IEA Bioenergy
Technology Collaboration Programme

European Commission

ADVANCED MOTOR FUELS
IEA-AMF
Technology Collaboration Programme on
Advanced Motor Fuels

Die Rolle fortschrittlicher erneuerbarer Kraftstoffe bei der Dekarbonisierung des Verkehrs im Jahr 2030 und darüber hinaus

Dina Bacovsky, BEST

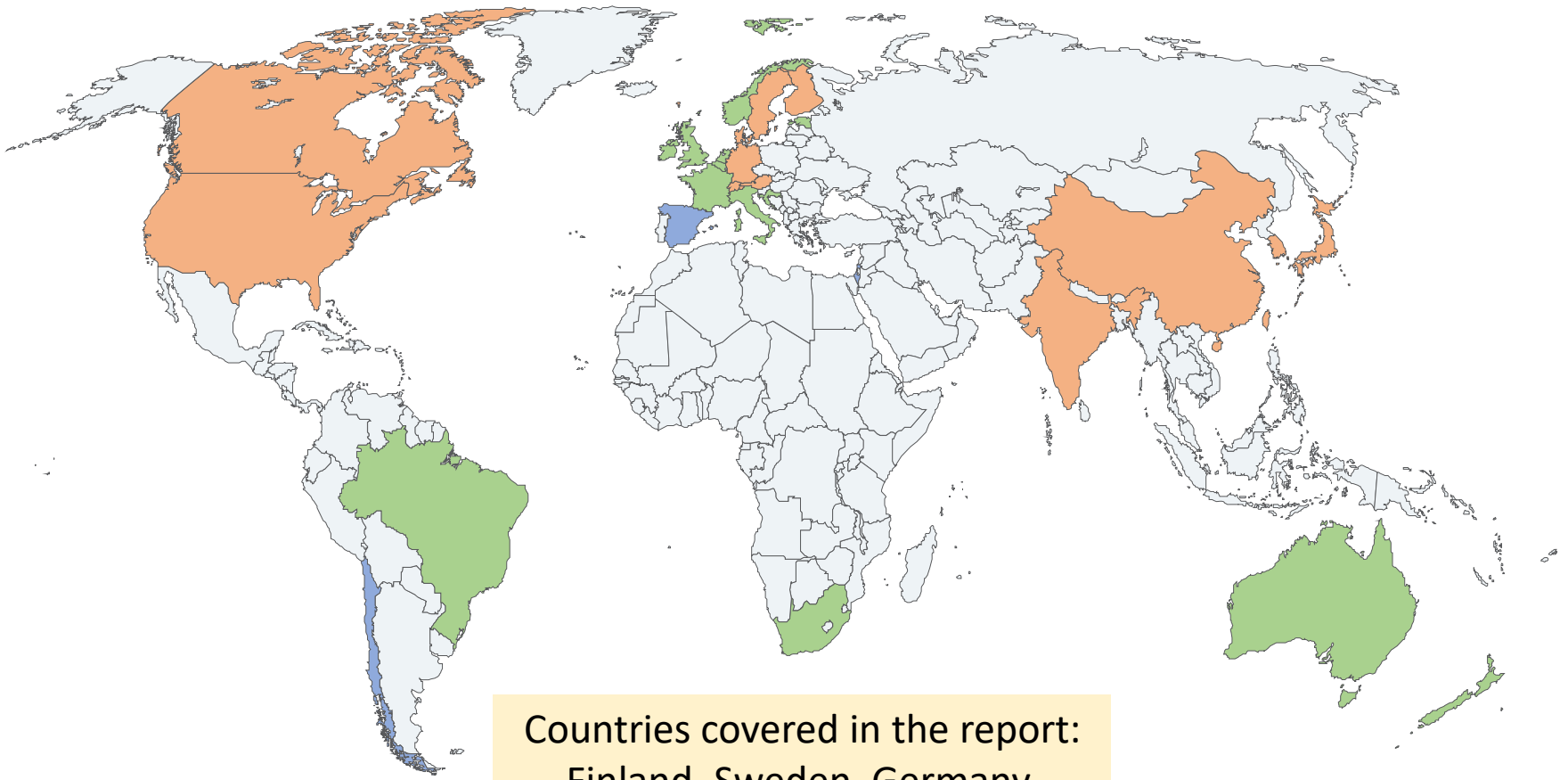
Neues zur Produktion und Anwendung von erneuerbaren Treibstoffen in Österreich
21. Oktober 2021, online

Erneuerbare Kraftstoffe,
in Ergänzung zu Elektrofahrzeugen,
können einen ***wichtigen Beitrag*** *zur*
Dekarbonisierung des Straßentransports
leisten, vor allem kurz- und mittelfristig.





IEA Bioenergy members | Members to both TCPs | AMF members



Countries covered in the report:
Finland, Sweden, Germany,
USA, Brazil,
China, Japan

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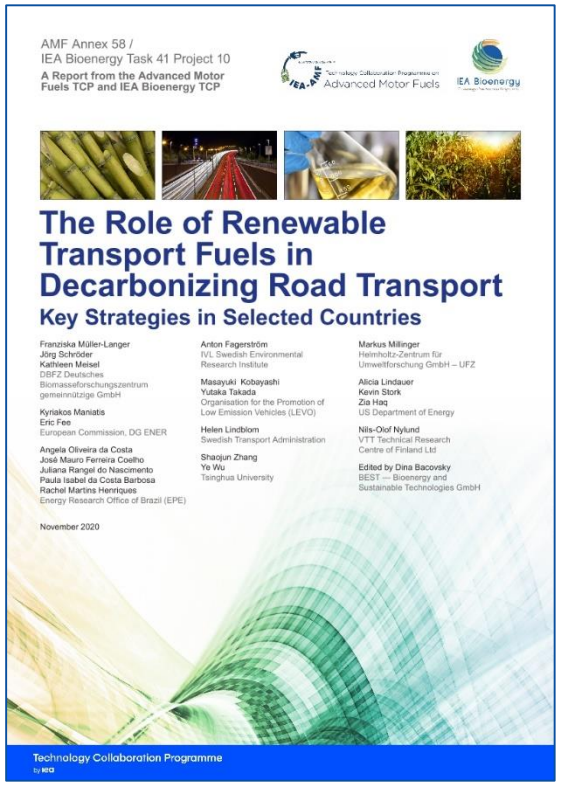
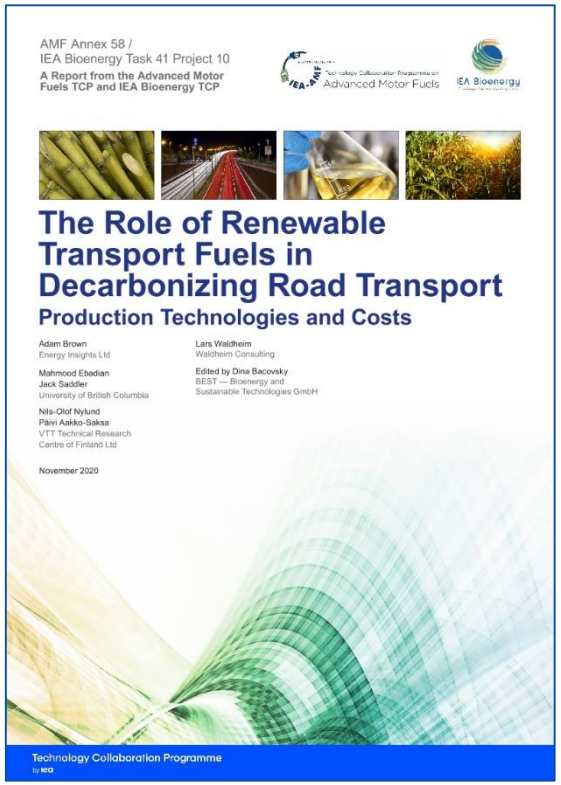
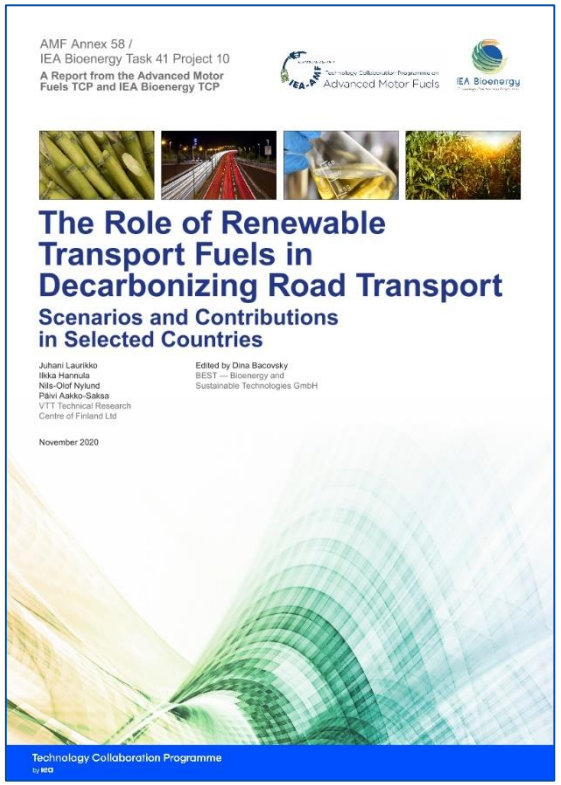
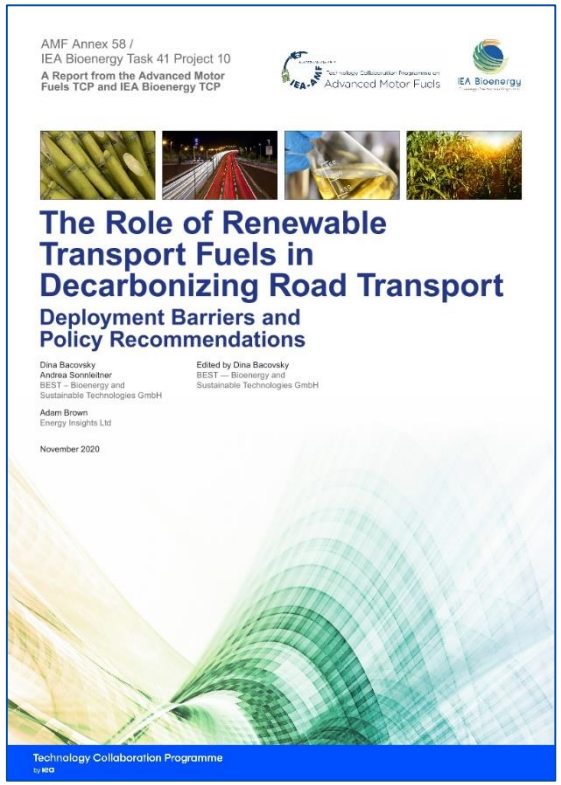
Reports available at

www.iea-amf.org and www.ieabioenergy.com









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Transport sector indicators highly vary

	Finland	Sweden	Germany	USA	Brazil
Population size	5,545,000	10,100,000	83,780,000	331,000,000	212,600,000
Land area, km^2	303,890	410,340	348,560	9,147,420	8,358,140
Pop. density	18.2	24.6	240.4	36.2	25.4
Cars/capita	0.501	0.486	0.552	0.717	0.180
Car-km/capita	7,600	5,600	7,800	13,000	3,000
Car-km/km^2	138,000	137,000	1,880,000	270,000	76,000
MDT&HDT-km/capita	633	502	496	1,535	374
MDT&HDT-km/km^2	11,555	12,344	119,214	55,554	9,514





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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)

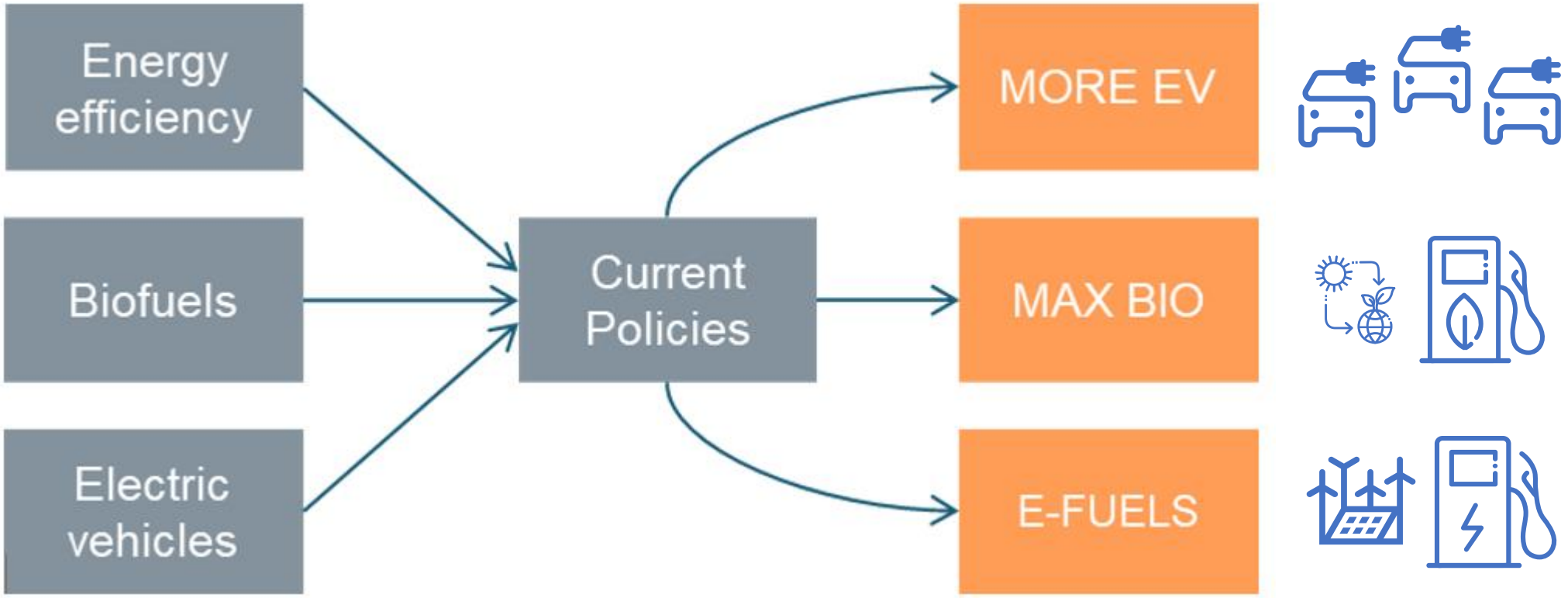
12 fuel options
- gasoline
- diesel
- CNG
- E5
- E10
- E27
- E85 / E100
- B7
- Drop-in hydrocarbons (FT-liquids, HVO)
- CBG
- electricity
- hydrogen

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

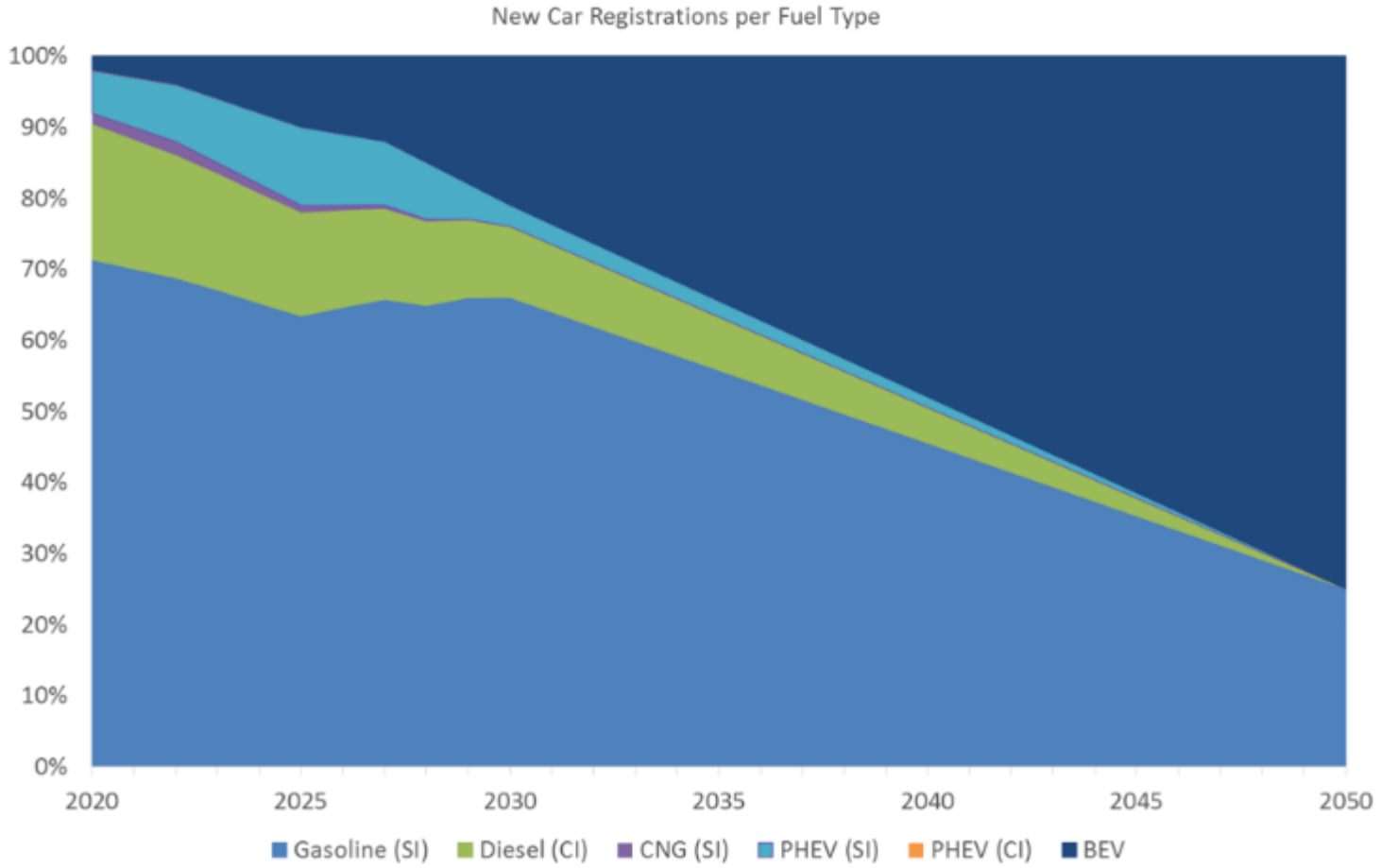
Calculation of Energy need and TTW CO2 emissions

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

Scenarios


Energy efficiency
Biofuels
Electric vehicles
Current Policies
MORE EV
MAX BIO
E-FUELS

Current Policies – FINLAND



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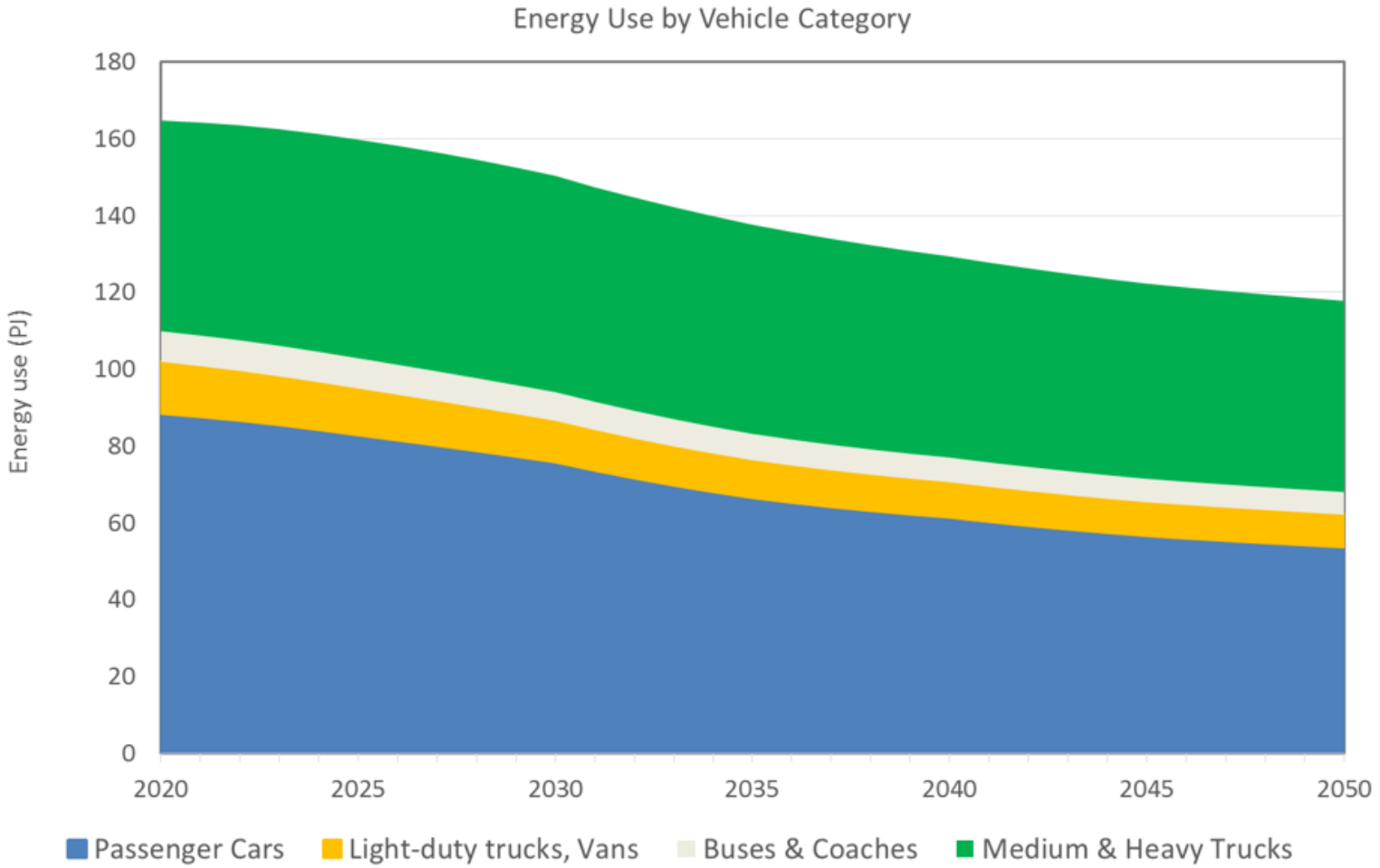
Current Policies – FINLAND



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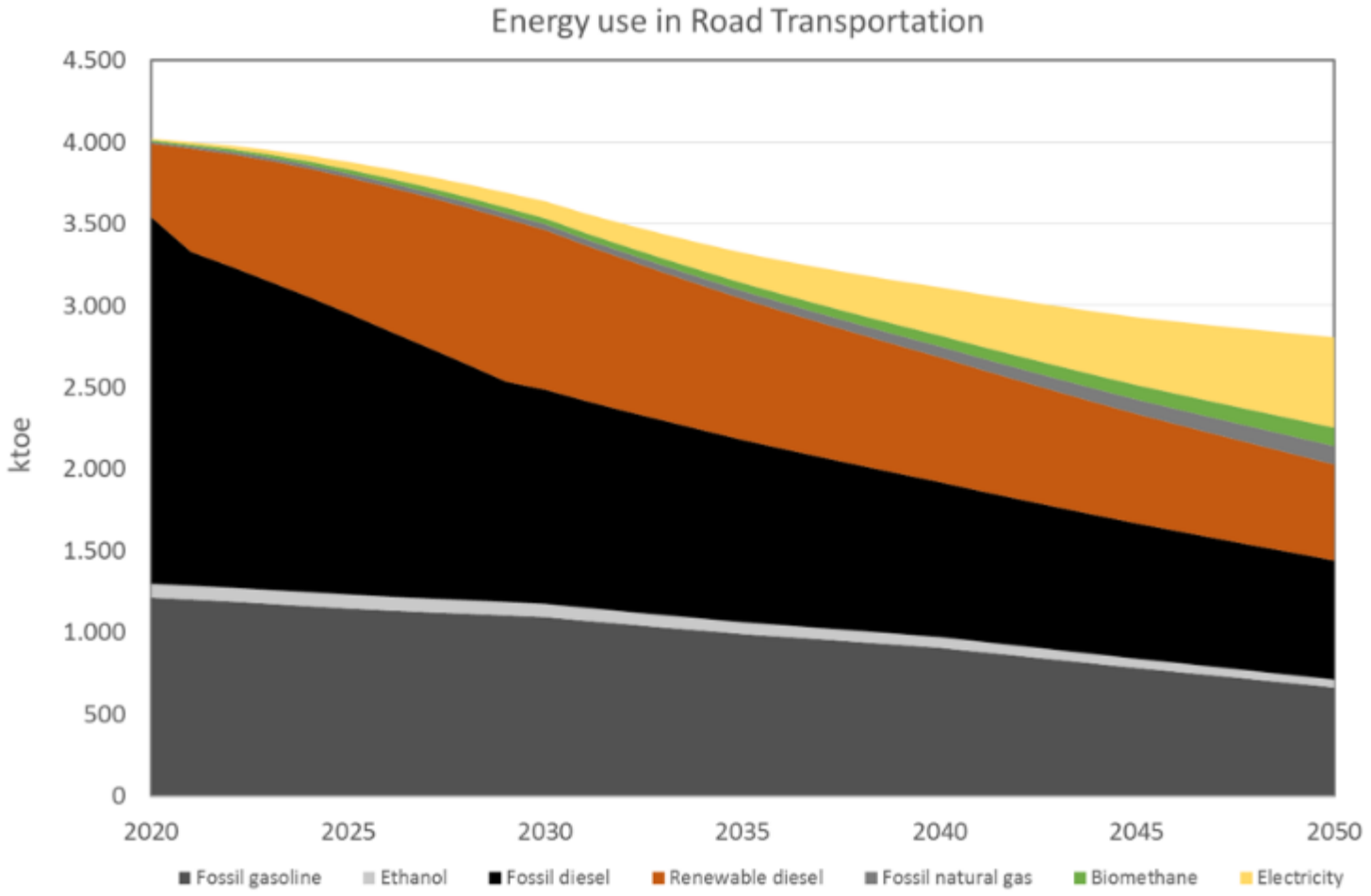
Current Policies – FINLAND



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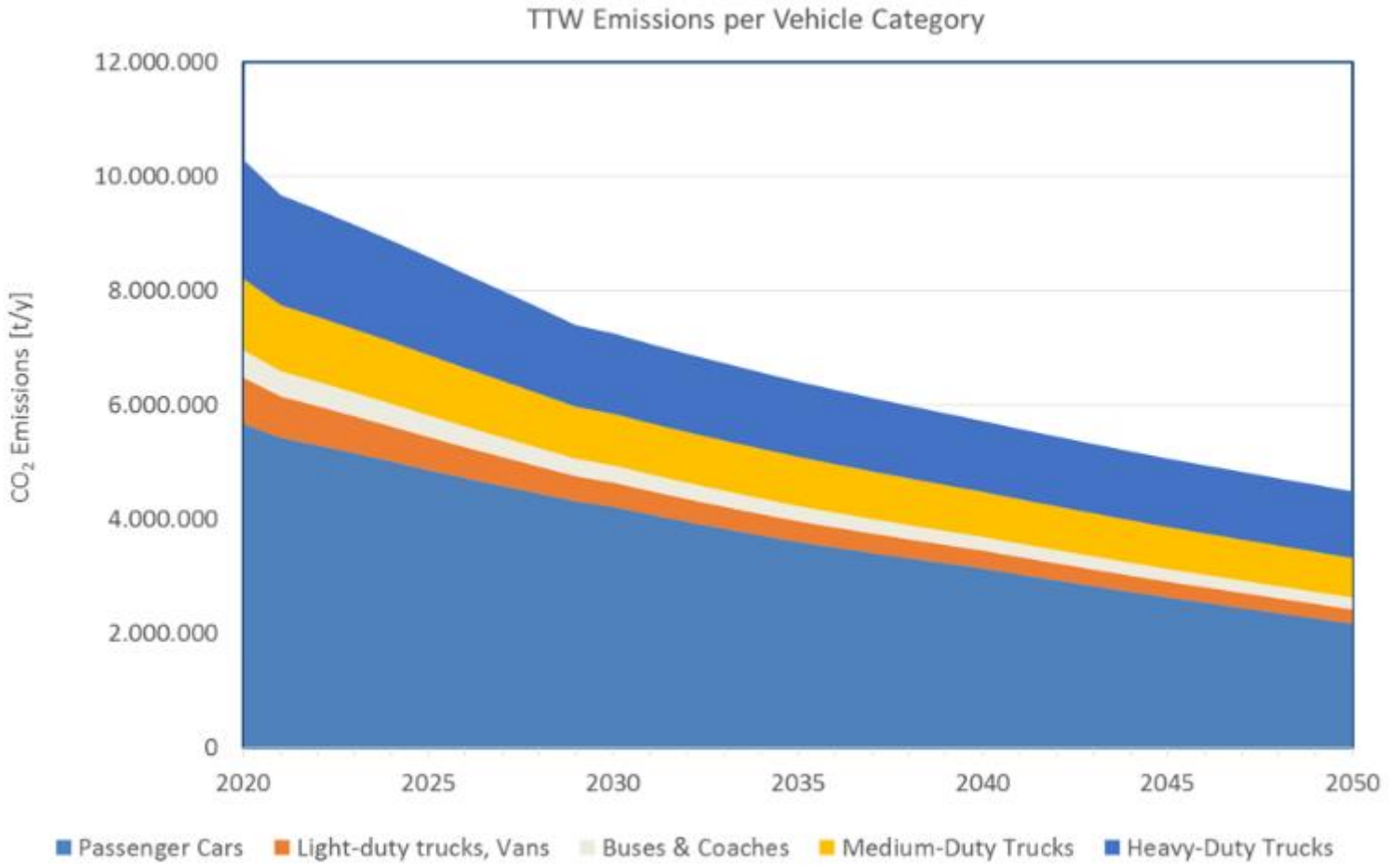
Current Policies – FINLAND



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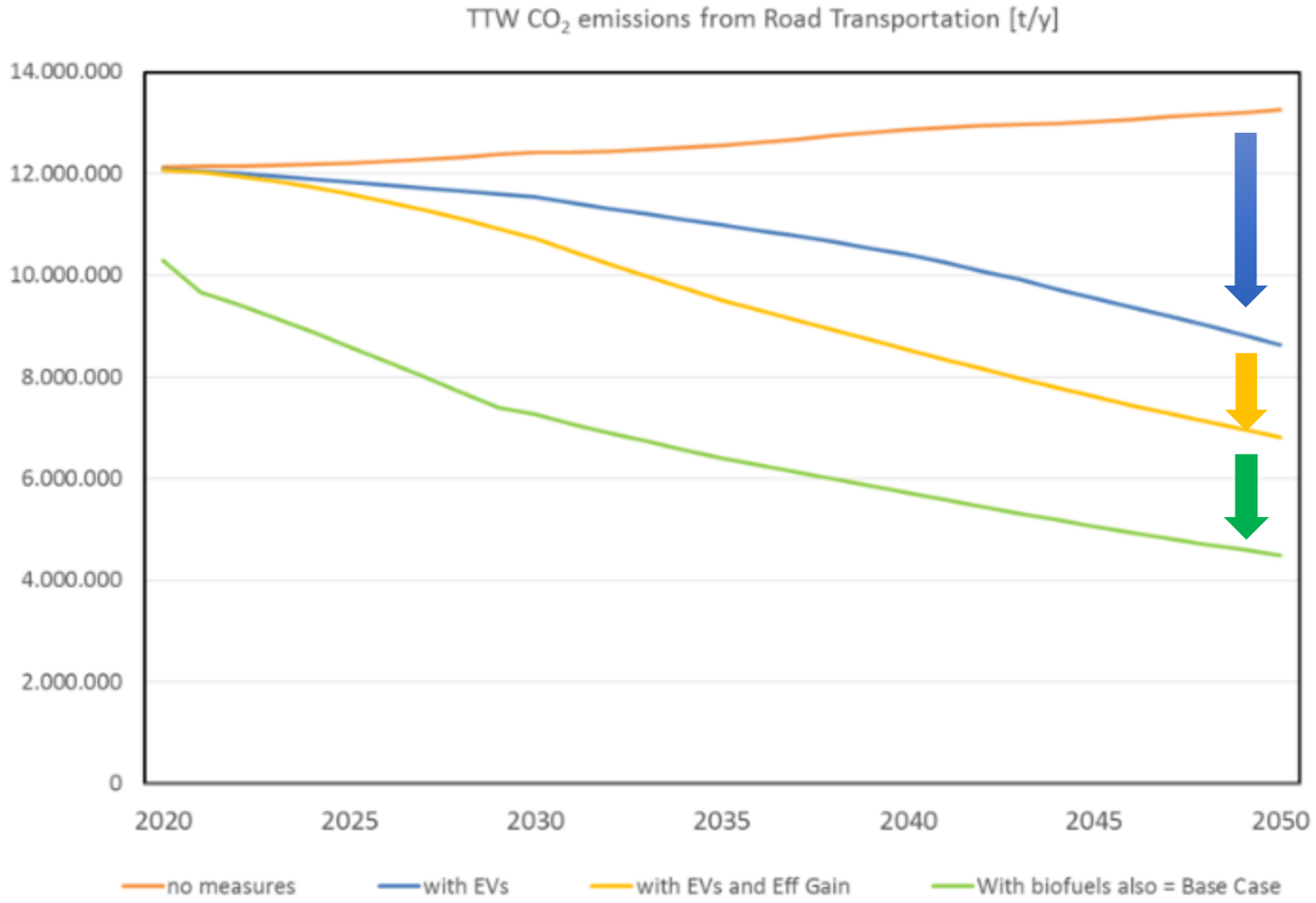
Current Policies – FINLAND

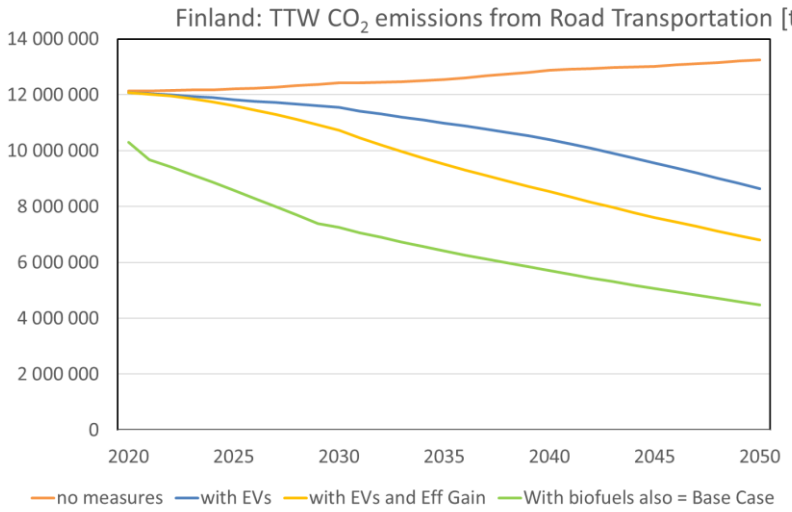


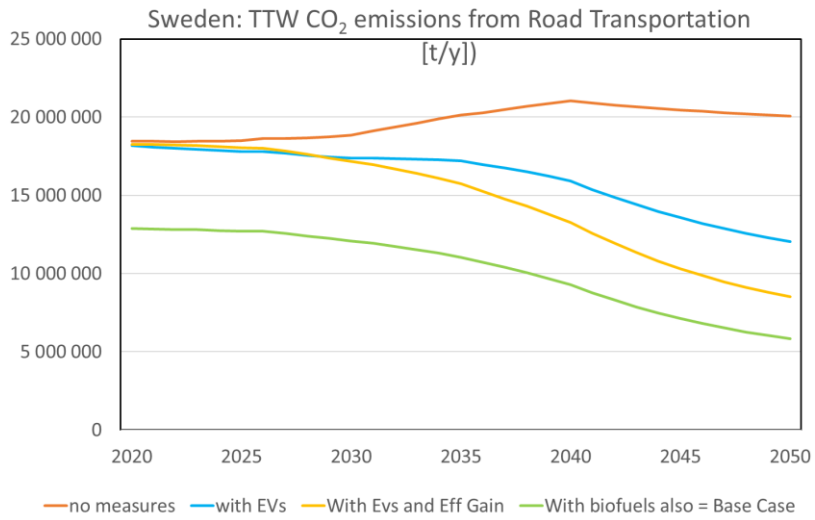
Electrification

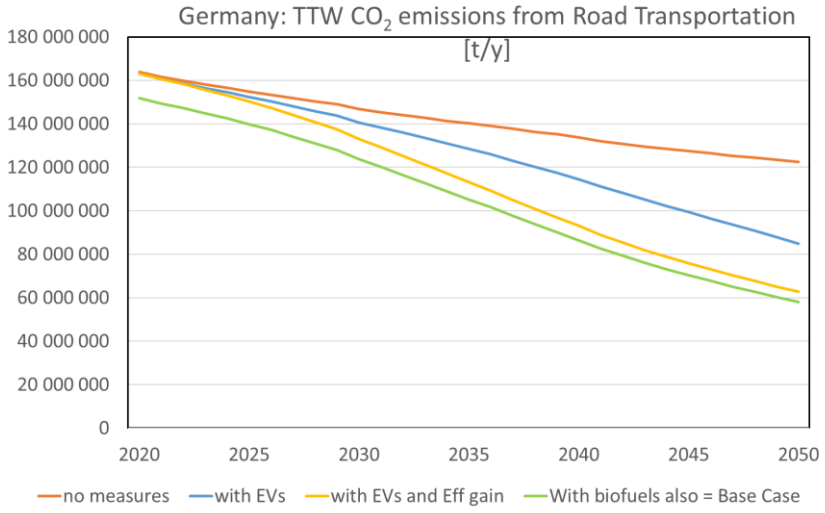
Improvement in energy efficiency

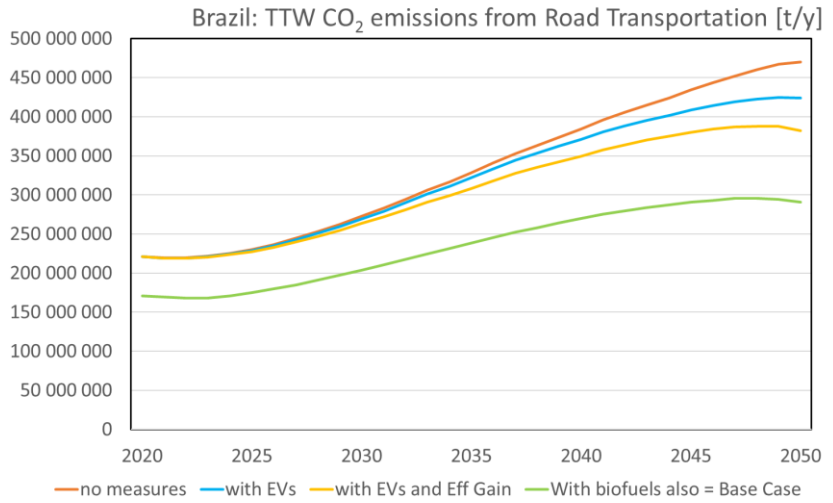
Biofuels

TTW CO2 Emissions Current Policies









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Key Messages

- Bringing the GHG emissions of the road transport sector down to zero by 2050 cannot be achieved by one measure alone.
- Countries that deploy a set of different measures such as reducing transport demand, improving vehicle efficiency, and adding renewable energy carriers such as biofuels, e-fuels, renewable electricity and renewable hydrogen have the best chances to meet ambitious decarbonization goals.
- Our assessment shows that biofuels contribute most to decarbonization now and up to 2030, 2040, or even 2050, depending on the country. In Germany, efficiency gains become the main contributor after 2030, and in Finland and Sweden the impact of biofuels remains largest until around 2040 when the use of electric vehicles takes over. In Brazil, biofuels remain the largest contributor until 2050.

Thank you to the team of authors!

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www.iea-amf.org

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