



The Role of EVs in Saving fuel:

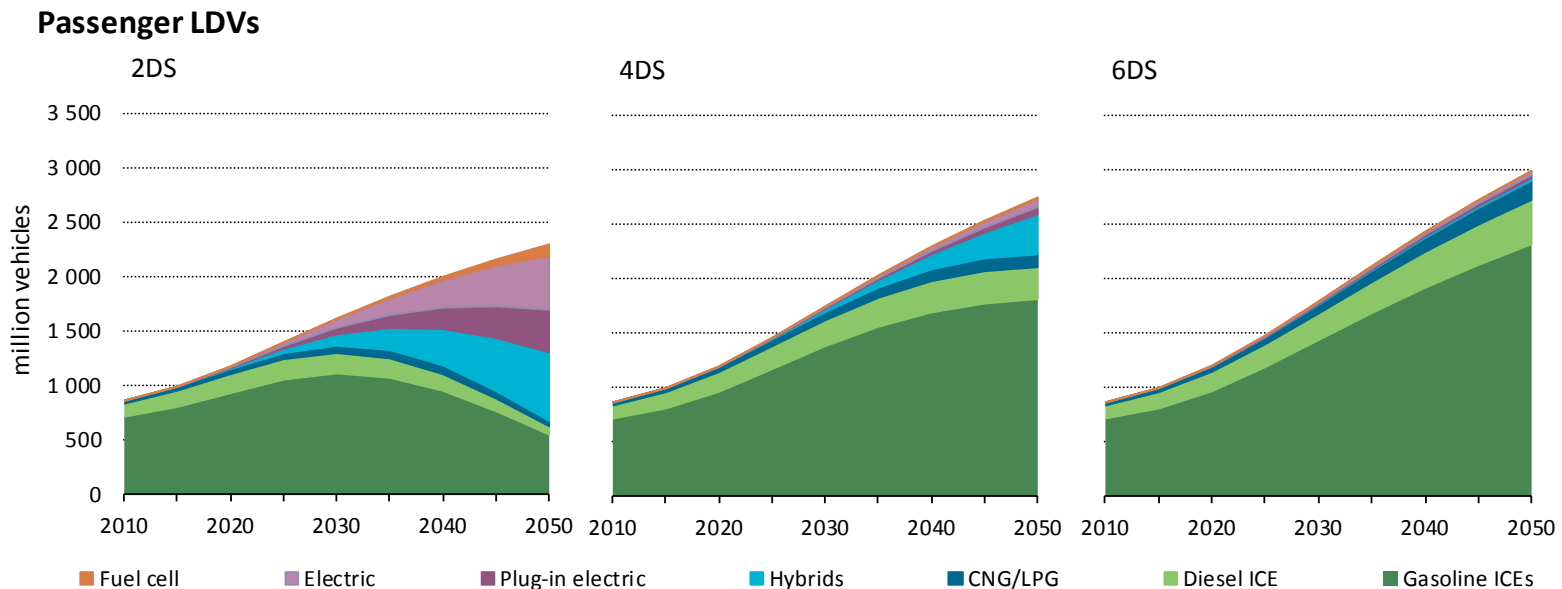
STEPS study on PEV global potentials to 2030

Lew Fulton,
Co-Director, Sustainable Transportation
Energy Pathways (STEPS), UC Davis

GFEI Session, ITF Leipzig, May 27, 2015

IEA Scenarios: Vehicle technologies – PLDVs

- Conservative 6DS: current fuel economy regulations do not translate in on-road improvements, ~3 billion LDVs in 2050
- Hybrids enter the fleet in 4DS significantly
- 2DS sees increased electrification and some FCEVs in long term. TDM limits LDVs below 2.5 billion in 2050. Local pollution one of policy drivers
- BEV and PHEV LDVs nearly 10% of LDVs stock by 2030, 40% by 2050. Leading markets are in OECD and China



Paris Declaration on Electro-Mobility and Climate Change & Call to Action

Released in Paris during COP21, signed by 20+ organizations including UN, auto manufacturers and NGOs (and groups representing them).

<http://newsroom.unfccc.int/lpaa/transport/the-paris-declaration-on-electro-mobility-and-climate-change-and-call-to-action/>

Key clauses:

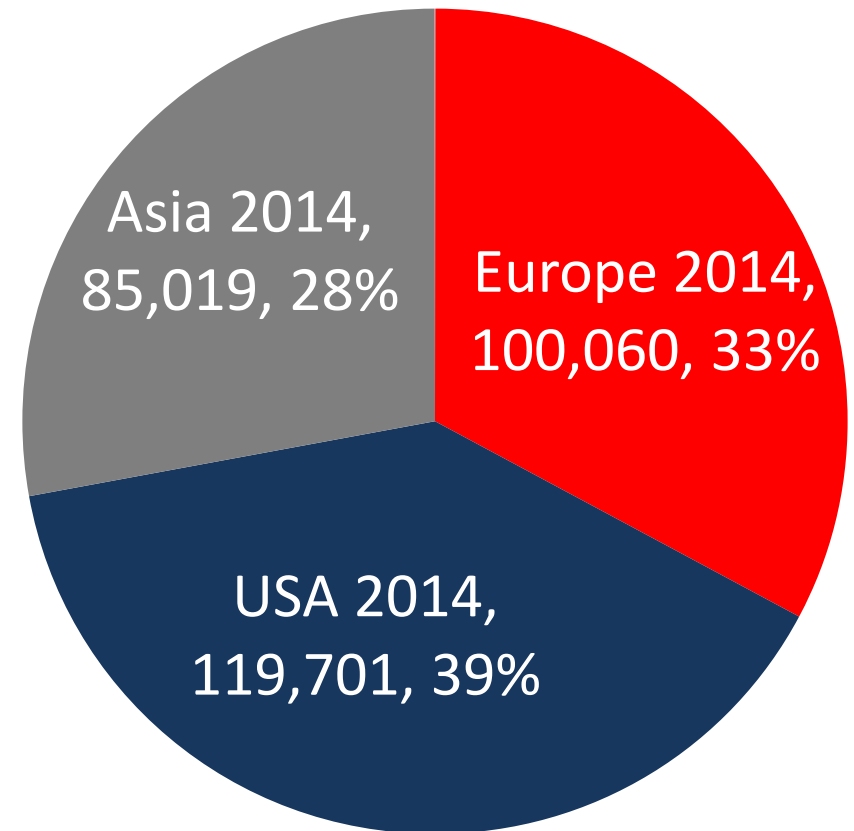
*With varying mandates, capabilities, and circumstances, **we commit to advance our work individually as well as collectively wherever possible to increase electro-mobility to levels compatible with a less-than 2-degree pathway...** We also call on governments at all levels, businesses, cooperative initiatives, and others to commit to this Declaration, take action, and advance global momentum for electro-mobility.*

*According to the International Energy Agency, this transition will require... at least 20 percent of all road transport vehicles globally to be electrically driven by 2030 if warming is to be limited to 2 Degrees or less. Of this, light vehicles would primarily contribute: more than 400 Million two and three-Wheelers in 2030, Up from roughly 230 Million today; and **more than 100 Million cars in 2030, Up from 1 Million today.***

UC Davis PH&EV Center Analysis: We are very early in a potential PEV transition

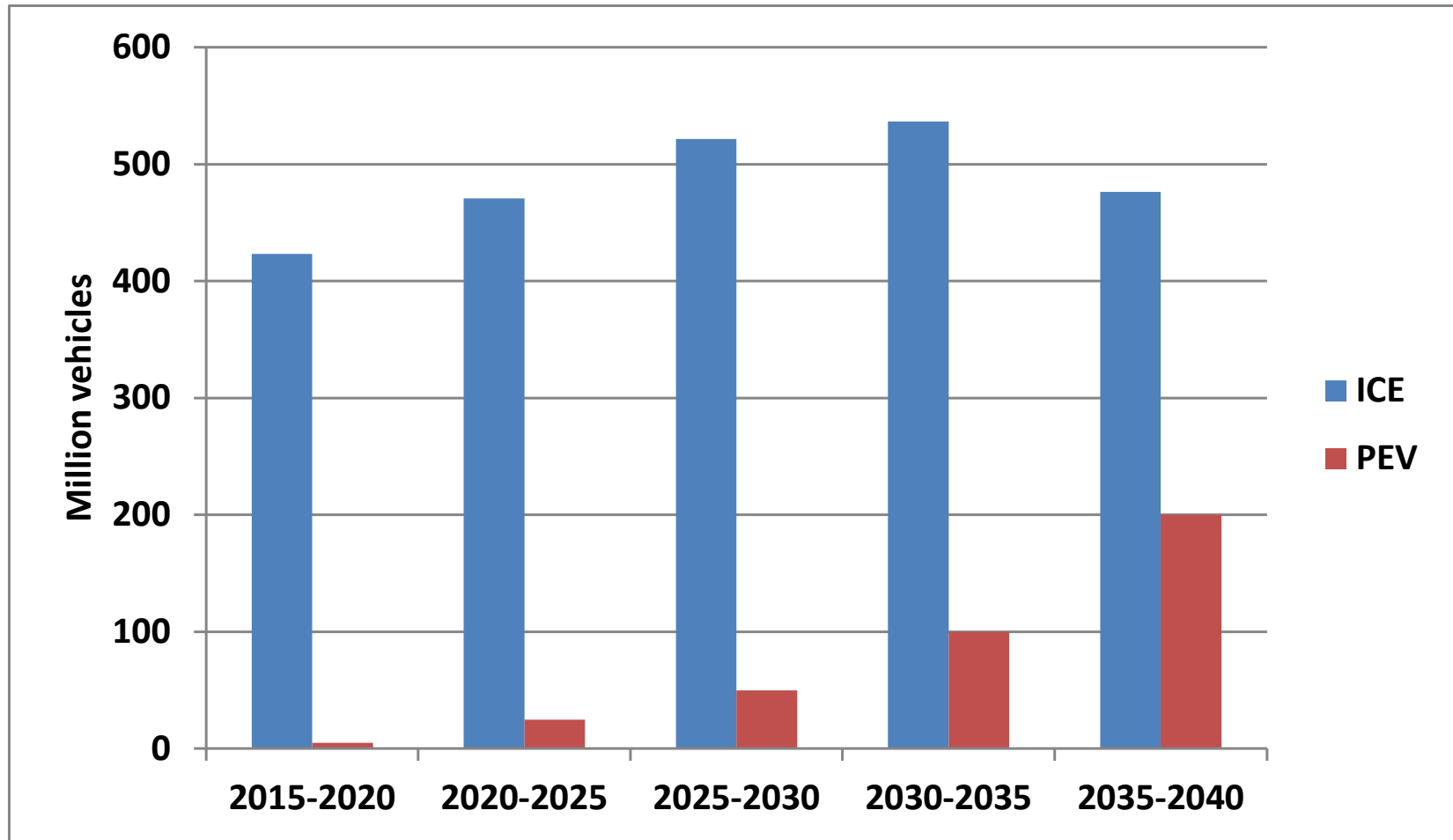
- Registered PEVs in the world reached 1 million in 2015
 - .1% of 1 billion vehicles
- Annual world market about 300,000 in 2014
 - Should exceed 400,000 for 2015
 - About .5 % of 88 million vehicles per year in 2015
- Sales are concentrated in a few “beachheads” with strong incentives- West Coast US, Northern Europe, Japan & China.
 - California has about 9-10% of world PEVs sales, 2-3% of all vehicle sales

2014 World EV/BEV Sales



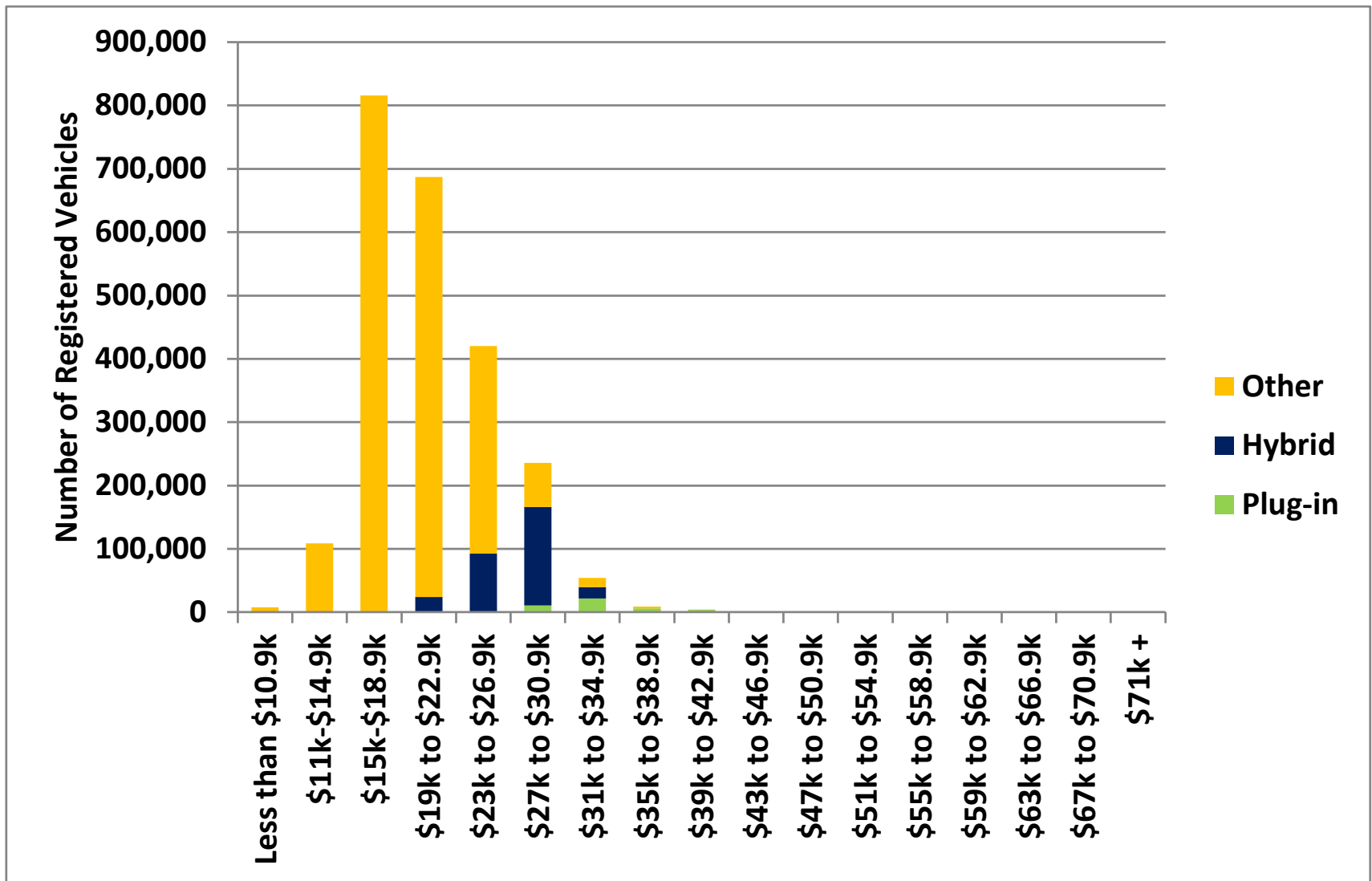
Even if Paris Declaration succeeds, ICE dominance likely at least to 2040.

Projected global LDV sales over 5-year periods



Source: Based on IEA ETP 2015 2DS, adjusted to fit Paris Declaration

The role of market structure US Segment C sales in 2013



IEA: Energy carriers with low carbon intensity

- In 2DS, 2050 demand for alternative energy carriers attains nearly 15 EJ in cities and exceeds 20 EJ for non-urban transport
- This is more than twice the urban demand of 4DS, and three times larger for non-urban
- 2DS-4DS differences in 2030 are smaller: the uptake of alternative fuel vehicles and low-carbon fuels is stronger in the long term

