

Selective Reporting by DOE:

4/13/2011; The DOE just released a news item about the new International Energy Agency Clean Energy Progress report; the DOE news item summarized the report with the following, which can be found at <http://apps1.eere.energy.gov/news/enn.cfm> (click on "DOE highlights international initiative to promote clean energy") Here is what the DOE wrote about the IEA report (I added the emphasis on electric vehicles and plug-in hybrids, which the DOE would like to portray as the only electric vehicle options):

IEA Releases First Clean Energy Progress Report at Ministerial

**Plug-in hybrids and electric vehicles** such as the Chevrolet Volt could be a key to cutting down fossil fuel usage, according to the International Energy Agency.

The International Energy Agency (IEA) released its first Clean Energy Progress Report at the Clean Energy Ministerial in Abu Dhabi, United Arab Emirates, on April 6. The report finds that impressive progress has been made in developing clean energy technologies in recent years, but the surging demands for fossil fuels are outstripping deployment of clean energy technologies. The report focuses on global deployment of clean energy technologies and provides recommendations to countries on future action and spending.

According to the IEA, coal has met 47% of the world's new electricity demand over the past decade, eclipsing clean energy efforts made over the same period of time, which include improved implementation of energy efficiency measures and rapid growth in the use of renewable energy sources. IEA argues that more aggressive clean energy policies are required, including the removal of fossil fuel subsidies and the implementation of transparent, predictable, and adaptive incentives for cleaner energy options.

The Clean Energy Progress Report provides an overview of key policy developments and public spending on research, development, demonstration, and deployment of clean energy technologies. Among those technologies, the report mentions renewable energy, energy efficiency, and electric vehicles (EVs). The report also urges governments to do more to assist the introduction **of EVs and plug-in hybrid vehicles**, which are emerging as an area of intensive activity. It spotlights solar and wind power as two areas of strong development. See the IEA press release.

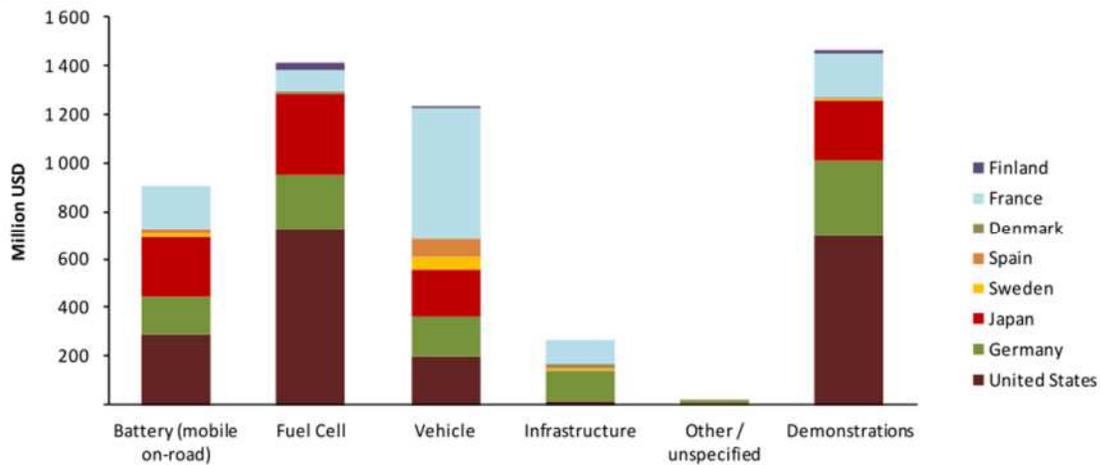
See the next page to see what the IEA actually wrote about electric vehicles, which include battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and hydrogen-powered fuel cell electric vehicles (FCEV's). IEA report available at [http://www.iea.org/papers/2011/CEM\\_Progress\\_Report.pdf](http://www.iea.org/papers/2011/CEM_Progress_Report.pdf)

## *Public spending on research, development and demonstration*

The RD&D data on vehicle efficiency include on and off-road transport vehicles as well as agricultural transport systems and waste heat recovery. Electric vehicles include infrastructure and storage systems and hydrogen and fuel cells for mobile applications. Figure 37 shows RD&D spending in electric/ PHEV and vehicle efficiency. Spending dramatically increased since 2003 in all countries, from USD 265 million to USD 1.6 billion in 2010. The countries with large vehicle markets (and manufacturing) dominate the spending: the United States, France, Japan and Sweden made up more than 80% of total RD&D between 2005 and 2010. Germany shows surprisingly low amounts of spending in these technology areas while Australia spent impressive amounts between 2009 and 2011 (USD 270 million) against previous decadal average of less than USD 4 million in the period 1999-09. No data is available for China and other emerging economies. Few countries recently submitted detailed RD&D data which permit to make a split on different research categories. For example, the United States spent over USD 500 million on electric vehicles, vehicle batteries and EV infrastructure, at least USD 280 million on fuel and on-road vehicle efficiency and further USD 350 million on other transport efficiency in 2010. In Japan, only about 10% of total budgets for transport efficiency were spent on on-road vehicles the same year. Still, both countries were not able to allocate more than 50% of the amounts spent on transport RD&D in 2010.

The IEA defined EVs as “Electric vehicles include infrastructure and storage systems and **hydrogen and fuel cells** for mobile applications.” The DOE never mentioned the hydrogen and fuel cell part of the IEA’s report. The IEA Figure 38 also revealed that the world spent more on fuel cells than on batteries:

**Figure 38.** Public spending on electric vehicle RD&D category for selected countries 2008-11



Source: Country submissions.

The IEA recommended that nations should develop clean energy systems including future systems “such as hydrogen and EV charging”:

### *Develop integrated clean energy systems*

The year 2000 marked an important historical moment, as the share of global population living in urban environments surpassed 50%. This proportion will continue to grow over the next few decades. The energy infrastructures on which communities depend will therefore need to be adapted and upgraded to meet increasing demands for energy services. This provides the opportunity for local government leaders to encourage increased deployment of clean energy systems and gain the benefits that they offer.

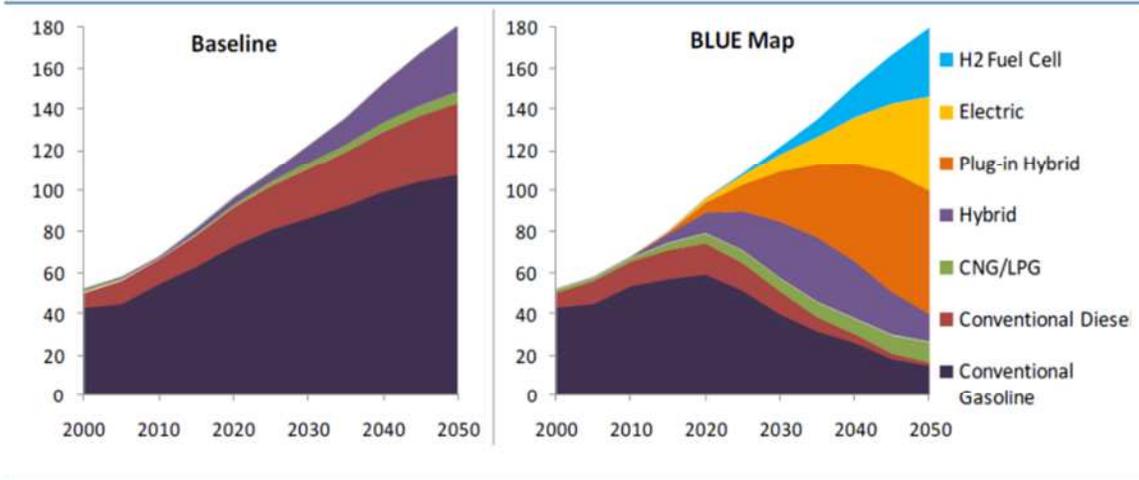
Page

The development of smart grids is an essential step to enable and integrate the clean energy technologies needed to support demand, supply and transport. Smart grids are needed to provide the information and tools to allow electricity consumers to decrease costs and increase efficiency of energy use. Several concepts are emerging that extend the reach of the smart grids from electricity systems to broader energy and societal contexts. One of these is the smart community or smart city.

A smart community integrates energy supply and use systems within a given region in an attempt to optimise operation through customer energy management while also allowing for maximum integration of renewable energy resources, from large-scale wind farms to micro-scale rooftop PV systems. Smart communities include existing infrastructure systems, such as electricity, water, transportation, gas, waste and heat, as well as future systems such as hydrogen and EV charging. The goals of such integration through the use of information and communication technology (ICT) include increased sustainability, security and reliability, as well as societal benefits such as better services, reduced capital investment and job creation (IEA, 2011c).

The IEA “blue map” suggests significant hydrogen-FCEV sales by 2050, which the DOE ignored in their review:

**Figure 32.** Passenger LDV sales by technology type and scenario (million sales per year)



Note: The California Air Resources Board has projected that hydrogen-FCEVs will have to account for more than half the vehicles on the road (not sales) by 2050 to meet the California goal of cutting greenhouse gases by 80% below 1990 levels by 2050 (from Tom Cackette’s presentation to the fuel cell and hydrogen energy conference, Washinton D.C. February 15, 2011):

