Mass electrification of the vehicle fleet: overcoming obstacles to ambitious roll-out

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Context – The good news..

Significant hype around electric vehicles.

Past trends and company announcements suggest EVs could be capable of mass market penetration during 2020s

IEA, 2016
A global dynamic, with strong growth in China and US, among others Responds to numerous policy objectives for governments
Very rapid scale up requirement before and during 2020s to significantly decarbonise transport in line with Paris Agreement / 2DS.
Context – The scale of the challenge

Figure 1. BEV sales scenarios

Similar story in France...
Current barriers to faster EV roll out in France

France, like a handful of other OECD countries (and China), has generous subsidies for EVs

• E.g; éco-bonus + super bonus + bonus-malus on ICE vehicles.

But other barriers remain..

Policy needs to focus on removing these other barriers (not just subsidies).
Insufficient charging infrastructure

Absence of conveniently located charging stations limits attractiveness of EVs.

Depending on circumstances, 1 to 8 hour charge for L2 charging station.

Conveniently located often means next to home or work.

Raises three issues:

• Where to place charging stations?
• Who owns/pays for charging stations?
• How to optimise roll out and use of public charging stations?
Limited vehicle choice

Needs to be a market for vehicles that are neither small urban vehicles or luxury sports cars

This will be helped by an overall decline in battery cost and size, rising costs of ICE. But issue of how to create diversity until then...
Residual value

Leasing of EVs currently faces significant challenges due to low residual value of vehicle...
Financing the move from niche to mass deployment

Given higher upfront costs of EVs, mass deployment is a significant financial challenge

How should this challenge be managed?

Key challenges for governments:

- Managing costs of subsidy schemes
- ICE Vehicle & fuel taxation
- Fuel tax revenue base erosion
- Distributional implications
Phase 1: Financing tech learning & create niche market

Objectives of this phase:
- Subsidise current incremental technology cost of EVs until costs plateau.

Key policy implications:
- Subsidise tech learning cost
- Gradually increase taxation/regulation on ICES/fuels
- Remove bottlenecks (see earlier)

Source: IDDRI.
Phase 1: Managing fiscal cost of support for mass roll out scenarios

Important to only support tech learning cost & phase out quickly
Use other measures to limit and offset subsidy cost (e.g. diesel prices)

*NB Gross subsidy costs
Phase 2: Get incentives right for mass-market uptake

Key objectives:
- EVs need to become attractive to broad range of households
- Limit unintended distributional impacts

Implications for policy
- Subsidies need to be phased out
- Incremental cost eliminated by higher taxes / regul. ICE and fuel.
- Create competitive credit/leasing markets
- Coordinate social welfare, rollout support and tax policies
Phase 3: Managing consequences of phasing out of ICE vehicles

Main objective
- Managing the consequences for governments of lower fiscal revenues from reduced ICE use;

Key policy implications
- Shifting tax burden gradually to other equivalently attractive alternatives
- A paradigm shift in medium term? (km-based charging?)
Need for a medium/LT fiscal strategy

Different fiscal issues have different time horizons.

The effectiveness of certain measures changes over time due to changes in the revenue base.

Need for anticipation and an integrated view

A 15c rise in diesel prices + 1% yr fuel tax increase would go a long way...