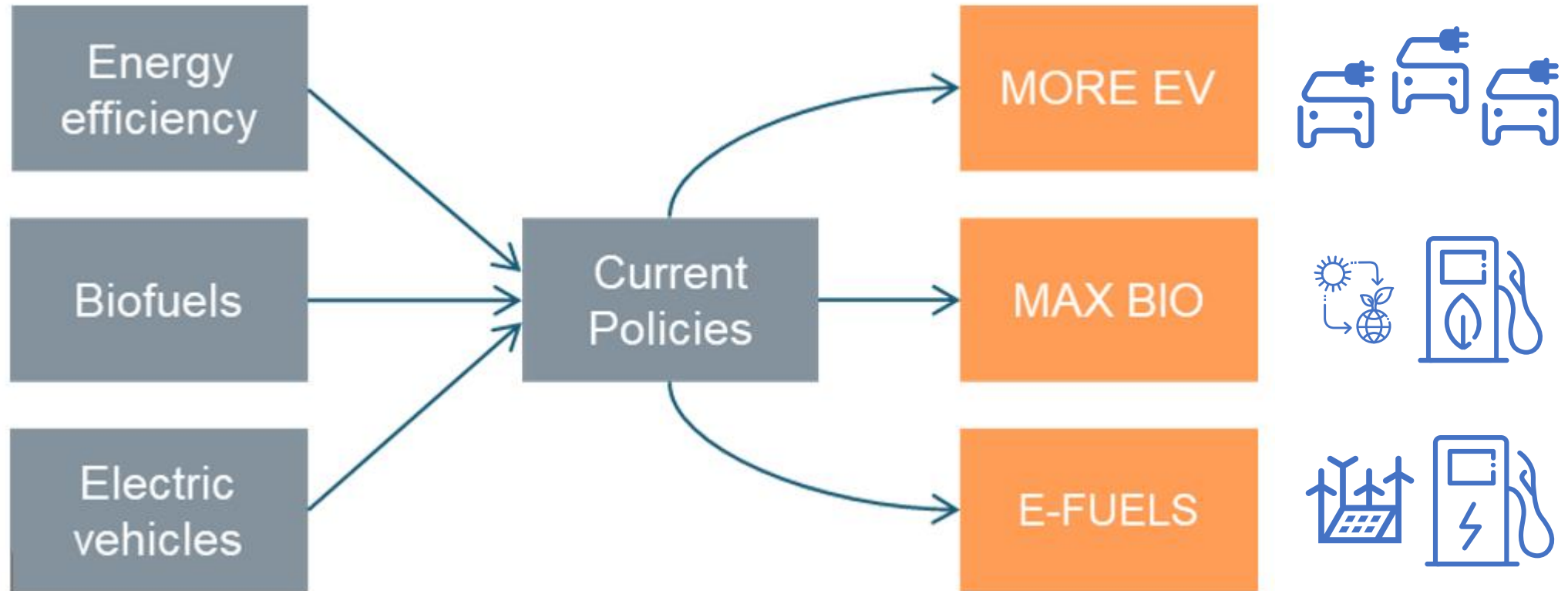
## Main input feed (given for each future year of projection)

- assumption on total sales in each vehicle category for future years
- assumption on the distribution between the available powertrain/fuel options in sales
- assumption on fuel consumption (or energy efficiency gain) for future years
- assumption on annual driven distance (“VMT”), variable between categories, age classes and powertrain/fuel combinations

## Calculation of Energy need and TTW CO2 emissions

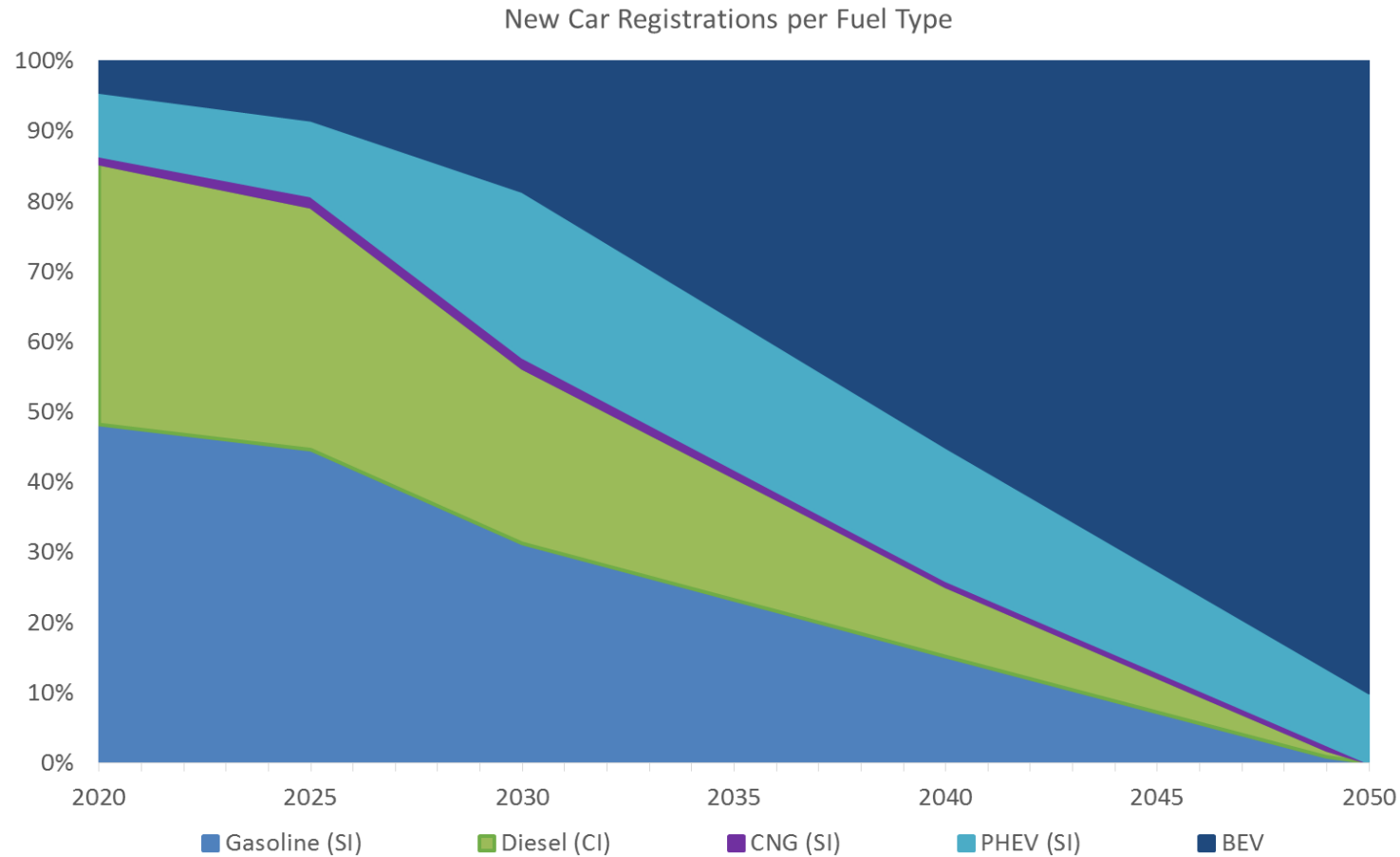
CO2 emissions of renewable shares and electricity are assumed to be zero

# Scenarios



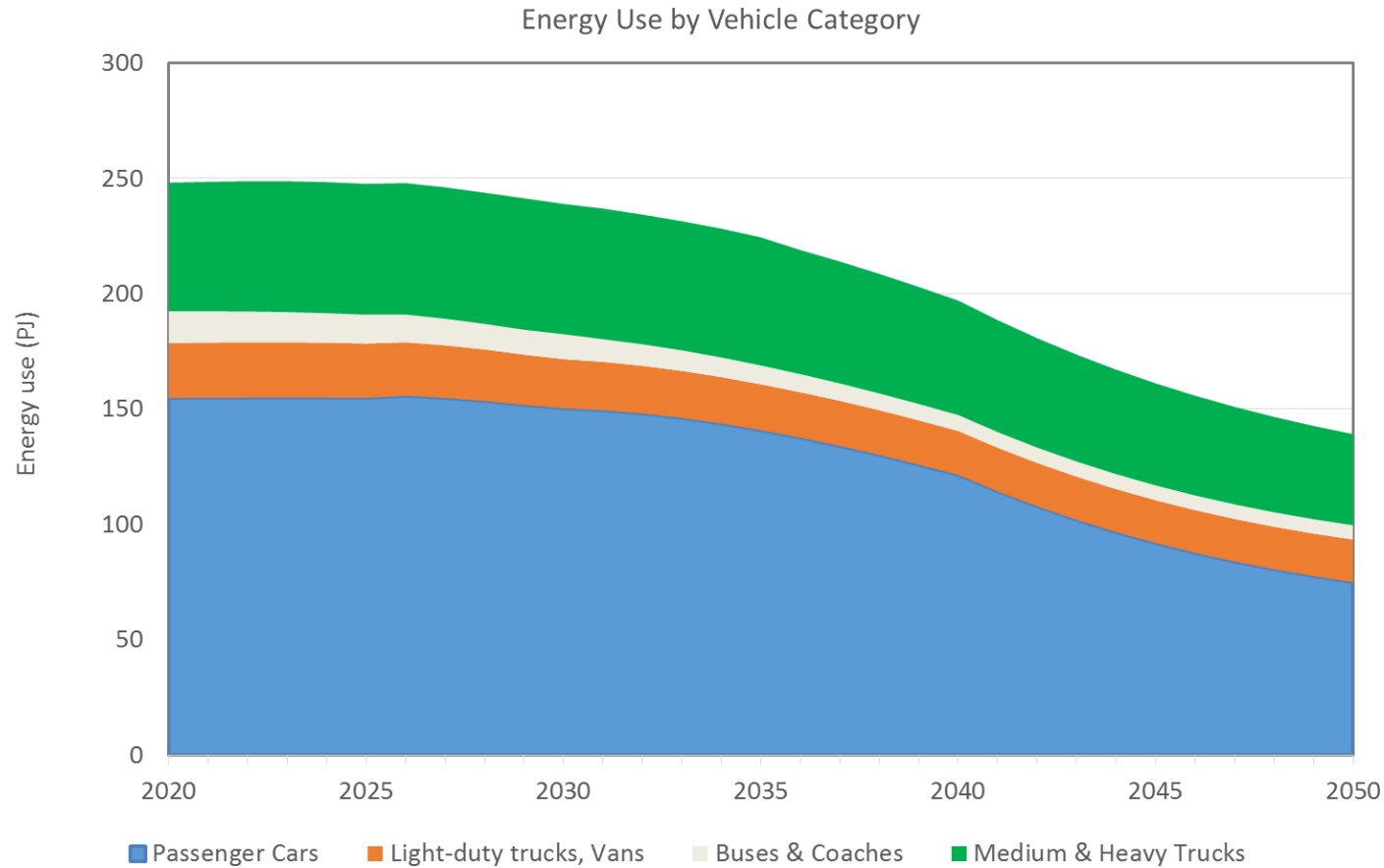
# Projections of passenger car sales

## Current Policies - Sweden



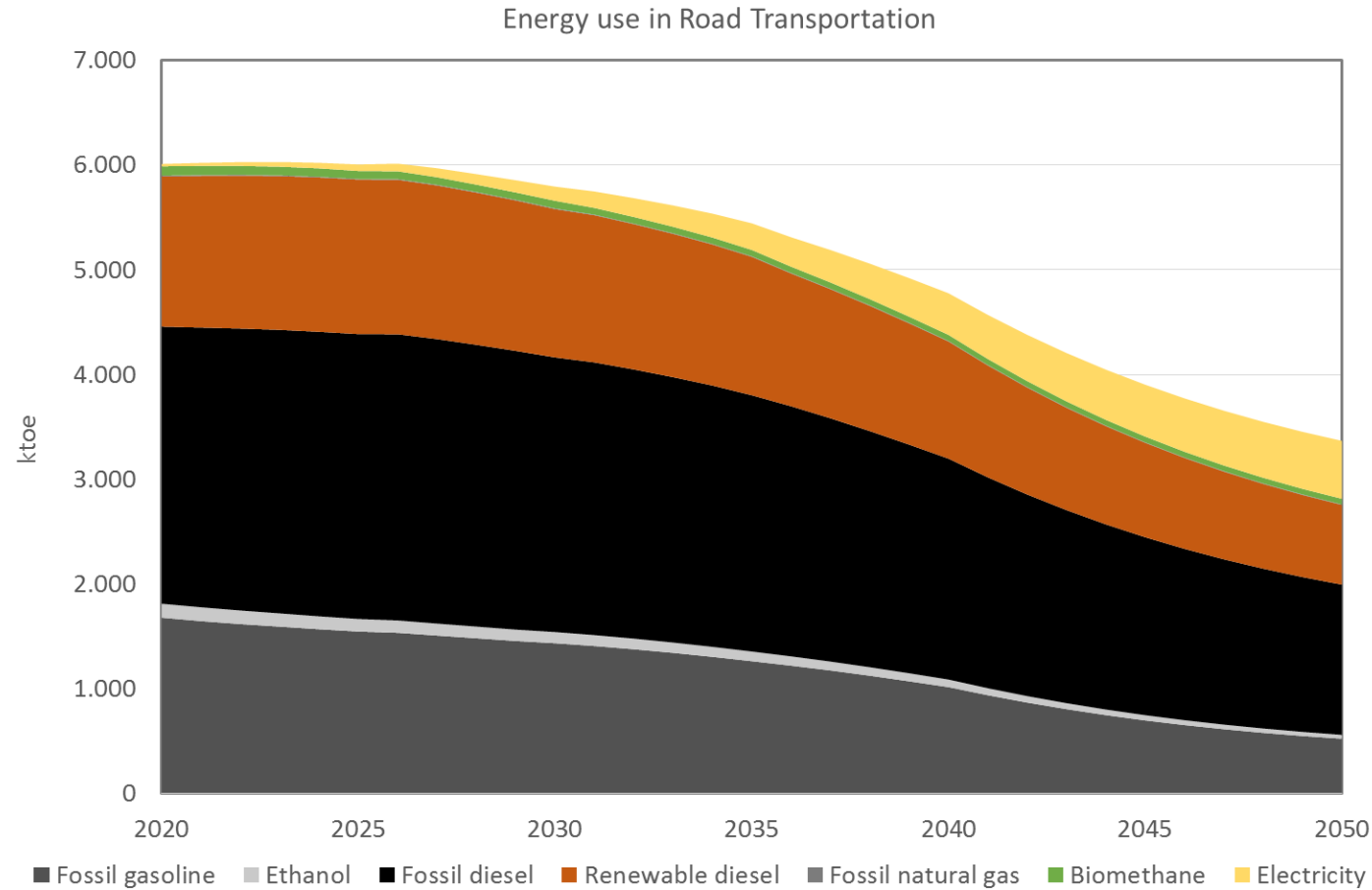
# Energy use per vehicle category

## Current Policies - Sweden



# Energy use by energy carrier

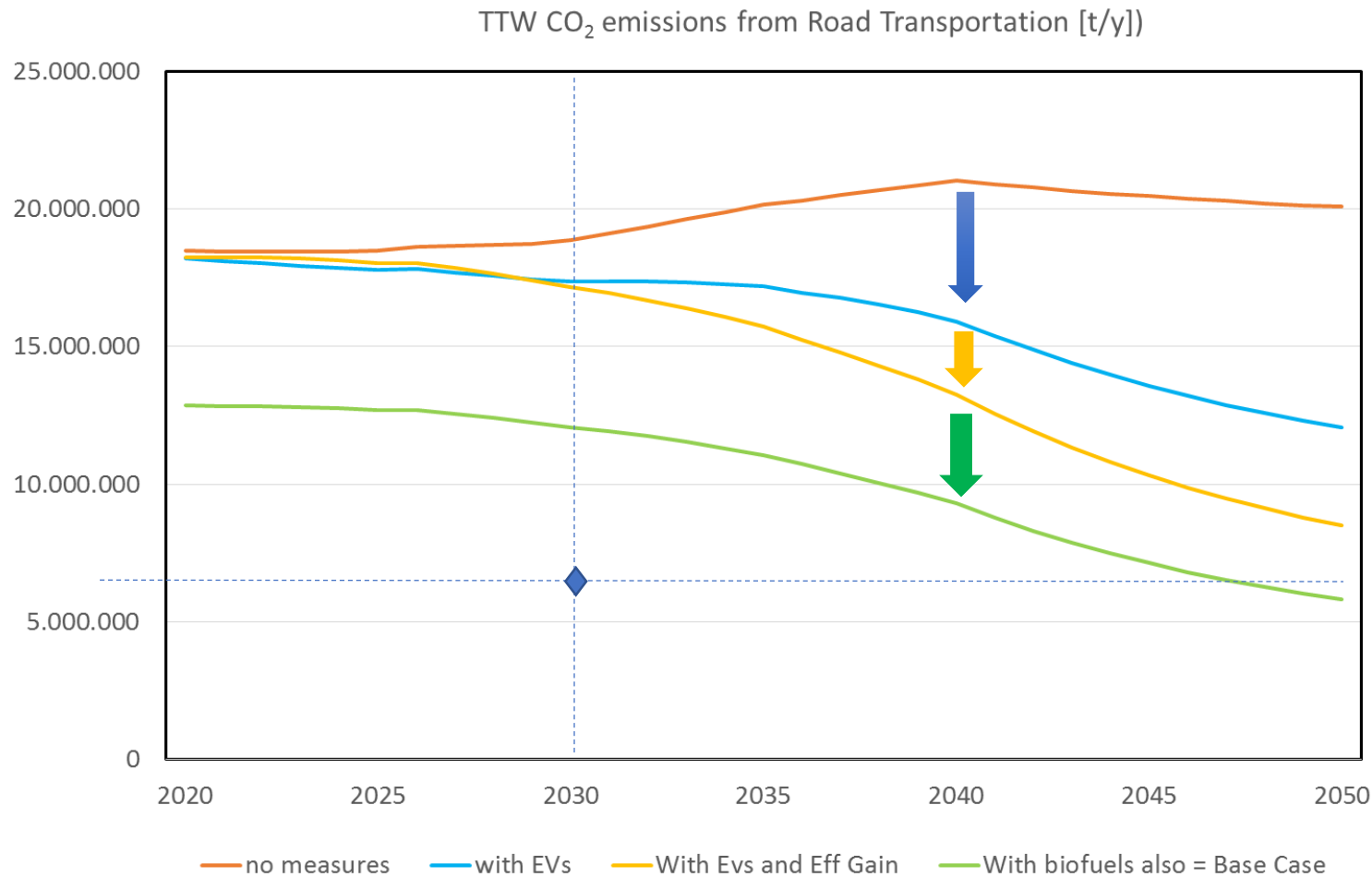
## Current Policies - Sweden





# TTW CO<sub>2</sub> emissions

## Current Policies - Sweden



Electrification

Improvement in energy efficiency

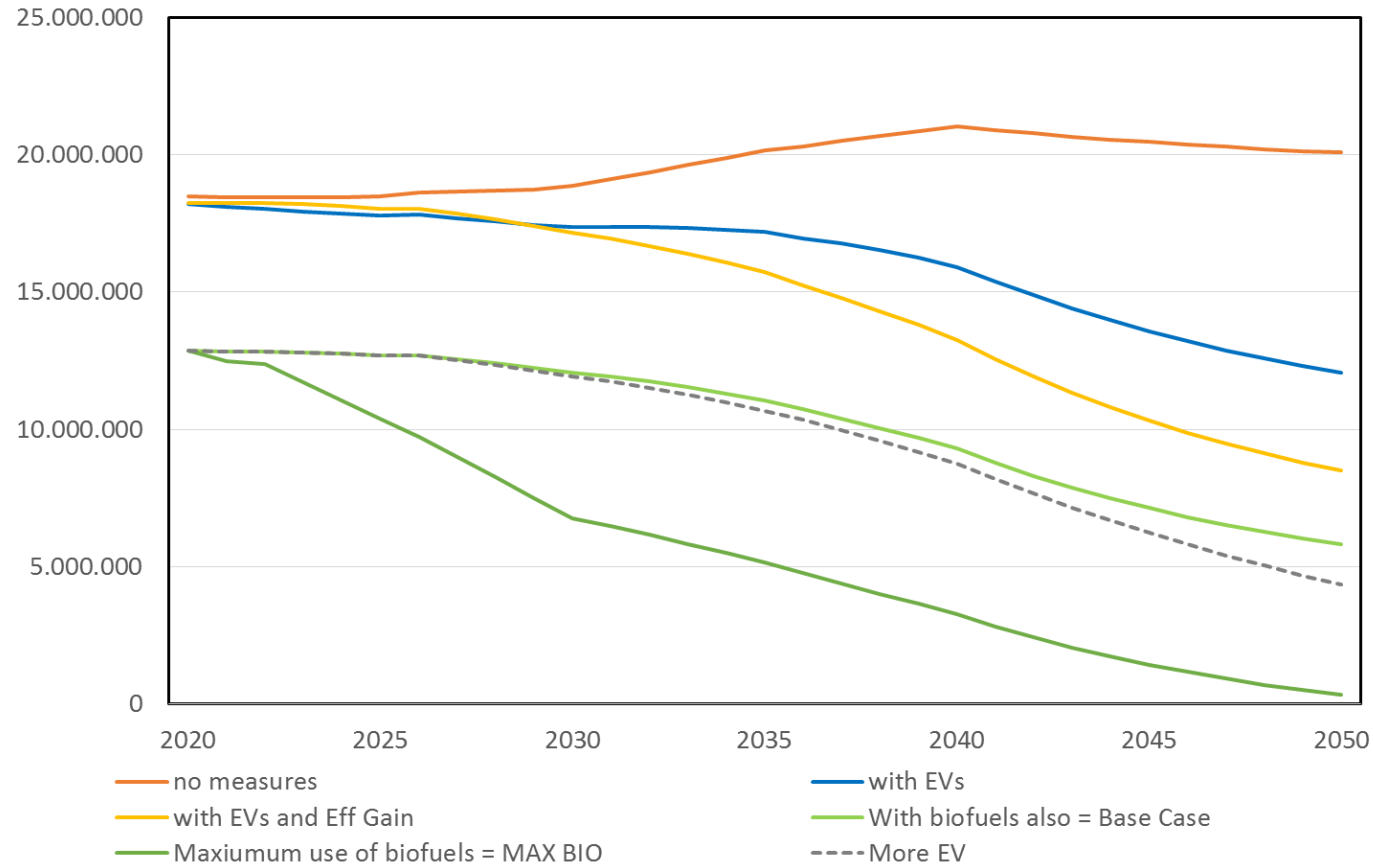
Biofuels



# TTW CO<sub>2</sub> emissions

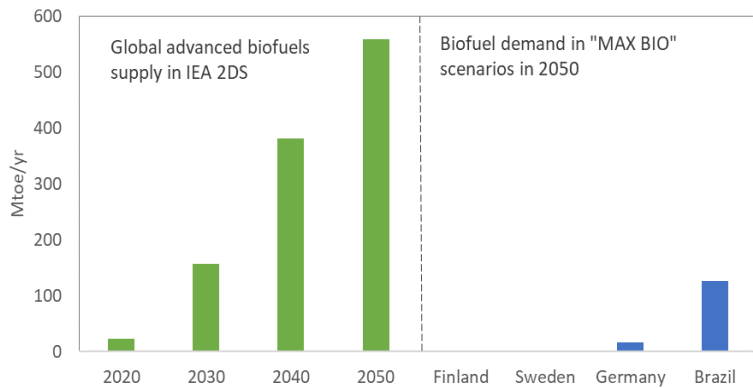
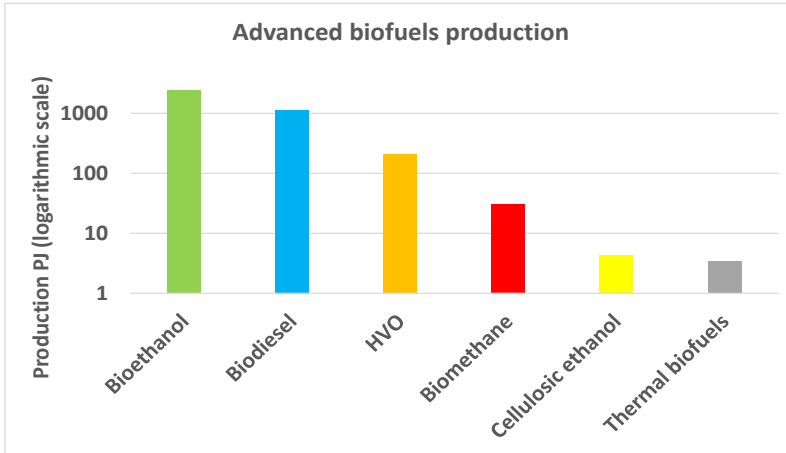
## MAX BIO and MORE EV - Sweden

TTW CO<sub>2</sub> emissions from Road Transportation [t/y]

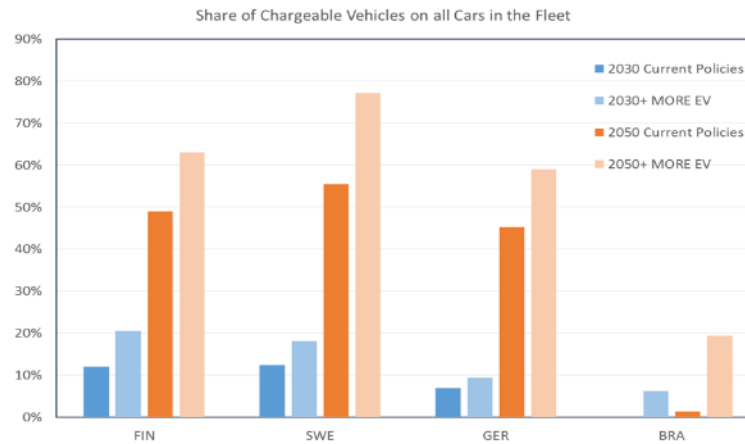


# Resource considerations

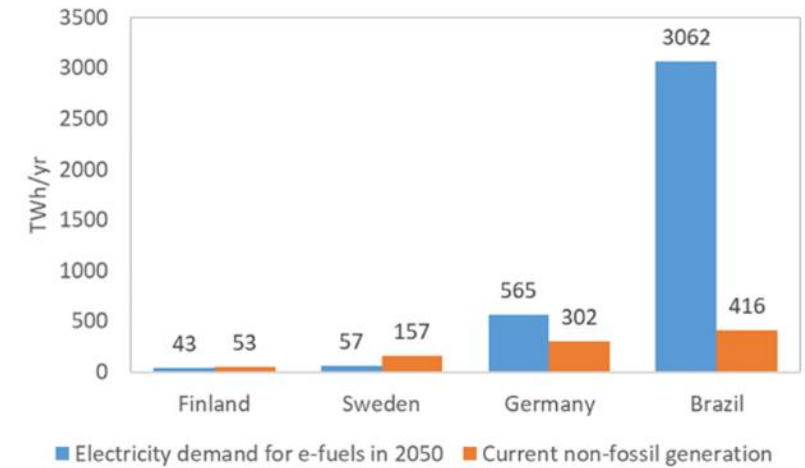
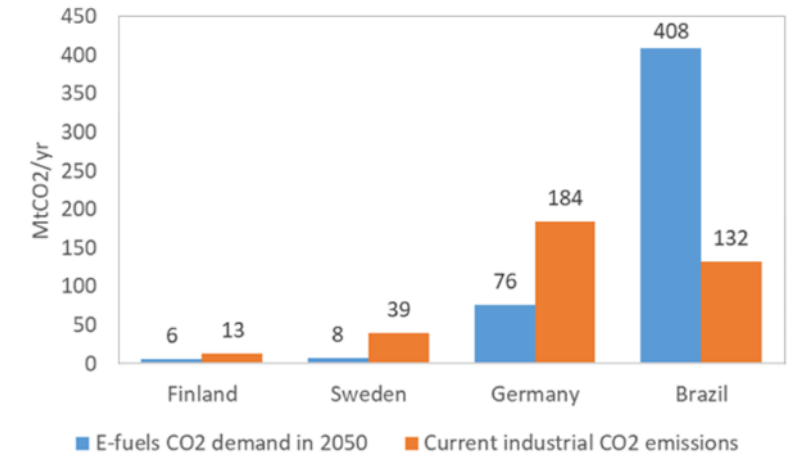
## MAX BIO



## MORE EV





## E-FUELS



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AMF Annex 5B /  
IEA Bioenergy Task 41 Project 10  
A Report from the Advanced Motor  
Fuels TCP and IEA Bioenergy TCP



## The Role of Renewable Transport Fuels in Decarbonizing Road Transport Key Strategies in Selected Countries

**Franko Müller-Langer**  
Jörg Schröder  
Karlsson Mikael  
DFPZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH  
Kyriakos Maniatis  
Eric Fee  
European Commission, DG ENER  
**Angela Oliveira de Costa**  
João Marcos Ferreira Godão  
Juliana Rangel do Nascimento  
Paula Isabel de Costa Barbosa  
Rachael Martins Henriques  
Energy Research Office of Brazil (EPE)  
November 2020

**Anton Figenstein**  
IVL Swedish Environmental Research Institute  
**Matsuyuki Kobayashi**  
Yukiaki Takata  
Organization for the Promotion of Low Emission Vehicles (LEVO)  
**Nelson Lindholm**  
Swedish Transport Administration  
**Shiqun Zhang**  
Ya Wu  
Tianghua University  
**Markus Möriger**  
Helmholtz-Zentrum für Umweltforschung GmbH – UFZ  
**Alisa Lindner**  
Kevin Stork  
Zhe Hui  
US Department of Energy  
**Nils-Clas Nylund**  
VTT Technical Research Centre of Finland Ltd  
**Edited by Dina Bacovsky**  
BEST – Bioenergy and Sustainable Technologies GmbH

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## The Role of Renewable Transport Fuels in Decarbonizing Road Transport Production Technologies and Costs

**Adam Brown**  
Energy Insights Ltd  
**Mahmoud Ebadian**  
Jack Sedler  
University of British Columbia  
**Nils-Clas Nylund**  
Päivi Aakko-Saksa  
VTT Technical Research Centre of Finland Ltd  
**November 2020**

**Lars Waldheim**  
Waldheim Consulting  
**Edited by Dina Bacovsky**  
BEST – Bioenergy and Sustainable Technologies GmbH

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## The Role of Renewable Transport Fuels in Decarbonizing Road Transport Scenarios and Contributions in Selected Countries

**Juhani Laatikka**  
Iikka Hannula  
Nils-Clas Nylund  
Päivi Aakko-Saksa  
VTT Technical Research Centre of Finland Ltd  
**November 2020**

**Edited by Dina Bacovsky**  
BEST – Bioenergy and Sustainable Technologies GmbH

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## The Role of Renewable Transport Fuels in Decarbonizing Road Transport Deployment Barriers and Policy Recommendations

**Dina Bacovsky**  
Andreas Sornsteiner  
BEST – Bioenergy and Sustainable Technologies GmbH  
**Adam Brown**  
Energy Insights Ltd  
**November 2020**

**Edited by Dina Bacovsky**  
BEST – Bioenergy and Sustainable Technologies GmbH

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Thank you!

Dina Bacovsky

[dina.bacovsky@best-research.eu](mailto:dina.bacovsky@best-research.eu)

[www.iea-amf.org](http://www.iea-amf.org)



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