

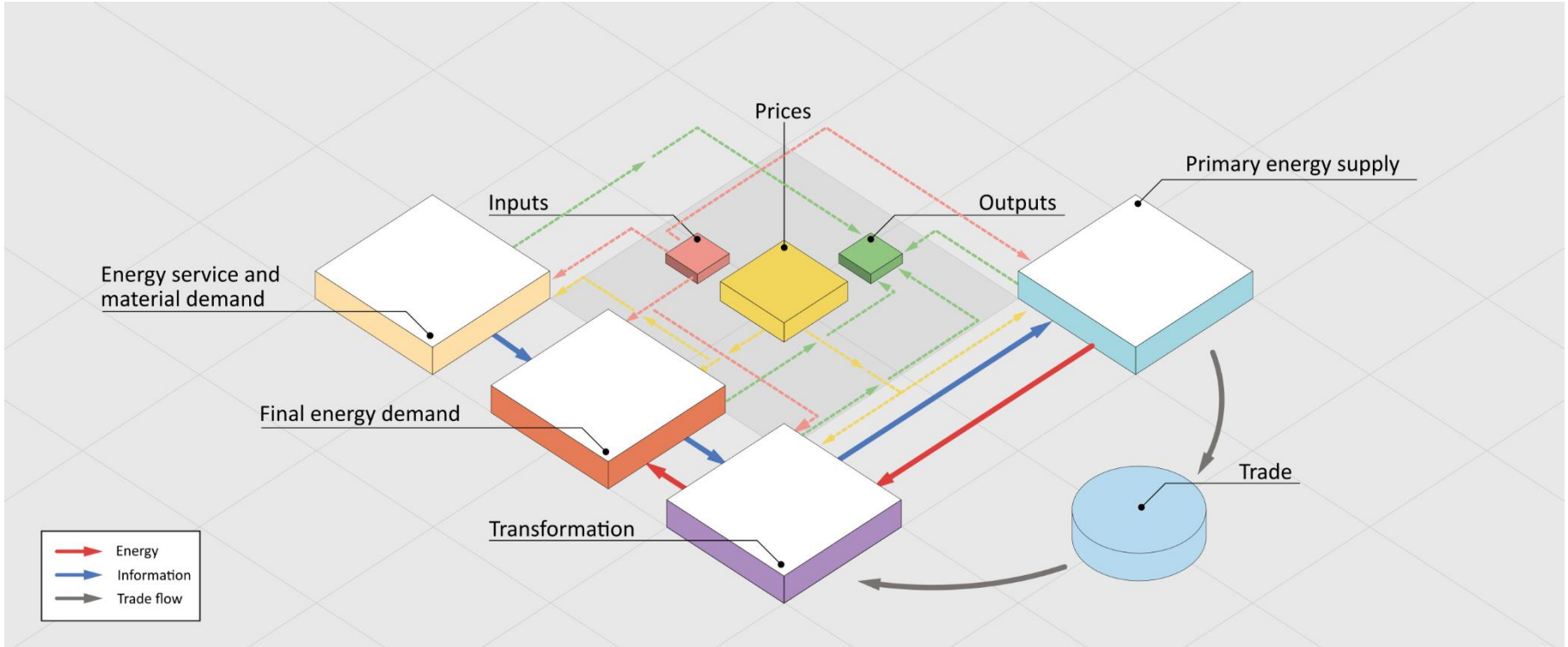


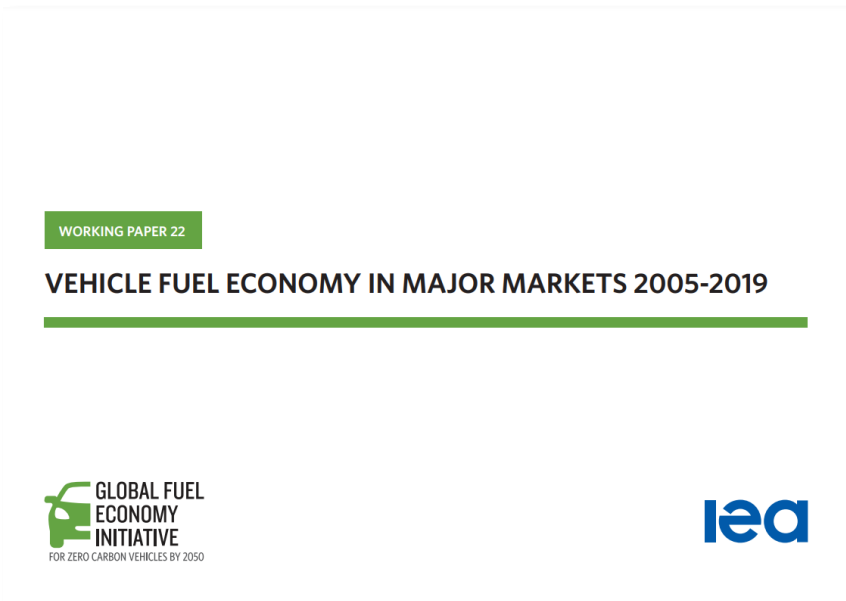
# Assessing lifecycle emissions using IEA data

Elizabeth Connelly, PhD

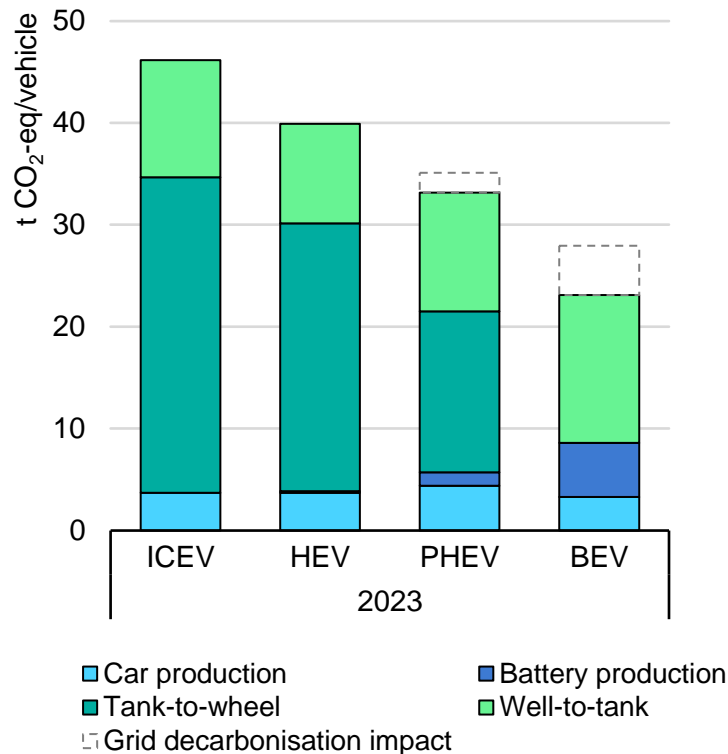
30 April 2024

# The structure of the Global Energy and Climate Model



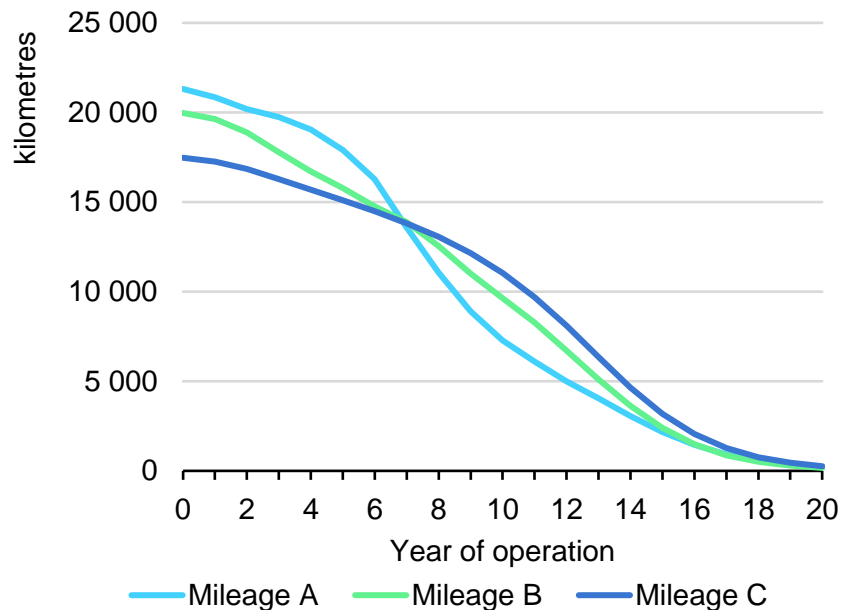


Global average medium-car lifecycle emissions by powertrain in STEPS, 2023

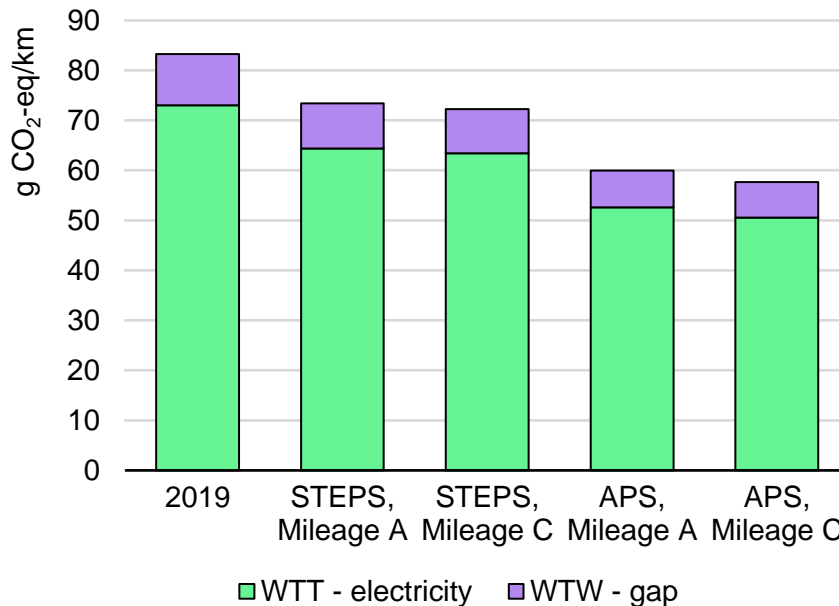


# Accounting for mileage decay in lifetime well-to-wheel emissions

Illustrative scrappage + mileage decay curves



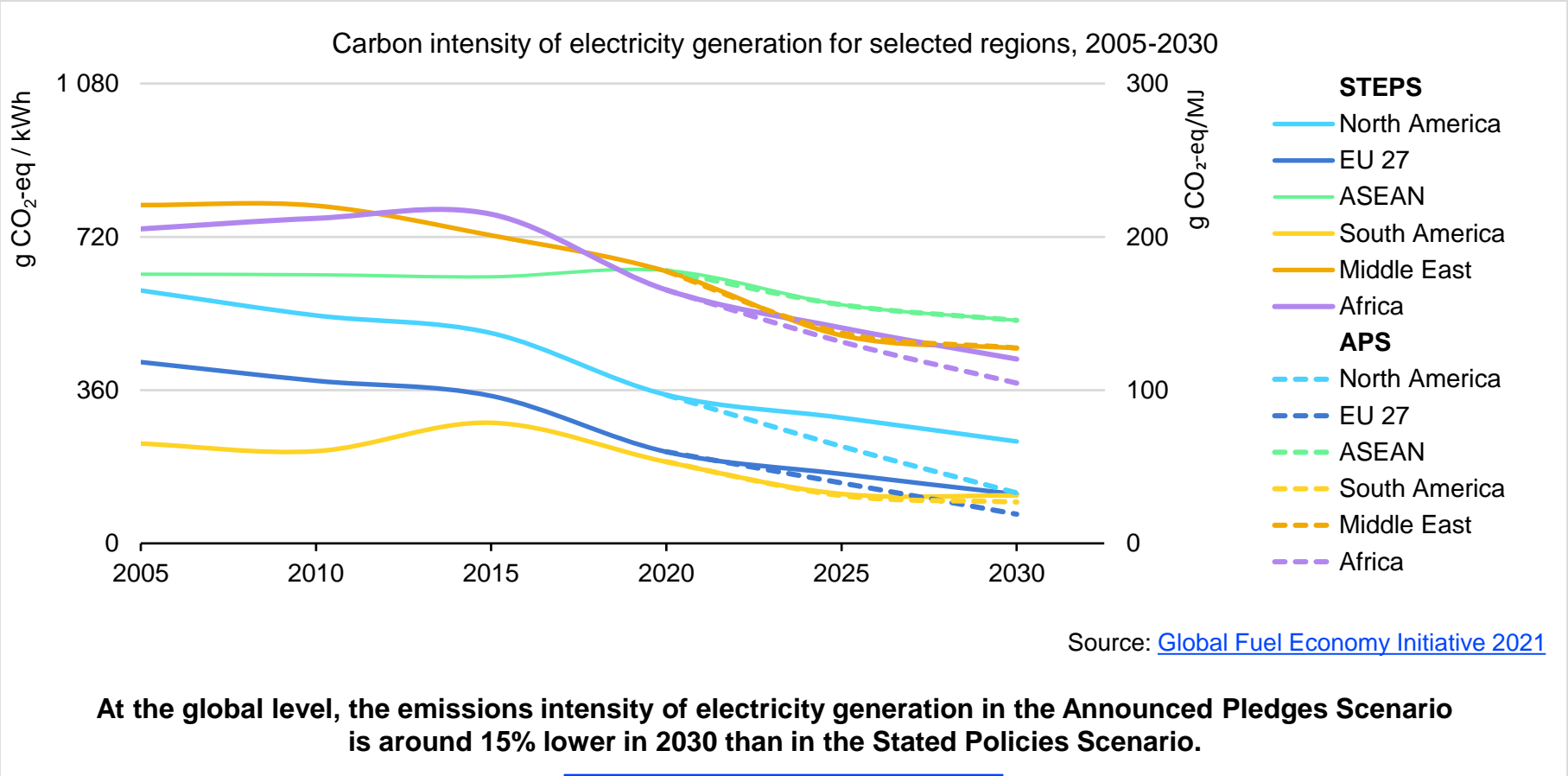
First year of use versus lifetime well-to-wheel emissions of battery electric vehicles



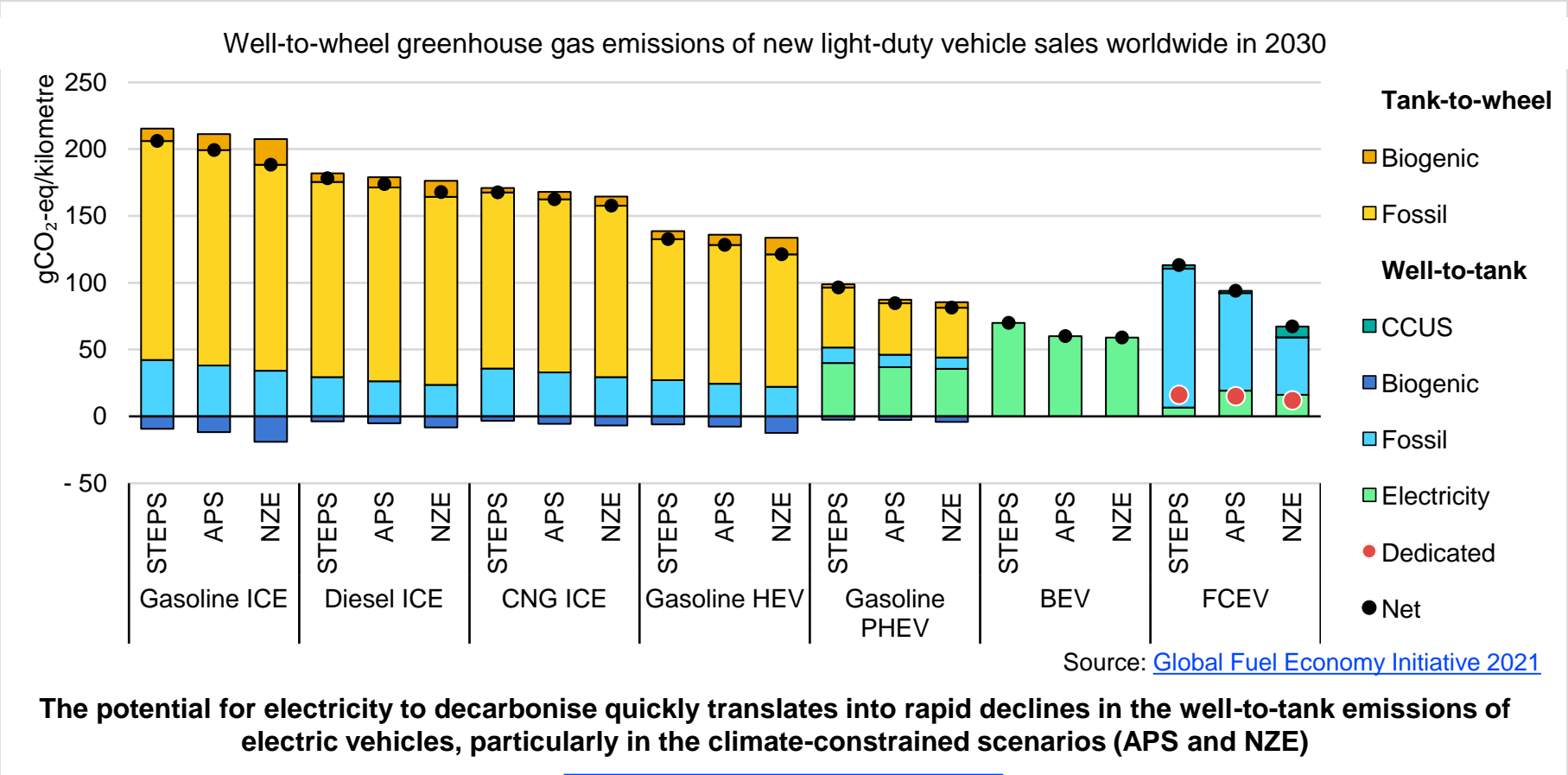
Source: [Global Fuel Economy Initiative 2021](#)

**The lifetime well-to-wheel emissions intensity of BEVs declines over time as the electricity grid decarbonises, but more driving is expected in the early years of the vehicle lifetime.**

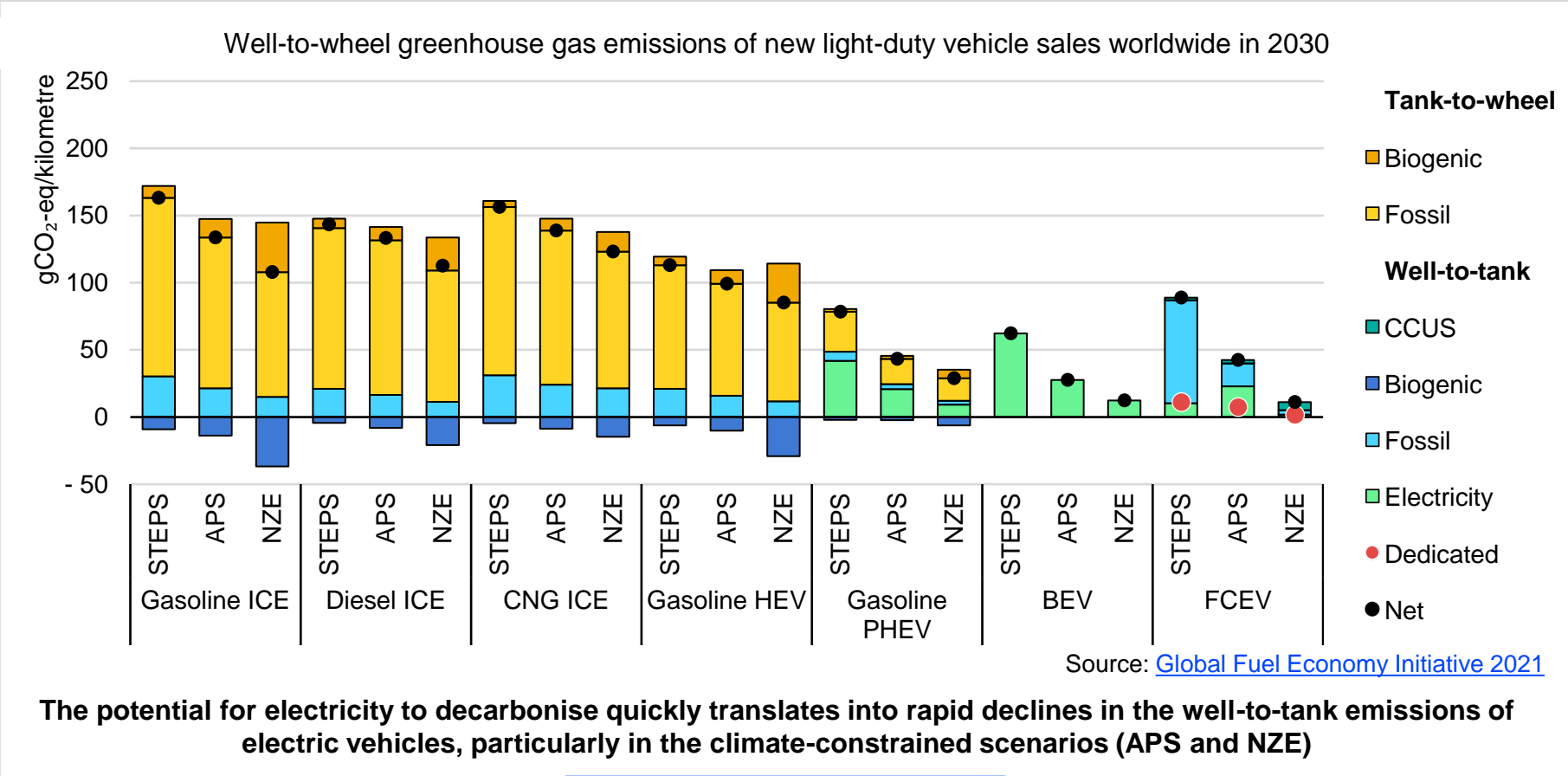
# Evolution of electricity generation carbon intensity



# Battery electric vehicles have the lowest well-to-wheel emissions



# Battery electric vehicles have the lowest well-to-wheel emissions



**The potential for electricity to decarbonise quickly translates into rapid declines in the well-to-tank emissions of electric vehicles, particularly in the climate-constrained scenarios (APS and NZE)**

iea