Energy Technology Perspectives 2015

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Insights emerging from the 2015 Global EV Outlook (IEA)

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Transport energy use

- Transport is the end-use with the least diversification

1973

- 23% of total final energy consumption, mostly (94%) using oil products
- 45% of global oil demand

Transport in 1973

2012

- 27% of total final energy consumption, mostly (93%) using oil products
- 64% of global oil demand

Transport in 2012

Source: IEA Key World Energy Statistics 2014
- Electricity represents 1% of final transport energy use
- Rail is currently the most relevant mode for electric mobility
Global passenger car (BEV and PHEV) sales reached 300k in 2014, growing 53% compared to 2013.

Market developments uneven: sales shares of EV cars above 1% in the Netherlands, Norway, Sweden and the US.

EV car stock: 0.65 millions (0.1% of total)
Transport electrification trends
The quiet rise of electric two wheelers in China

- 36 million e-bikes are manufactured each year in China
- Total Chinese stock of mopeds and power-assisted bicycles exceeded 230 millions 2014

spotlight on China

230 MILLION e-bikes
83,000 e-cars
36,500 e-buses
Transport electrification trends
Other relevant indicators

Electric Vehicle Supply Equipment (EVSE)
- EVSE stock more than doubled for slow charging points between the end of 2012 and 2014, and increased eightfold for fast charging points

Battery progress
- PHEV battery costs ranging between 300 and 350 USD/kWh
- Energy density close to 150 Wh/L
Future prospects?
IEA scenarios: ETP series of publications

- Analysis of systemic efforts allowing the progressive decarbonisation of the energy system
- Three main scenarios: 6DS, 4DS and 2DS

Transport is part of the solution
Transport decarbonisation cannot take place in isolation
Future prospects?
Three pillars of transport decarbonisation

- Avoid-Shift-Improve strategy

- Multiple benefits: energy diversification, CO₂ emission reduction, improved health and environmental conditions (strategy compatible with reduction of pollutant emissions)
Transport electrification
Different prospects for personal EVs

- **4DS scenario (current policies and limited changes in technology uptake): limited role for PHEVs and BEVs**

- **2DS scenario**
  - 20M BEV and PHEV by 2020 (consistent with EVI target)
  - BEV, PHEV and FCVs: 3/4 of new vehicles sold in 2050
Electric Vehicles Initiative

- Forum for global cooperation on development and deployment of EVs, established under CEM
  - Target: deployment of 20M EVs (BEV, PHEV and FCVs) by 2020
  - 17 countries: Canada, China, Denmark, France, Germany, India, Italy, Japan, Korea, Netherlands, Norway, Portugal, South Africa, Spain, Sweden, United Kingdom, United States

- Four primary objectives:
  - Common data collection/analysis efforts (Global EV Outlooks)
  - Greater RD&D collaboration (co-operation with IA-HEV)
  - City forum (EV City Casebook, BIG ideas casebook)
  - Dialogue between public authorities and private sector

- Outputs
  - Reports, targeted analysis (policy, regulatory, and technical topics), meetings, workshops, roundtables
ETP 2016: urban energy focus

- Focus on avoid-shift-improve potential through city framework as world continues to urbanize
- Improved assessment of technology deployment potential in urban/non-urban contexts (including EVs)

Source: Tale of Renewed Cities (2013)