The Green Road Ahead

Memo

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Subject: OECD CIIE Workshop "The Green Road Ahead – What Role for Government in Fostering Clean Vehicle Markets?

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The presentations and discussions raised a number of gaps, trade-offs, and long-term trends that policymakers will need to address in fostering clean vehicle markets.

I. Gaps

1) Between government and industry

On ***targets***:
Government targets for green vehicle deployment and automaker production plans begin to diverge in 2014, with the former largely surpassing the latter.

On ***commitments***:
The auto industry expressed a need for long-term and harmonized policy commitments in order to invest in AFV production in mature markets. This in turn will allow governments to reap the benefit of their investment in fostering clean vehicle markets by capturing the attendant innovation, tax base, and job creation.

On ***policy perspectives***:
The auto industry argued that fuel efficiency is already the primary factor in any decision to build and sell vehicles in the European market because it is what consumers are demanding. It would like to see public policymakers focus more on the other actors necessary to the successful deployment of AFVs.

2) Between utilities and industry on *communication protocols*

Negotiations between utilities and automakers on creating communication protocols can bog down EV deployment. They have been most successful when groups are specifically set up for this purpose and facilitated by government.

3) Between industry and consumers on *perceived range needs*

Only a very small fraction of daily commutes are longer than the 100-mile range of the EVs that industry is bringing to the market, but many consumers perceive their daily needs to be greater, and thus the range insufficient. A large consumer education gap still needs to be filled.

4) Between consumers and government on *infrastructure needs*

Data from EV deployment in select markets and pilot projects show that most consumers charge their vehicles at their residence and underutilize level 2 public charging infrastructure. Furthermore, private sector groups have entered this market. A focus on the development of public fast-charging infrastructure may be more warranted.

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5) Between governments and different levels of government

Many governments at the national, regional and city levels are reinventing the wheel when implementing green vehicle programs, without a view to harmonization. Learning from, and integration with, neighboring programs should be integrated into the policymaking process.

II. Tradeoffs

1) Taxation versus AFV appeal

Green transportation will lead to tax base erosion in most countries and force a shift from gas taxes, one of the easiest forms of public financing, to more onerous ones. Vehicle-miles-traveled taxes are a viable alternative, but they would reduce the appeal of green vehicles unless AFVs are taxed at a lower rate than ICEs.

2) Subsidies versus equity

Given the demographics of AFV consumers (typically affluent 35-45 year old males purchasing a second vehicle) and the fact that most first adopters would purchase an AFV regardless of subsidies, policymakers may want to rethink AFV tax credits more progressively. The same applies to tax rebates on biofuels.
Subsidies have especially high social costs when applied to segments where a market case can already be made for AFVs, such as long-range AFV vans mostly used by businesses.

3) Subsidies versus polluters pay

Industry players expressed a preference for a level playing field over subsidies. In an era of increasingly tight budgets, long-term incentives will not be credible unless they are offset, for instance by 'polluters pay' measures.

4) Standardization versus lock-in

Standardization is needed to ensure interoperability within and across markets, but must be balanced against the risk of locking in sub-optimal technologies and choking innovation.

5) Incentives versus technology neutrality

Given the lack of overlap between the different AFV technologies in terms of market segments, R&D and infrastructure, policymakers should be mindful of structuring incentives in such a way that they do not favor one alternative over another. This can be achieved by promoting outcomes rather than specific technologies.

6) Range versus grid

Level 3 DC chargers allow for the fast charging of EV batteries. When strategically placed along highways they can dramatically extend the range of EVs and reduce range anxiety. However, they are also very taxing on the electric grid and are not viable options in areas with little grid redundancy (ex. Israel) or where the grid is weak (ex. China). In such cases a better option may be battery swap stations, which can in turn use DC chargers during off-peak times.

III. Outlook

1) Multi-speed timeframe

AFVs have a long road ahead. Even if 20 million EVs were on the road by 2020, they would only account for 2% of vehicles worldwide and less than 1% electricity demand. This means that fostering green transportation needs to incorporate ICEs as well. In fact, many green technologies can be can be applied to all vehicles, such as light-weighting and low-rolling resistance tires. Meanwhile, the cost of deployed AFV-specific technologies is falling rapidly. For example, the cost of a DC fast charging unit is now less than a quarter of the 40,0000 euros it cost 3 years ago.

2) Patchwork markets

The lack of convergence over the best incentives to spur green transportation reflects countries' various regulatory frameworks and experiences, and emphases on different policy goals, such as CO2 emission reduction or energy security. Some governments (ex. Estonia) have adopted proactive, top-down approaches to AFV deployment, while others (ex. Korea) see themselves as facilitators. As a result, AFVs are being deployed in market pockets with varying sets of standards, incentives, business models and government involvement. The challenge is for these markets to sufficiently grow and harmonize in order to create the critical mass necessary for a sustainable AFV market.

3) Transformative actors

New businesses

The automotive sector is a very homogenous market that has been operating on the same basic model for over a century. AFV start-ups are offering innovative business models, products and services that are disrupting this model.

Utilities

The electric grid will be key to greening transportation because it determines to what extent EVs can shift from displaced-emissions vehicles to zero-emissions vehicles. Utilities are also crucial to creating a secondary market for batteries and therefore making the EV value proposition more attractive.

OECD Cities

Big cities will be the drivers of EV deployment in OECD countries as green transportation is also a part of urban air quality improvement, and noise and congestion reduction plans. Zero-emissions city centers may become more common.

Non-OECD countries

As developing countries, and especially Asia, become an increasingly important driver of automotive market growth, their demographic profiles, urban environments, and goals will come to shape product development more so than OECD countries. E-mobility is already most deployed in China, especially in the form of e-bikes, and inexpensive 2-wheelers are popular in India. The future of green transportation may not lie in familiar four-wheel vehicles.