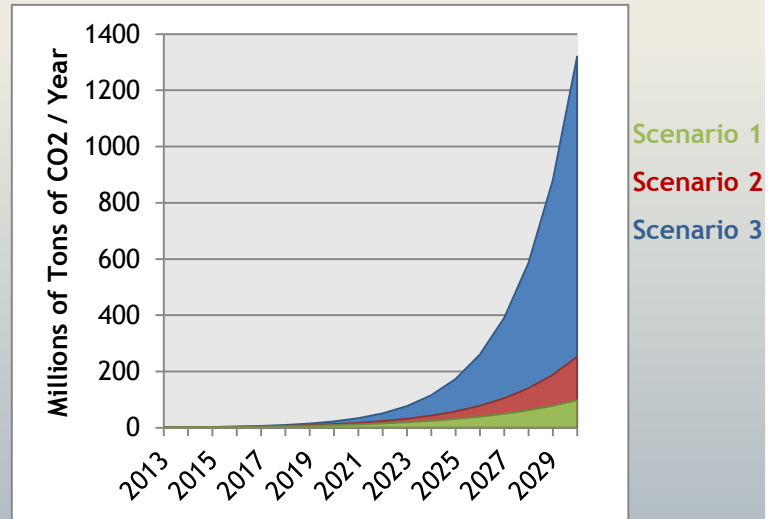


# Impact of Increased Use of Plug-in Electric Vehicles (PEVs) on U.S. and Global CO<sub>2</sub> Emissions

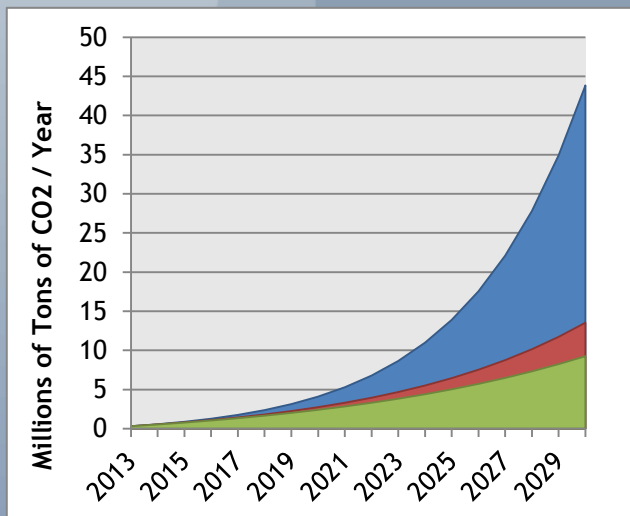
- The **U.S. 2014 National Climate Assessment Report** provides two scenarios that predict future levels of CO<sub>2</sub> based on U.S. and global response to climate change:
  - **A2**—Current increasing CO<sub>2</sub> emission trends continue
  - **B1**—Global emissions peak at 44 billion tons in the next 25 years and steadily drop for the rest of the century
- The **A2** scenario is estimated to increase global temperatures by 5-10°F, while the **B1** scenario is estimated to increase global temperatures by 3-5°F.
- Mitigation efforts to meet the **B1** Scenario include increased use of **energy efficient vehicles**, such as PEVs which include Plug-in Hybrid EVs (PHEVs), Extended Range EVs (EREVs) and Battery EVs (BEVs).

## Equivalent CO<sub>2</sub> Emission Reductions from Increased Sales in PEVs



Scenarios 1,2, and 3 show reductions of CO<sub>2</sub> emissions based on a 25%, 33.9% (calculated from EDTA<sup>2</sup>), and 50% growth rate in PEV sales, respectively. This graph assumes an average MPG of 25.5 per vehicle<sup>3</sup> and an average of 12,000 miles driven per year per vehicle<sup>4</sup>.

## Equivalent CO<sub>2</sub> Emission Reductions from Increased Sales in BEVs



Scenarios 1,2, and 3 are based on a 10%, 13.8% (calculated from EDTA<sup>2</sup>), and 25% growth rate in BEV sales, respectively. Though not as high, sales in BEVs alone would still contribute significantly to CO<sub>2</sub> reductions.

- Based on increasing sales in PEVs, the U.S. could reduce its yearly carbon dioxide emissions ranging from **97 million to over 1.3 billion tons per year**
  - With a continued 33.9% increase in PEV sales, the U.S. could **cut down current emissions per year<sup>5</sup> by 4.67%**
  - With a growth rate of 50% in PEV sales, the percentage would **increase to a 24.5% reduction in current yearly U.S. emissions**
- Between 2012 and 2013 alone, **BEV sales jumped from 14,251 to 43,394 BEVs in annual sales**
- With the increase of electric vehicles on the road, more availability of **charging stations (including solar-powered)** could encourage higher sales

1. U.S. 2014 National Climate Assessment Report
2. Electric Drive Transportation Association
3. University of Michigan Transportation Research Institute
4. U.S. Senate Committee on Environment and Public Works
5. Assuming the U.S. contributes an estimated 5.4 billion tons of CO<sub>2</sub>/year (EPA)