SAME ELECTRIC VEHICLE, DIFFERENT GHG FOOTPRINT

Well-to-wheel carbon emission per mile driven

ICE

Plug-in Hybrid

Battery Electric

New York (NY)  Palo Alto (CA)  Anchorage (AK)

ICE

Plug-in Hybrid

Battery Electric

Source: Union of Concerned Scientists EV Emissions Tool
THE PATH TOWARDS ZERO EMISSION: A EUROPEAN PERSPECTIVE

Tank-to-wheel\(^1\) carbon emission per mile driven

**Average of all passenger cars**

- **2015**: \(~190\) Grams of CO\(_2\)e per mile
- **2020**: \(~160\) Grams of CO\(_2\)e per mile
- **2030**: 85-95 Grams of CO\(_2\)e per mile
- **2040**: 0-70 Grams of CO\(_2\)e per mile
- **2050**: 0-50 Grams of CO\(_2\)e per mile

**Average of all commercial vans**

- **2015**: \(~290\) Grams of CO\(_2\)e per mile
- **2020**: \(~240\) Grams of CO\(_2\)e per mile
- **2030**: 130-150 Grams of CO\(_2\)e per mile
- **2040**: 0-100 Grams of CO\(_2\)e per mile
- **2050**: 0-75 Grams of CO\(_2\)e per mile

**Source**: Concawe, Impact Analysis of Mass EV Adoption and Low Carbon Intensity Fuel Scenarios, Sep 2018

\(^1\) Tank-to-wheel typically account for 70-80% of the well-to-wheel lifecycle for petroleum-based fuel pathways (applicable to both gasoline as well as petroleum-based sources of electricity)
**How Does Transport Fit Into a Broader Picture?**

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<th>Sector</th>
<th>GtCO₂e/yr</th>
<th>Levers</th>
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<td>Baseline 2050</td>
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<td>Land use (net)</td>
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<td>Electricity</td>
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<td>2-degrees scenario</td>
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<td>▪ Renewables</td>
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</tbody>
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**Source:** Mercatur Research Institute, Technische Universität Berlin, presentation to European Commission, 2015

1: Assumes no carbon capture or sequestration, estimations vary widely depending on specific underlying methodologies

One proposal to 2-degree pathway

12-15% of the way towards 2-degrees
FORECASTS POINTING TO RAPID GROWTH

BNEF:
559 million EVs on the road by 2040 (33% of global fleet)
55% EV share of new vehicle sales in 2040
WHAT ARE OUR LEVERS?

- GHG reduction per vehicle-mile (~300g)
- Distance driven per vehicle (~10-20k miles/yr)
- # of vehicles on the road (~2 billion)

= 6-7 GtCO$_2$e/yr

- EV & low-emissions
- Fuel efficiency
- Efficient driving and platooning
- Efficient traffic flow
- Efficiency in last-mile transport
- Reduction of traffic congestion
- Shared rides and occupancy utilization
- Fit for purpose and powertrain rightsizing
Unrivaled U.S. network

Largest EV charging network in North America
70%+ market share of networked charging stations

50,000+ charging spots serving 425,000+ EV drivers at home, at work, around town and out of town

Expanding globally, having closed most recent $240m funding

DAIMLER  SIEMENS
BRAEMAR PORTFOLIO: SHARED MOBILITY

- **Two-sided marketplace platforms** connecting purpose-built cars to trip needs
- **Significantly improving vehicle utilization**, combating wasted vehicle hours, congested city streets, and smog pollutions
- **A managed fleet** opening up efficient routes as electrification and autonomy increases to realize V2B and V2G