

Electric Mobility Incentives, Expenses, and Cost Recovery

Instruments for governments
and utilities to incentivise
electric mobility ecosystem
development

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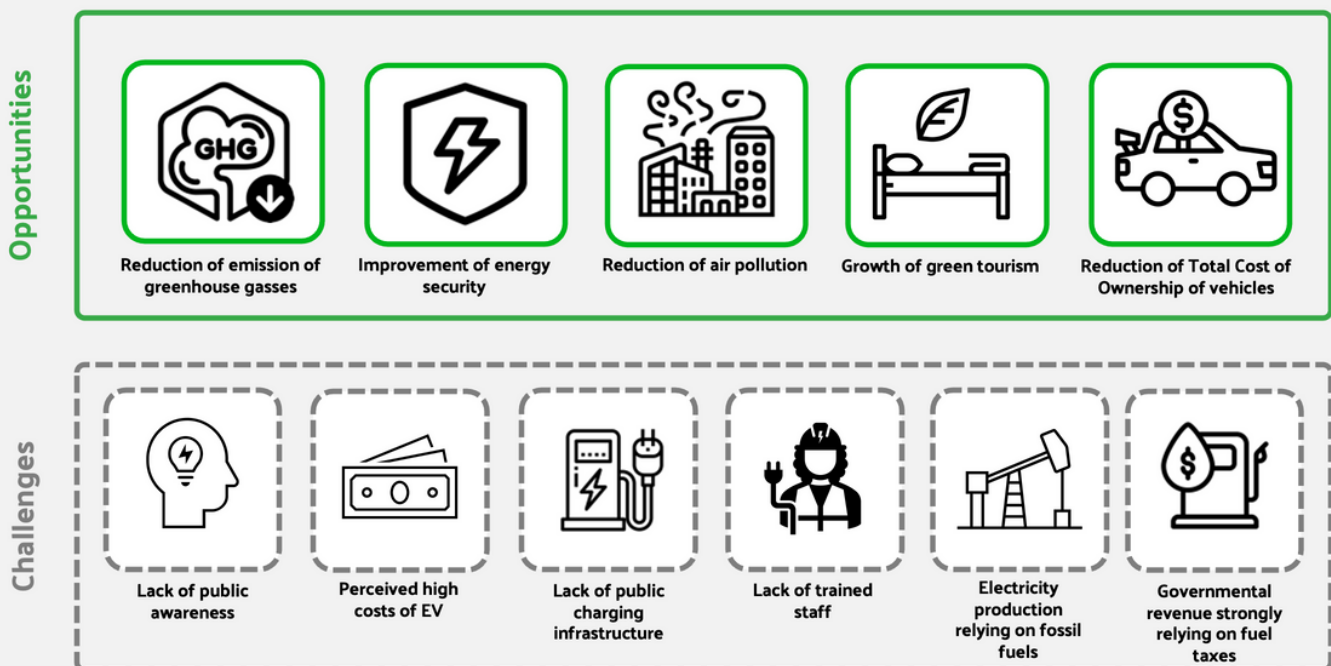
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Introduction

Electric mobility contributes to targets on the reduction of emission of greenhouse gasses and on the reduction of air pollution. However, challenges such as the perceived high costs of electric vehicles, lack of public awareness, and lack of charging infrastructure slow down the growth of electric mobility in many countries. Governments can actively contribute to overcome these challenges.

Various ways of incentivization could be applied by governments to incentivise electric mobility ecosystem development. These can vary in type, target group, duration, and size, and can be either financial or non-financial. Incentive schemes of countries where electric mobility has grown over the past years could be a source of inspiration. Ultimately, a government needs to establish its own set of instruments depending on the characteristics of its country's demographics, geography, energy-mix, transport-mix, sustainability ambitions, and other aspects.



Reading guide

This whitepaper provides a selection of success stories on implementation of nationwide incentive schemes for electric mobility ecosystem development [page 2]. It also describes perspectives on how the costs of such incentives could be recovered [page 3]. Lastly, our approach for the implementation of a nationwide incentive scheme is presented [page 4].

International Success Stories

Purchasing Incentives in North-West Europe

To overcome the relatively high upfront costs of purchasing an EV, several governments provide purchasing incentives. The goal of such incentives is **to make EVs more financially attractive as compared to internal combustion engine (ICE) vehicles**. These incentives have various forms, such as:

- A direct fixed or relative purchase subsidy
- Tax exemptions and reductions of road, import, profit, value-added, and Benefits-in-Kind tax.
- A carbon tax on fuels (to increase the total costs of ownership (TCO) of ICE vehicles).

Incentives for Charging Point Operators in The Netherlands

In order to incentivise charging point operators to install public charging points, the Dutch government provided subsidies for cities to fund the ‘unprofitable top’ of a business case of a charging point. This resulted in **an assured break-even business case for every charging point**.

Moreover, The Dutch government incentivised municipalities to collaboratively purchase charging points, this contributes to economies of scale and thus cost reduction. Besides, a national knowledge platform was established to develop and disseminate knowledge regarding charging infrastructure on value chain optimisation, standardisation, protocols, and smart charging. The goal of establishing this platform was to lower the total costs of charging infrastructure.



'Feebate' schemes in Singapore and New Zealand

Growing electric vehicle purchases enabled by tax incentives and purchasing subsidies impact the governmental budgets. Expenses of the government grow while incomes from fuel excise taxes decline. To recover costs **a budget neutral fee and rebate scheme could be designed: a 'feebate' scheme**. Such a scheme is grounded in the thought of 'the polluter pays'.

In a feebate scheme, purchasers of vehicles with high carbon dioxide emissions pay a fee while zero or low emission vehicle purchasers receive a rebate. Such a feebate scheme could be applied to all vehicle purchases but also to a specific sector only. In Singapore, for example, a feebate scheme is implemented for purchasing taxis. A feebate scheme needs to be designed carefully. If, for example, fees on SUVs have to cover the rebates on electric vehicles, forecasts on sales of these vehicle types have to be estimated properly to determine the exact rates.

Public Fleet Electrification in Africa and the Americas

The electrification of **public buses and fleets of taxi companies, governments, and utilities** raises awareness due to visibility for the public and provides first experiences with electric vehicles for employees. Besides, it ignites the development of charging infrastructure. In many areas of the world, it has been the first step in electric mobility development. An important part of these successes is the shift away from procurement processes that are solely cost-based. Procurement processes that take into account environmental impact push sustainable development. Furthermore, suppliers are encouraged to include sustainable options in their offering. In the case of procurement of a governmental car fleet, car dealers and service providers are incentivised to train their staff to sell and repair electric vehicles.

Cost Recovery Perspectives

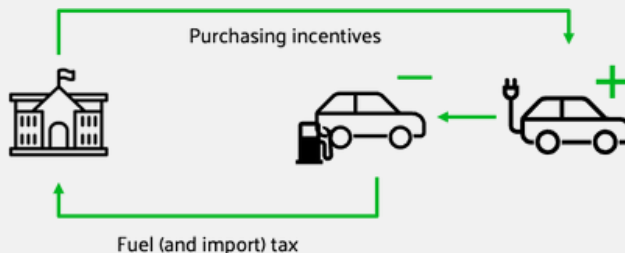
Incentives (in various forms) could increase a government's expenses and negatively impact incomes from fuel or other taxes. From this perspective, additional tax income must be found to cover the government expenses on incentives and decreasing incomes. However, when taking a broader angle, opportunities for cost recovery become visible and will balance the expenses and uncollected incomes.

Utility company profitability

Taking a broader perspective, increased electric vehicle charging will result in increasing sales of electricity. In case of a vertically integrated, state-owned utility company dividends and corporate taxes increase due to the increasing revenues on electricity sales.

Moreover, the profitability of a utility company increases when charging happens overnight. The charging power flows due to charging then do not occur simultaneously with residential power flows. Additional grid capacity and power generation capacity is not required, while additional electricity is sold. The marginal costs of electricity provided for charging overnight are significantly lower than the average costs of electricity distribution on which the tariffs of utilities are based.

For the medium and long term, the increased profitability will be detained by the increasing need for grid reinforcements and other costs. However, electric mobility developments provide many opportunities for utility companies to sell additional services to EV users.



Electric mobility development contributes to growth of the GDP on many levels. A growing GDP will increase tax incomes and could thus recover spending on electric vehicle incentives.

Attracting international climate funds

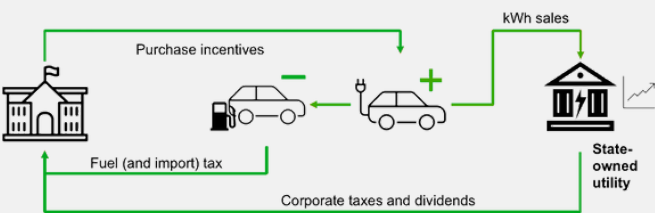
Electric mobility is part of a larger shift towards a more sustainable future. This future is captured in the Sustainable Development Goals (SDGs) by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. Many international funds exist that provide grants, concessional equity, or commercial equity to public or private organizations that are contributing to achieve the SDGs. A clear incentive scheme by the national government helps creating a favourable investment climate.

Redirection of out-of-state to in-state spending

In many countries, oil product imports cover a significant share of the GDP. The oil/fuel-based energy need for mobility shifts towards electricity demand when the share of electric vehicles increases. This shift could result in a shift from out-of-state spending to in-state spending under the assumption that the electricity need for charging will more and more be supplied by locally generated green electricity. Moreover, with upcoming vehicle to grid technologies, electric mobility and renewable electricity generation reinforce each other in contributing to a reliable energy system.

Green tourism

Green tourism and eco-tourism are on the rise. Tourists are increasingly assessing their holiday destination on the impact of their travel, activities, and stay on the environment. The availability of electric transport options in a country therefore makes it a more favourable holiday destination for this group of travellers.



Public health and well-being

Electric mobility contributes to an overall increase of public health by reducing air and noise pollution, major causes of premature death and disease. Both forms of pollution increase stress levels, blood pressure, sleep disturbance, or hearing damage. An increase of public health reduces health care costs.

Furthermore, in many countries a shift towards EV is combined with a shift towards shared mobility. Shared mobility will decrease the need for parking spaces and roads, and thereby enlarge the possibilities to create a greener environment in densely populated areas. A greener environment contributes to improvement of the public well-being. This in general increases the national productivity and thereby the GDP and tax incomes.

Incentive Scheme Development

As mentioned before in the introduction, depending on the characteristics of a country's demographics, geography, energy-mix, transport-mix, sustainability ambitions, and various other aspects, a government needs to establish its own tailored set of instruments in order to stimulate EV uptake while limiting the impact on its budget. Therefore, NTCS GreenBee advises to:

Scan the national automotive sector

In order to be able to determine appropriate incentives for purchasing EVs, an overview of the automotive sector should be developed. This overview should include insights such as shares of various vehicle types (e.g. second hand imported versus locally produced and SUV's versus small cars).

Scan the national energy system

Depending on the energy mix and dependence of import of fuels, electric mobility developments and incentive schemes impact the national budget differently. A scan of the energy system enables a government to determine a tailored incentive scheme to move towards a reliable, affordable, and sustainable energy system.

Scan national and international targets

Electric mobility is a development in a broader movement towards more sustainable energy and transport system design. A holistic policy design will result in the mutual reinforcement of policies on different topics. Creating an overview of all targets set by the government, including targets set within international partnerships, will ease the alignment of the incentive scheme with all political ambitions.

Develop different incentive scheme and select

Based on the scans, different incentive schemes (packages of different incentives to stimulate the implementation of electric mobility goals) should be developed and calculated. These packages should include estimates of the total costs and the aimed cost recovery period. Based on these characteristics, the most suitable incentive scheme can be chosen by the government.

Implementation of the incentive scheme

By developing roadmaps and by starting pilots, an incentive scheme can be tested and implemented in phases.

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Who we are

NTCS is a Dutch niche consulting firm in the Telecom, Energy and Electric Mobility domains. [NTCS](#) was established in 2001. With NTCS GreenBee, we have built a broad spectrum of international experience and knowledge in the e-mobility sector, especially in the field of charging infrastructure. NTCS GreenBee offers the expertise and experience of professionals that made the Netherlands a front-runner in the energy transition. We successfully set up various electric vehicle charging systems in Europe, the Caribbean, the Middle East, and the Americas.


Bee-haviour


To be able to grow and survive, nature needs to keep evolving. Bees play an important part in this process by taking care of the crucial cross-pollination. Like nature, the mobility and energy sector tend to evolve rapidly. Whether it involves a change in customer behaviour and new technologies, players and/or regulation. NTCS and NTCS GreenBee bring the necessary 'cross-pollination', with knowledge, ideas, fresh energy, and new perspectives. What a Bee is to nature, we aim to be to our customers.



Questions? Contact us.

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