

Tithe an
Oireachtais
Houses of the
Oireachtas

An Oifig Buiséid Pharlaiminteach
Parliamentary Budget Office

An Overview of Ireland's Electric Vehicle Incentives and a Comparison With International Peers

Publication 12 of 2022

Séanadh

Is í an Oifig Buiséid Pharlaiminteach (OBP) a d'ullmhaigh an doiciméad seo mar áis do Chomhaltaí Thithe an Oireachtais ina gcuid dualgas parlaiminteach. Ní bheartaítear é a bheith uileghabhálach ná críochnúil. Féadfaidh an OBP aon fhaisnéis atá ann a bhaint as nó a leasú aon tráth gan fógra roimh ré. Níl an OBP freagrach as aon tagairtí d'aon fhaisnéis atá á cothabháil ag tríú páirtithe nó naisc chuig aon fhaisnéis den sórt sin ná as ábhar aon fhaisnéise den sórt sin. Tá baill foirne an OBP ar fáil chun ábhar na bpáipéar seo a phlé le Comhaltaí agus lena gcuid foirne ach ní féidir leo dul i mbun plé leis an mórfhobal nó le heagraíochtaí seachtracha.

Disclaimer

This document has been prepared by the Parliamentary Budget Office (PBO) for use by the Members of the Houses of the Oireachtas to aid them in their parliamentary duties. It is not intended to be either comprehensive or definitive. The PBO may remove, vary or amend any information contained therein at any time without prior notice. The PBO accepts no responsibility for any references or links to or the content of any information maintained by third parties. Staff of the PBO are available to discuss the contents of these papers with Members and their staff, but cannot enter into discussions with members of the general public or external organisations.

Contents

Key Messages	3
Different Types of Electric Vehicles and Glossary of Terms	6
Overview	8
Ireland's Greenhouse Gas Emissions and Targets	9
Incentives for Electric Vehicles in Ireland	10
SEAI Electric Vehicle Grant	12
Electric Vehicle Home Charger Grant	14
Electric Vehicle Public Charge Point Grant	15
Electric Vehicle Apartment Charger Grant	16
Accelerated Capital Allowance Incentive	16
The Low Emissions Vehicle Toll Incentive Scheme	17
Vehicle Registration Tax	17
VRT Relief	18
Motor Tax	21
Fuel Excises/Carbon Tax	22
Benefit-in-Kind	23
The Electric Small Public Service (eSPSV) Grant Scheme	25
The Alternatively Fuelled Heavy-Duty Vehicle Grant Scheme	26
Summary of Ireland's Electric Vehicle Incentives	27
Electric Vehicle Incentives Cost per Vehicle	29
Overview of the Irish National Fleet	30
Second-Hand Market for Electric Vehicles	33
Electric Vehicle Targets	34
International Incentives for Electric Vehicles	35
Observations of Irish and European Electric Vehicle Incentives	36

Comparing Ireland’s Electric Vehicle Incentives to European Peers	41
Case Study: Norway	43
Case Study: Denmark	44
Case Study: Greece	46
Case Study: Scotland	47
Case Study: Germany	51
Case Study: Australian Capital Territory	52
Case Study: Canada	53
Electric Vehicles – Global Overview	54
One Million Electric Vehicles: Exchequer Impact	55
Conclusion	57
Appendix	59

Key Messages

- **The Climate Action Plan 2021 outlines a national target of 200,000 electric vehicles on Irish roads by 2025 and almost one million by 2030.**
- **Ireland has a long way to go before these targets are met, as there were only 47,721 electric vehicles on Irish roads in 2021 accounting for 1.65% of the total vehicle fleet.**
- **The cost of electric vehicles remains a significant barrier to widespread adoption.** The price differential between traditional ICE vehicles and EVs is a market failure. Government support can increase the adoption of electric vehicles by subsidising them to make them more affordable for motorists.
- **Governments can encourage greater adoption of electric vehicles through a combination of financial, taxation and regulatory measures.**
- **Financial supports for electric vehicles are regressive as they tend to benefit those at the higher end of the income distribution.** However, achieving net zero emissions by 2050 will require complete electrification of the national fleet. Subsidising electric vehicles may help create a second-hand market for electric vehicles over time.
- **Denmark previously experienced a collapse in electric sales when supports were withdrawn¹.** In 2015 Denmark announced a tapering of electric vehicle supports, which led to a significant fall in EV sales in 2016².
- **Ireland has a relatively comprehensive offering of electric vehicle incentives and could be considered broadly in line with European countries.** These include a grant for the purchase of a fully electric vehicle, home charger grants for BEVs and PHEVs, VRT relief for BEVs, lower VRT and Motor Tax rates, and toll incentives.
- **The Parliamentary Budget Office estimates that Ireland has provided support totalling €322.47 million for the various schemes and incentives since 2010 to the end of 2021 for lower emitting vehicles,** such as battery electric vehicles, plug-in hybrid electric vehicles, traditional hybrids, alternatively fuelled vehicles, and for charging grants³.
- **Since its introduction in April 2011, the Electric Vehicle Purchase Grant has supported the purchase of 27,546 electric vehicles with a total of €130.6 million in grant support provided.** €63.2 million in grants were provided in 2021 to support the purchase of 13,135 electric vehicles, more than double the €25.1 million provided in 2020 which supported the purchase of 5,160 electric vehicles. The grant is administered by the Sustainable Energy Authority of Ireland.
- **Since its inception, the Electric Vehicle Home Charger Grant has provided grant support of €9.28 million for 15,484 home chargers,** from 2018 to 2021. 3,523 grants were awarded in 2020 with a total value of €2.1 million, and this increased to 8,379 in 2021 at a total cost of €5.0 million.

¹ CleanTechnica (2018), *Denmark Rethinks EV incentives After Market Collapses*.

² International Energy Agency (IEA), *Nordic EV Outlook 2018 Insights from leaders in electric mobility*.

³ Please refer to table 12 below for additional information.

- **Achieving a sufficient national charging infrastructure is a key priority but failing to achieve this represents a risk to the ambitious targets for electric vehicle adoption. Take-up by local authorities of the Electric Vehicle Public Charge Point Scheme has been low to date.** The scheme which launched in 2019 aims to support the rollout by local authorities of up to 1,000 on-street public charge points over a 5-year period⁴. In 2021, letters of offers were issued to two councils to install a total of 29 charge points with an application received by the SEAI in late December by a third council for 4 charge points⁵. This is significantly below the 1,000-target set when the scheme was launched.
- **A new charger grant support scheme is due to be launched by the SEAI for apartments and mixed dwellings in 2022⁶.** This scheme is intended for those without access to a private driveway and who therefore do not qualify for the EV Home Charger Grant Scheme.
- **Since the introduction of the Low Emissions Vehicle Toll Incentive (LEVTI) in July 2018, a total of 17,789 vehicles have registered for the scheme⁷.** The LEVTI Scheme has cost €1.9 million to October 2021⁸.
- **€166.6 million in VRT relief has been provided for hybrids, plug-in hybrid electric vehicles and fully electric vehicles from 2010 to the end of 2021, supporting 83,700 LEVs⁹.** This includes relief of €64.4 million for conventional hybrids, €26.8 million for PHEVs, and €75.4 million for BEVs.
- **Expenditure on VRT relief of €166.6 million has been the most expensive EV support scheme to date, followed by the Electric Vehicle Purchase Grant of €130.6 million.** Collectively these schemes have benefited from support of €297.2 million. Going forward, only battery electric vehicles (BEVs) will be eligible for VRT relief and the Electric Vehicle Purchase Grant, meaning resources will be better targeted at fully electric vehicles which produce no tailpipe emissions.
- **Electric vehicles pay a lower rate of annual motor tax than traditional ICE vehicles.** BEVs qualify for the lowest rate of annual motor tax of €120 while PHEVs typically qualify for the second and third lowest rates of motor tax of €140 and €150 respectively.
- **There was a significant increase in the funding provided for the Electric SPSV Scheme in 2021, rising from €1 million in 2020 to €15 million in 2021. Funding of €15 million has been announced for 2022.** The Electric SPSV (eSPSV) Grant Scheme provides financial support for the adoption of battery electric vehicles in the Small Public Service Vehicles (SPSVs) sector. The SPSV sector includes taxis, hackneys, and limousines.
- **The Alternatively Fuelled Heavy-Duty Vehicle (AFHDV) Purchase Grant Scheme was introduced in March 2021 to promote decarbonisation of the freight sector¹⁰.** A total of €3 million was allocated to the AFHDV scheme in 2021. Grants totalling €2.75 million were awarded in 2021, supporting heavy-duty vehicles, but actual drawdowns are lower¹¹.

4 Merrion Street, Irish Government News Service (2019), *New Scheme for On-Street Charge Points for Electric Vehicles*.

5 Department of Transport.

6 SEAI, *EV Apartment Charging Programme Overview*.

7 Department of Transport.

8 Department of Transport.

9 PBO calculations based on data provided by the Revenue Commissioners.

10 Department of Transport (2021), *Alternatively Fuelled Heavy-Duty Vehicle (AFHDV) Purchase Grant*.

11 Figures provided to the Parliamentary Budget Office by Transport Infrastructure Ireland.

- **While Ireland has a comprehensive offering of EV incentives there are several examples of innovative incentives in other countries** such as interest free loans, free parking for electric vehicles, 'Low Emission Zones' and scrappage schemes.
- **Norway has the highest number of electric vehicles per capita in the world, evidence that Government incentives and taxation policy can influence the take-up of electric vehicles.** In 2020, 54% of all new cars sold in Norway were electric¹², rising to 65% of sales in 2021¹³.
- **Scotland currently offers interest free loans for the purchase of electric vehicles for both new and used fully electric vehicles.**
- **Most countries in Western Europe operate 'Low Emission zones' which have restrictions on what type of vehicles can operate in that zone.** Countries that operate at least one zone include Scotland, England, Spain, Portugal, France, Germany, Italy, Greece, Austria, Belgium, The Netherlands, Denmark, Sweden, Finland, and Norway¹⁴. Ireland and Iceland are the only two countries in Western Europe which do not operate at least one Low Emission Zone.
- **For Ireland to achieve its ambitious electric vehicle targets, continued support from the exchequer will be required** until electric vehicles become more affordable for motorists.

¹² The Government of Norway (Regjeringen), *Norway is electric*.

¹³ Norsk elbilforening (Norwegian Electric Car Association), *Norwegian EV market*.

¹⁴ Urban Access Regulations, *Map* and *Low Emission Zones*.

Different Types of Electric Vehicles and Glossary of Terms

EV – An electric vehicle. An electric vehicle can be a battery electric vehicle or a hybrid. In this paper the term ‘EV’ and ‘electric vehicle’ will be used interchangeably and will refer to both battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). The term ‘EV’ or ‘electric vehicle’ in this paper will not include non-plug-in hybrids unless otherwise stated.

BEV – A battery electric vehicle or ‘BEV’ is a vehicle that uses a battery as the sole means of energy storage for the propulsion of the vehicle. A battery electric vehicle does not have a fossil fuel engine or generator. It is driven purely by an electric motor with battery energy storage.

HEV – Hybrid electric vehicles or ‘HEVs’ use a combination of electric power and petrol or diesel to propel the vehicle. They can be ‘plug-in’ or ‘non-plug-in’.

HEVs are vehicles that have both an internal combustion engine (ICE) and an electric motor. However, the electric battery is only charged by the ICE, the motion of the wheels or a combination of both. There is no charging connector.

PHEV – A plug-in hybrid electric vehicle or ‘PHEV’ is like the hybrid electric vehicle in that plug-in hybrid electric vehicles use both an internal combustion engine and an electric motor. The key difference between HEVs and PHEVs is that plug-in hybrid electric vehicles can be charged from an electricity source. The battery’s energy is recharged by the internal combustion engine, wheel motion or by plugging into a charge point.

ZEV – Zero emission vehicle.

CNG – Compressed Natural Gas.

LNG – Liquefied Natural Gas.

FCEV – A fuel cell electric vehicle or a ‘FCEV’ is an electric vehicle that uses a fuel cell, in combination with a battery or supercapacitor.

HGV – Heavy Goods Vehicle.

NDP – National Development Plan.

SEAI – ‘SEAI’ refers to the Sustainable Energy Authority of Ireland.

ACA – Accelerated Capital Allowance.

LEVTI – ‘LEVTI’ refers to the Low Emissions Vehicle Toll Incentive.

AFHDV – ‘AFHDV’ refers to the Alternately Fuelled Heavy-Duty Vehicle Purchase Grant Scheme.

VRT – Vehicle Registration Tax.

OMSP – Open Market Selling Price.

BIK – Benefit-in-kind.

OMW – Original Market Value.

SPSV – Small Public Service Vehicles.

TII – 'TII' refers to the state agency Transport Infrastructure Ireland.

TCO – Total Cost of Ownership.

Overview

This paper is a follow up to the Parliamentary Budget Office's last paper on electric vehicles, entitled *An Overview of Electric Vehicles and Their Impact on The Tax Base*. The objective of this paper is to provide members of the Houses of the Oireachtas with an overview of Ireland's incentives for electric vehicles and charger supports. This paper also seeks to provide an international comparison with the incentives for electric vehicles offered throughout Europe, including member states of the European Union and non-member states. The paper also provides an overview of some electric vehicle incentives in the Australian Capital Territory (ACT) and a couple of Canadian provinces, such as British Columbia and Nova Scotia.

Ireland provides a comprehensive range of electric vehicle incentives for personal use, for commercial entities and charger supports for Local Authorities. Ireland also offers supports for alternatively fuelled vehicles. These supports include the SEAI Electric Vehicle Grant, the Electric Vehicle Home Charger Grant, the Electric Vehicle Public Charge Point Grant (for Local Authorities), the Low Emissions Vehicle Toll Incentive (LEVTI) Scheme, VRT relief, the lowest rates of both VRT and Motor Tax, Accelerated Capital Allowance (ACA), 0% Benefit-in-Kind, the Electric Small Public Service Vehicles or 'eSPSV' Grant Scheme, and the Alternatively Fuelled Heavy Duty Vehicle Purchase Grant Scheme. In addition, fully electric vehicles do not pay the Mineral Oil Tax. Lastly, it should be noted that an Apartment Charging Grant is due to launch shortly for those who do not have a private driveway.

While there are many similarities between electric vehicle incentives in countries there are some schemes which could be considered 'outside the box' thinking. Scotland offers interest free loans for the purchase of electric vehicles and is in the process of introducing Low Emission Zones in its four largest cities. Slovenia offers subsidised loans for electric vehicles, and Germany offers financial support for the leasing of electric vehicles. The Australian Capital Territory also offers an interest-free loan and the Government objective of reaching 100% of new vehicle leases being zero emissions vehicles (for the Government fleet) was achieved. Several Canadian provinces (including British Columbia and Nova Scotia) offer greater relief for longer-range hybrid electric vehicles over shorter-range hybrid electric vehicles. Like Germany (and Greece), Canada also offers financial support for the leasing of electric vehicles. Financial supports for the leasing of electric vehicles reaches parity with the purchase of an electric vehicle after 2 years in Germany, and 4 years in Canada.

This paper is laid out as follows: The Introduction provides an overview of Irish emissions and future targets (page 9); the Electric Vehicles Incentives section provides an incentive-by-incentive briefing of Ireland's electric vehicle incentives and schemes (pages 10 to 26); the Electric Vehicle Incentives Summary provides a high-level view of financial support provided for each scheme (pages 27 to 28); the Electric Vehicles on Irish roads section provides an overview of the composition of the Irish vehicle fleet (pages 30 to 32); this is followed by the Electric Vehicles Targets section (page 34); while the next section provides an international overview of Electric Vehicle supports (pages 41 to 53). This paper ends with an Exchequer impact assessment (page 55), the Conclusion (page 57) and the Appendix (pages 59 to 65).

The Parliamentary Budget Office would like to thank the Department of Transport, the Revenue Commissioners, The Sustainable Energy Authority of Ireland (SEAI), Transport Infrastructure Ireland (TII), and the various parliaments around the world who provided relevant information and support for this report.

Introduction: Ireland's Current Greenhouse Gas Emissions and Targets

The Climate Action Plan 2021 outlines a national target of one million electric vehicles by 2030. To meet decarbonisation objectives in their respective transport sectors, many European countries have introduced a range of incentives to encourage greater adoption of electric vehicles. This paper provides an overview of Ireland's electric vehicle incentives and an international comparison of the incentive regimes in some European countries such as Norway who are the world leader in electric vehicles per capita.

Global warming poses a significant risk to humanity and to every nation on earth. Globally, the last seven years have been the hottest on record by a clear margin¹⁵. The consequences of climate change are becoming increasingly clear with wildfires burning through forestry, increased flooding in many global regions and melting of the polar ice caps. In July 2017, one of the world's largest icebergs named 'A68A' broke off from the Larsen-C Ice Shelf on the Antarctic Peninsula¹⁶. According to researchers from the University of Leeds, 152 billion tonnes of fresh water were dumped into the seas around the sub-Antarctic island of South Georgia when the A68A 'megaberg' melted over a 3-month period in 2020/2021. To put into context, 152 billion tonnes of water is equivalent to the water in 61 million Olympic sized swimming pools¹⁷. More recently, heat waves were detected in both of Earth's polar ice caps, the Arctic and Antarctic. The recently published IPCC report also found that climate change would pose a risk to marine life, biodiversity, food security, and fresh water supplies¹⁸.

Ireland has made international commitments to play its part in response to the challenges posed by global warming. Ireland is a signatory of the 2016 'Paris Agreement', a legally binding international treaty on climate change which aims to limit global warming to well below 2 degrees Celsius, preferably to 1.5 degrees Celsius, compared to pre-industrial levels¹⁹.

The Programme for Government commits Ireland to achieve a 51% reduction in greenhouse gas emissions from 2021 to 2030 (equivalent to an average annual reduction of 7%) and to achieve net zero emissions by 2050²⁰. Ireland was the European Union's third highest emitter of greenhouse gas emissions per capita in 2018, behind only Luxembourg and Estonia²¹. The three largest sources of Irish emissions are agriculture, transport, and energy²². Agriculture is the largest source of Irish emissions, representing 37.1% of total national emissions in 2020, transport accounted for 17.9% and energy 15.0% (based on provisional estimates). In 2018, prior to the COVID-19 pandemic, the transport sector constituted 19.6% of Ireland's total greenhouse gas emissions. Achieving net zero emissions by 2050 will be a challenge, as will meeting the ambitious targets for decarbonisation of the transport sector in Ireland.

¹⁵ Copernicus Climate Change Service, *Press Release*.

¹⁶ ScienceDirect, *Observing the disintegration of the A68A iceberg from space*.

¹⁷ University of Leeds, *Mega iceberg released 152 billion tonnes of fresh water into ocean*.

¹⁸ The United Nations, Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2022: Impacts, Adaption and Vulnerability*.

¹⁹ The United Nations, *Paris Agreement*.

²⁰ Government of Ireland (2020), *Programme for Government: Our Shared Future*.

²¹ CSO, *Greenhouse Gases and Climate Change*.

²² Government of Ireland (2021), *Climate Action Plan 2021: Securing Our Future*.

Incentives for Electric Vehicles in Ireland

The Climate Action Plan 2021 outlines ‘a national target of one million electric vehicles by 2030.’ The plan outlines aspirational targets for electric vehicles including 845,000 passenger electric vehicles, 95,000 low emission vans and 3,500 low emission HGVs by 2030²³. Governments can use a mixture of financial incentives, taxation policies and regulatory measures to incentivise behavioural changes to encourage greater adoption of electric vehicles in the absence of price parity between traditional ICE vehicles and electric vehicles and concerns about range anxiety of electric vehicles.

At present, the purchase price of electric vehicles is significantly more expensive than traditional ICE vehicles. Until electric vehicles become more affordable and there is a meaningful reduction in the price differential between ICE vehicles and electric vehicles, Government incentives may continue to be necessary to encourage greater EV adoption until this market failure is resolved²⁴. Incentives for greater electric vehicle adoption tend to benefit those at the higher end of the income distribution with barriers to electric vehicle ownership for those on lower incomes. Electric vehicle ownership tends also to be higher in more urban areas compared to rural areas.

Incentives for electric vehicles should be considered in the context of diminishing time opportunities to prevent climate change, and high potential costs arising from the absence of climate action. However, achieving the electric vehicle targets will likely require continued exchequer support (until the price of electric vehicles become more affordable) and will have a significant impact on the public finances²⁵. Under the National Development Plan (NDP), €200 million in total was committed under Project Ireland 2040 to meet Ireland's electric vehicle targets. An additional €100 million was committed in Budget 2022 towards the temporary extension of electric vehicle incentives, almost double the level of funding announced in Budget 2021²⁶. Budget 2022 saw the phasing out of grant support for plug-in hybrid electric vehicles. Financial incentives for electric vehicles are increasingly becoming more targeted at fully electric vehicles over plug-in hybrids and regular hybrids.

Ireland currently offers several EV incentives and schemes which are summarised in Table 1. These include an electric vehicle purchase grant of up to €5,000 for BEVs, an electric vehicle home charger grant of up to €600 for both BEVs and PHEVs, toll reductions, relief on Vehicle Registration Tax (for BEVs), and low motor tax. There are also some business specific incentives which include Accelerated Capital Allowance, 0% Benefit-In-Kind, the Electric SPSV Grant Scheme, and the Alternatively Fuelled Heavy-Duty Vehicle Grant. There is also a grant available of up to €5,000 per single charge point for Local Authorities to encourage greater roll-out of the charging infrastructure through the Electric Vehicle Public Charge Point Grant.

²³ Government of Ireland (2021), *Climate Action Plan 2021: Securing Our Future*.

²⁴ Kevany, L. (2019), *Spending Review 2019: Incentives for personal Electric Vehicle Purchase*, Climate Change Unit, Department of Public Expenditure and Reform.

²⁵ Parliamentary Budget Office (2021), *An Overview of Electric Vehicles and Their Impact on The Tax Base*.

²⁶ Department of Transport (2021), *EV Schemes under Budget 2022*.

Table 1: *Irish Incentives for Electric Vehicles*

Measure	Description
Electric Vehicle Grant (SEAI)	A grant of between €2,000 and a maximum of €5,000 for BEVs. Grant support of between €1,000 and a maximum of €2,500 for PHEVs is no longer available from 1 st January 2022.
Electric Vehicle Home Charger Grant (SEAI)	A grant of up to €600 to support the purchase and installation of a home charger unit for owners of new and second-hand EVs. This grant is available for both BEVs and PHEVs bought after 1 st January 2018.
Electric Vehicle Public Charge Point Grant (SEAI)	This grant scheme is open to Local Authorities to support the roll out of electric vehicle public charge points on public streets or car parks. Grant support is offered for each charge point (i.e., a single EV plug socket). A total of 75% of the capital costs will be provided, capped at €5,000 per single charge point. Note: a charge post may contain two charge points, in which case a charge post would receive up to €10,000 per post. This grant will support the rollout by Local Authorities of up to 1,000 public charge points for EVs over the next 5 years.
Electric Vehicle Apartment Charger Grant Support Scheme (SEAI)	An EV Apartment Charger Grant of up to €600 is due to be launched in 2022 to support the purchase and installation of charger units at apartments and multi-unit developments which are not eligible under the EV Home Charger Grant Scheme due to the lack of a driveway. This scheme is intended to provide EV charging infrastructure for the 12% of national dwellings which are not houses.
Accelerated Capital Allowance (ACA)	Can be claimed by companies, unincorporated businesses, sole traders, and farmers for electric and alternative fuel vehicles until the end of 2024. The scheme includes gas vehicles and refuelling equipment. In Budget 2022, this scheme was extended to include hydrogen powered vehicles and refuelling equipment.
Low Emissions Vehicle Toll Incentive (LEVTI) Scheme	Under the LEVTI, BEVs and PHEVs qualify for 50% and 25% toll reductions respectively up to a maximum annual threshold of €500 for private vehicles and €1,000 for goods or commercial vehicles. A higher incentive rate of 75% and 50% applies for BEVs and PHEVs respectively for off-peak travel on the M50.
VRT Relief	VRT relief of up to €5,000 for new BEVs until the end of 2023. VRT relief for hybrids and PHEVs expired on 31 st December 2020.
Low Motor Tax	BEVs qualify for the lowest motor tax band available of €120 per annum as they produce no tailpipe emissions. PHEVs typically qualify for the 2 nd and 3 rd lower motor tax bands available of €140 and €150 per annum for cars registered from 1 st January 2021. PHEVs registered before this date typically pay €170 per annum.

Measure	Description
Fuel Excise/Carbon Tax	Fuel excises which apply to diesel and petrol via the Mineral Oil Tax do not apply to the consumption of electricity which BEVs use as the sole source of power. Excise duties on fuel combined with the carbon tax component constitute a significant proportion of diesel and petrol prices at present ²⁷ .
0% Benefit-in-Kind (BIK)	A 0% rate of benefit-in-kind applies to electric vehicles powered by battery (battery electric vehicles, hybrids do not qualify for this scheme) provided by an employer to an employee until the end of 2025. The 0% BIK rate can be claimed for BEVs on the first €50,000 of the vehicle value. Note: this support is being tapered.
The Electric SPSV Grant Scheme	The Electric SPSV Grant Scheme offers grants of up to €25,000 to support the uptake of BEVs in the Small Public Service Vehicles (SPSVs) sector which includes taxis, hackneys, and limousines.
AFHDV Purchase Grant Scheme	The Alternately Fuelled Heavy-Duty Vehicle (AFHDV) Purchase Grant Scheme provides grant support to companies who wish to purchase new alternatively fuelled heavy-duty vehicles. Eligible vehicle types include CNG vehicles, LNG vehicles, FCEV vehicles, BEVs and PHEVs.

SEAI Electric Vehicle Grant

The SEAI's Electric Vehicle Grant is the second most expensive EV support scheme, after VRT relief. Since its inception the SEAI Electric Vehicle Grant has supported the purchase of 27,546 electric vehicles with total exchequer support of €130.6 million²⁸.

It was introduced in April 2011 to encourage greater adoption of electric vehicles on Irish roads²⁹. Both privately bought and commercially bought vehicles are eligible for grant support however the grant amounts differ.

For privately purchased new electric vehicles the maximum grant support is €5,000 for approved electric vehicles. To be eligible for this grant support vehicles must have a list price of at least €14,000 otherwise they will not receive a grant. On 1st July 2021 a cap of €60,000 on the full price of the electric vehicle was introduced.

The grant amount depends on the list price of the vehicle and ranges from a minimum of €2,000 to a maximum of €5,000. Grant support for plug-in hybrid electric vehicles (PHEVs) is no longer available from 1st January 2022.

²⁷ Revenue Commissioners, *Mineral Oil Tax*.

²⁸ Data provided to the Parliamentary Budget Office by the Department of Transport.

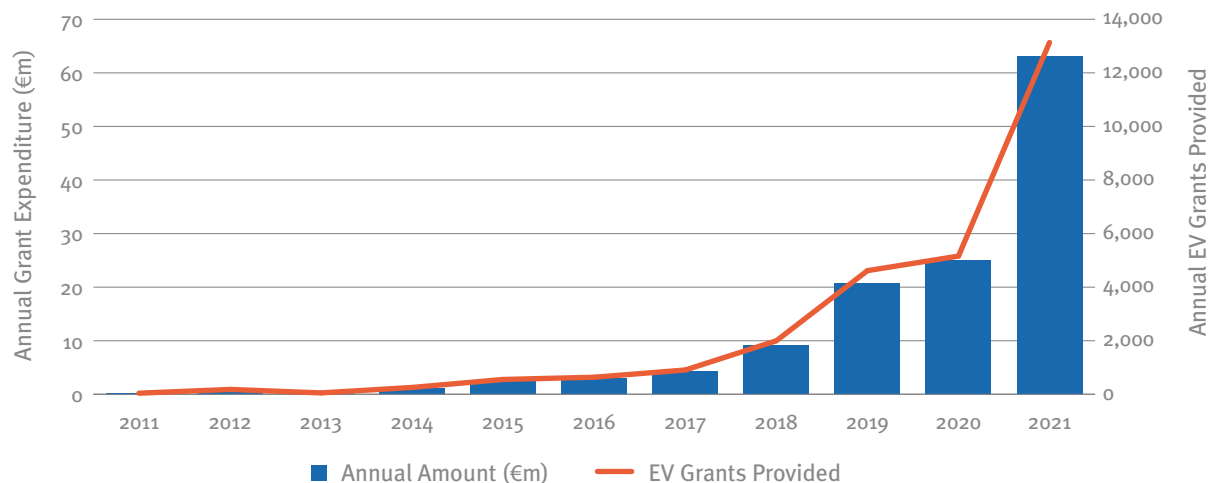
²⁹ *Dáil Éireann Debate*, 24th July 2018.

Table 2: Electric Vehicle Grant Amounts

List Price of Approved EVs	Battery Electric Vehicle (BEV) Grant Amount
€14,000 to €15,000	€2,000
€15,000 to €16,000	€2,500
€16,000 to €17,000	€3,000
€17,000 to €18,000	€3,500
€18,000 to €19,000	€4,000
€19,000 to €20,000	€4,500
Greater than €20,000	€5,000

Source: Sustainable Energy Authority of Ireland

Figure 1 shows that the number of EV grants has increased since 2011. Despite the societal and economic disruption caused by the COVID-19 global pandemic, the total number of EV grants provided increased from 4,616 in 2019, to 5,160 in 2020 and 13,135 in 2021.

Figure 1: SEAI Electric Vehicle Grant Expenditure (€m) & EVs Supported 2011-2021

Source: Department of Transport

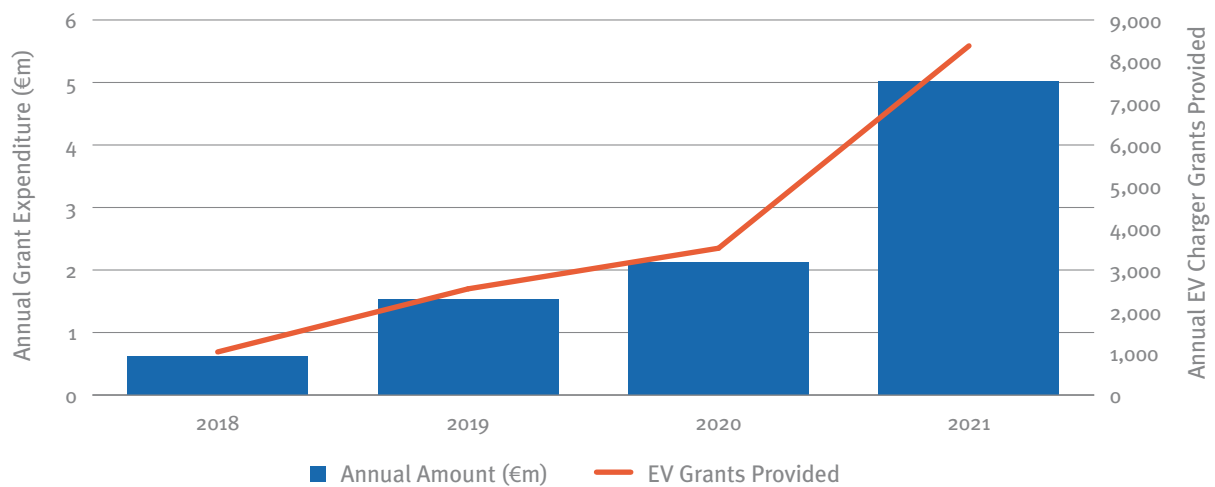
Electric Vehicle Home Charger Grant

In addition to grant incentives for the purchase of electric vehicles there is also grant support for charging equipment such as the Electric Vehicle Home Charger Grant. This grant is also offered by the Sustainable Energy Authority of Ireland (SEAI) and aims to assist homeowners to install an electric vehicle charging point on their property. The SEAI administered Home Charger Grant offers a grant of up to €600 towards the purchase and installation of an electric vehicle home charger unit³⁰.

This grant applies to anyone who buys a new or second-hand electric vehicle from the 1st January 2018 onwards which are eligible. The eligibility of this scheme for electric vehicles includes both battery electric vehicles and plug-in hybrid electric vehicles.

Since the introduction of the Electric Vehicle Home Charger Grant the number of grants provided to support home installation of electric vehicle charger points has increased each year. 1,034 grants were provided in 2018, rising to 2,548 in 2019, 3,523 in 2020 and 8,379 in 2021³¹. In total, €9.3 million in financial support has been provided to assist homes to install electric vehicle chargers since 2018³².

Figure 2: SEAI Electric Vehicle Home Charger Grant Expenditure (€m) 2018-2021



Source: Department of Transport

³⁰ SEAI, *Electric Vehicle Home Charger Grant*.

³¹ Department of Transport.

³² Ibid.

Electric Vehicle Public Charge Point Grant

Unlike the SEAI's Electric Vehicle Grant and EV Home Charger Grant, the Electric Vehicle Public Charge Point Grant is not a personal electric vehicle incentive but rather it is a scheme for which Local Authorities can apply to receive financial support to install charge points on public streets and car parks³³. It is a Government initiative aimed at providing financial supports to Local Authorities and to encourage the continued roll-out of the national charging infrastructure. The grant was launched in 2019 and is intended to support the roll-out by Local Authorities of up to 1,000 on-street public charge points for electric vehicles over 5 years³⁴. This grant aims to provide for an increase in the availability of charge points for those who do not have their own private driveway and therefore access to charging infrastructure.

Grant support is offered for each charge point (i.e., a single electric vehicle plug socket) with a total of 75% of the capital costs being provided, capped at €5,000 per single charge point. It should be noted that a charge post may contain two charge points, in which case a charge post would receive up to €10,000 per post³⁵.

Unlike the electric vehicle purchase grant and home charger schemes, take-up of the Electric Vehicle Public Charge Point Grant scheme to date has not been as strong. To date only thirteen Local Authorities have been in touch with the Sustainable Energy Authority of Ireland (SEAI) regarding the scheme³⁶.

In 2021, Dublin City Council and Dún Laoghaire Rathdown County Council received circa €35,779 and €52,781 respectively. In addition, in 2021 letters of offers were issued to Louth County Council and Dublin City Council under the scheme to install a total of 29 charge points with a total value of €143,038³⁷. It should also be noted that a new application from Tipperary Council was received by the SEAI at the end of December 2021 with a request for 4 charge points (each 22Kw AC). The grant request was for circa €16,800 and an offer is due to be issued shortly.

In essence, to date take-up of the grants offered by the scheme has been low compared to the ambition set out in August 2019 when the scheme was officially launched³⁸ in August 2019. The scheme, as noted above, is intended to support the roll-out by local authorities of 1,000 charge points over 5 years. With the scheme in existence for a duration of almost 2.5 years, grant support to local authorities nationwide would need to increase dramatically to meet the initial target of 1,000 charge point rollouts. It should be noted that the Department of Transport will review and amend the terms of the scheme to ensure it appropriately reflects the needs of Local Authorities and to boost decarbonisation efforts³⁹.

³³ SEAI, *Electric Vehicle Public Charge Point Grant*.

³⁴ Merrion Street, Irish Government News Service (2019), *New Scheme for On-Street Charge Points for Electric Vehicles*.

³⁵ SEAI, *Electric Vehicle Public Charge Point Grant*.

³⁶ *Dáil Éireann Debate*, 25th January 2022.

³⁷ Department of Transport.

³⁸ Merrion Street, Irish Government News Service (2019), *New Scheme for On-Street Charge Points for Electric Vehicles*.

³⁹ Department of Transport.

Electric Vehicle Apartment Charging Grant

The Sustainable Energy Authority of Ireland (SEAI) is expected to roll-out a grant for charging electric vehicles for those who reside in apartments or mixed units and who do not have a private driveway. The scheme is expected to launch in 2022.

At present, the SEAI provides EV charger grant support to those who have access to a private driveway via the Electric Vehicle Home Charger Grant. For individuals who rely on public street parking, the SEAI provides charger grant support to Local Authorities via the Electric Vehicle Public Charge Point Grant scheme. This proposed new scheme will assist residents of apartments and mixed dwelling units who do not fall into one of the two categories above⁴⁰.

The Parliamentary Budget Office notes that the issue of electric vehicle charger grants for those who do not have access to a private driveway and who do not use charger points provided by their local authority has been raised in several recent debates in the Oireachtas⁴¹.

Accelerated Capital Allowance Incentive

In addition to the above supports to encourage greater adoption of electric vehicles there is also the existence of the Accelerated Capital Allowance (ACA) incentive. The SEAI provides grant support for qualifying N1 battery electric vehicles (BEVs) when purchased commercially or by public entities.

Electric vehicles, alternative fuel vehicles (such as gas vehicles and hydrogen powered vehicles) and electric charging equipment may qualify for ACA. The ACA can be claimed by companies, unincorporated businesses, sole traders, and farmers for electric and alternative fuel vehicles until the end of 2024⁴².

Table 3: Accelerated Capital Allowance (ACA) Amounts

List Price of Approved EV	BEV
€14,000 to €15,000	€2,000
€15,000 to €16,000	€2,500
€16,000 to €17,000	€3,000
€17,000 to €18,000	€3,500
Greater than €18,000	€3,800

Source: Sustainable Energy Authority of Ireland

Plug-in hybrid electric vehicles (PHEVs) no longer qualify for this support as of 1st January 2022⁴³.

⁴⁰ SEAI, *EV Apartment Charging Grants Programme Overview (Public Consultation)*.

⁴¹ *Seanad Éireann Debate*, 14th December 2021.

⁴² SEAI, *Accelerated Capital Allowance*.

⁴³ SEAI, *Grant Amounts*.

The Low Emissions Vehicle Toll Incentive Scheme

The Low Emissions Vehicle Toll Incentive (LETVI) is a scheme which offers toll discounts for alternatively fuelled and electric vehicles. The scheme, initially called the Electric Vehicle Toll Incentive (EVTI) Scheme was launched in July 2018 following a recommendation from the Low Emissions Vehicle Taskforce⁴⁴. Under the scheme, BEVs and PHEVs qualify for 50% and 25% toll reductions respectively up to a maximum annual threshold of €500 for private vehicles and €1,000 for commercial vehicles, with higher rates of toll discounts available for off-peak travel on the M50.

For travel on the M50, battery electric vehicles qualify for the standard 50% toll reduction for on-peak traffic times and a higher rate of 75% for off-peak travel (such as weekends and public holidays) while plug-in hybrids qualify for the standard 25% toll reduction while travelling during on-peak times and a 50% reduction for off-peak and weekend travel.

The scheme will run until 31st December 2022 but is only available to a maximum of 50,000 Low Emissions Vehicles (LEVs). Conventional hybrid vehicles do not qualify for the scheme. Passenger cars must be a Battery Electric Vehicle (BEV), a Fuel Cell Electric Vehicle (FCEV) or a Plug-in Hybrid Electric Vehicle (PHEV) with CO₂ emissions of 50gm per km or less.

Since its inception to October 2021, €1.927 million has been spent on the LETVI Scheme supporting 17,789 registrations of low emission vehicles⁴⁵.

Table 4: Low Emissions Vehicle Toll Incentive (LETVI) Scheme Annual Spend 2018-2021 (€)

Year	Spend
2018	€143,471
2019	€492,628
2020	€563,983
2021*	€727,622

*Data available until October 2021.

Source: Department of Transport.

Please see appendix for additional information.

Vehicle Registration Tax

Vehicle Registration Tax (VRT) is a once-off tax when vehicles are first registered in the Irish state. VRT is levied as a percentage of the open market selling price (OMSP) of the vehicle. There are five VRT categories (A, B, C, D, and M) which determine the amount of tax payable. VRT for passenger vehicles including cars and minibuses fall into category A. Since 1st July 2008, VRT has been calculated based on CO₂ emissions, so that cars with higher emissions attract a higher tax liability, and since 1st January 2020, the car's nitrogen oxide (NOx) emissions. The CO₂ component is calculated by multiplying the applicable rate (please see appendix for VRT rates effective 1st January 2022) by the OMSP. The NOx levy is calculated separately and then added to the CO₂ charge to determine the total VRT liability due.

⁴⁴ *Dáil Éireann Debate*, 15th September 2020.

⁴⁵ Data provided to the Parliamentary Budget Office by the Department of Transport.

Budget 2022 introduced a revised VRT table which took effect on 1st January 2022. The 20-band VRT table remains, with a 1% increase for vehicles that fall between bands 9-12, a 2% increase for vehicles that fall between bands 13-15 and a 4% increase for vehicles that fall between bands 16-20⁴⁶.

Battery electric vehicles are powered solely by their electric motor which uses battery energy storage and thus produces no tailpipe emissions. For this reason, fully electric vehicles fall into the first VRT band (a range of 0-50 CO₂ g/km) and incur the lowest possible rate of VRT of 7% of the open market selling price of the vehicle. Emissions produced by plug-in hybrid electric vehicles can vary by make, model and what proportion of a drive is conducted in 'electric mode', but they do qualify for lower bands of VRT than traditional vehicles which rely on fossil fuels and an internal combustion engine.

The current design of the Vehicle Registration Tax (VRT) regime in Ireland acts as an additional incentive for motorists to consider electric vehicles due to the lower rates of VRT for lower emitting vehicles. To act as a further incentive to encourage motorists to switch to Low Emitting Vehicles (LEVs) and EVs (Electric Vehicles), VRT relief was introduced for regular hybrids, plug-in hybrid electric vehicles (PHEVs) and battery electric vehicles (BEVs).

VRT Relief

VRT relief for electric cars was first introduced in Budget 2007. VRT relief of 50% was introduced on a one-year pilot basis which took effect on 1st January 2007⁴⁷. While the Finance Minister's Budget Speech at the time mentioned that the relief would be for '*cars which can be propelled solely by a rechargeable battery*' the Finance Act 2007 provided this relief for hybrid electric vehicles, flexible fuel vehicles and (fully) electric vehicles, for the period 1st January 2007 to 31 December 2007⁴⁸. The Finance Act of 2008 provided VRT relief for some hybrid electric vehicles, flexible fuel vehicles, electric vehicles, and electric motorcycles⁴⁹.

In Budget 2008 it was announced that the existing 50% relief scheme was to be extended from 1st January 2008 to 30th June 2008, until a revised scheme based on CO₂ emissions was introduced on 1st July 2008 to 31st December 2010⁵⁰ with relief of up to a maximum €2,500 (subject to a sliding scale based on the age of the vehicle) for hybrid electric vehicles and flexible fuel vehicles.

The Finance Bill 2008 provided VRT relief for electric vehicles (battery electric vehicles) and electric motorcycles for the period 1st January 2008 to 31st December 2010⁵¹. The Finance Act 2010 extended VRT relief to plug-in hybrid electric vehicles (PHEVs) for the first time, to encourage greater adoption of plug-in hybrids by Irish motorists. This act provided relief for regular hybrids, PHEVs, and BEVs (including electric motorcycles) for the period 1st January 2011 to 31st December 2012, up to a maximum of €2,500.

46 Department of Finance (2021), *Budget 2022: Tax Policy Changes*.

47 Department of Finance, *Budget 2007: Financial Statement (Minister's Speech)*.

48 Irish Statute Book, *Finance Act 2007, Section 65*.

49 Oireachtas, *Finance Act 2008*.

50 Government of Ireland (2007), *Budget 2008: Summary of Budget Measures*.

51 Oireachtas, *Finance Bill 2008*.

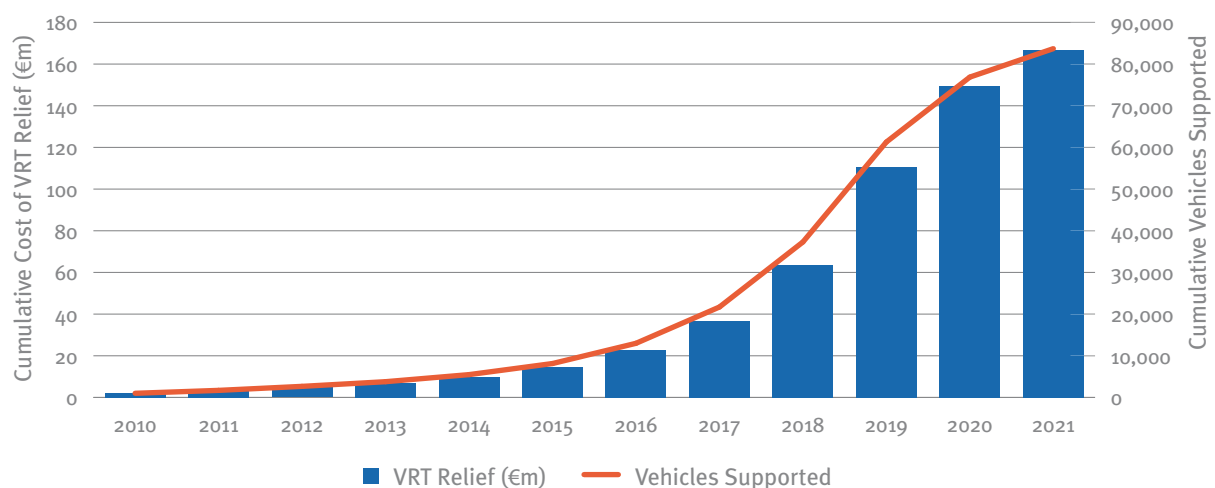
In the Finance Act 2011, VRT relief for electric vehicles was capped at a maximum of €5,000, while the maximum relief available for plug-in hybrids remained at €2,500⁵². In Budget 2015, reliefs for hybrids, PHEVs and BEVs were extended until 31st December 2016⁵³, at an estimated cost to the Exchequer of €3 million in 2015 and in a full year. In Budget 2017, VRT reliefs available for hybrid electric vehicles and plug-in hybrid electric vehicles were extended by two years until 31st December 2018, whereas VRT reliefs available for (fully) electric vehicles and electric motorcycles were extended by five years until 31st December 2021⁵⁴.

In Budget 2020, VRT relief for conventional hybrids and plug-in hybrid electric vehicles were extended until 31st December 2020⁵⁵. In Budget 2021 it was announced that VRT relief for traditional hybrids and plug-in hybrid electric vehicles would not be extended as lower VRT rates for low emissions cars were to be introduced, thus VRT relief for hybrids and plug-in hybrids expired on 31st December 2020⁵⁶.

In Budget 2021 it was also announced that a tapering of VRT relief for battery electric vehicles would occur. The €5,000 VRT relief would remain for electric vehicles with an Open Market Selling Price (OMSP) of up to €40,000⁵⁷. However, a reduced rate of VRT relief would apply to vehicles with an OMSP more than €40,000 but less than €50,000, while vehicles with an OMSP of €50,000 or above would no longer qualify for this relief⁵⁸.

In Budget 2022, VRT relief for battery electric vehicles was extended until 31st December 2023.

Figure 3: Cumulative VRT Relief Provided for Hybrids, PHEVs and BEVs (€m) 2010-2021



⁵² Oireachtas, *Finance Act 2011*.

⁵³ Government of Ireland (2014), *Budget 2015: Summary of Budget 2015 Taxation Measures – Policy Changes*.

⁵⁴ Government of Ireland (2016), *Budget 2017: Summary of Budget 2017 Taxation Measures – Policy Changes*.

⁵⁵ Government of Ireland (2019), *Budget 2020: Summary of Budget 2020 Taxation Measures – Policy Changes*.

⁵⁶ Government of Ireland (2020), *Budget 2021: Statement of the Minister of Finance*.

⁵⁷ Government of Ireland (2020), *Finance Bill 2020 Explanatory Memorandum*.

⁵⁸ Ibid.

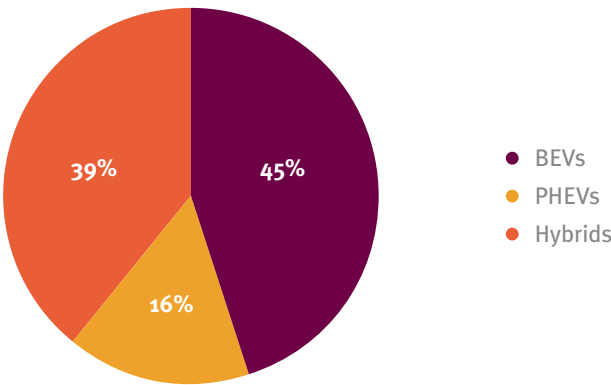
From 2010 to the end of 2021, the Irish Exchequer has provided a total of €166.6 million in VRT relief for regular hybrids, plug-in hybrid electric vehicles and battery electric vehicles, to encourage motorists to switch to low emission vehicles (LEVs). A cumulative total of 83,700 eligible vehicles from 2010 to 2021 have been supported via VRT relief.

Table 5: Annual VRT Relief Provided for Hybrids, PHEVs and BEVs (€) 2010-2021

Year	Hybrids	PHEVs	BEVs	Total Annual Relief	Vehicles Supported
2010	€2,266,444	€0	€90,219	€2,356,663	997
2011	€915,435	€0	€211,977	€1,127,412	702
2012	€1,145,203	€0	€611,952	€1,757,155	963
2013	€1,365,869	€7,001	€216,584	€1,589,454	1,120
2014	€1,866,546	€89,252	€970,105	€2,925,903	1,696
2015	€2,629,092	€279,217	€2,013,289	€4,921,598	2,662
2016	€4,966,580	€847,090	€2,098,693	€7,912,363	4,850
2017	€9,020,727	€1,260,920	€3,947,206	€14,228,853	8,709
2018	€14,526,377	€4,288,894	€7,907,041	€26,722,312	15,602
2019	€20,061,290	€7,924,991	€18,934,065	€46,920,346	23,995
2020	€5,666,321	€12,129,586	€21,250,159	€39,046,066	15,579
2021	€0	€0	€17,121,074	€17,121,074	6,825
Cumulative Total	€64,429,884	€26,826,951	€75,372,364	€166,629,199	83,700

Source: Calculations by the Parliamentary Budget Office based on data provided by the Revenue Commissioners.

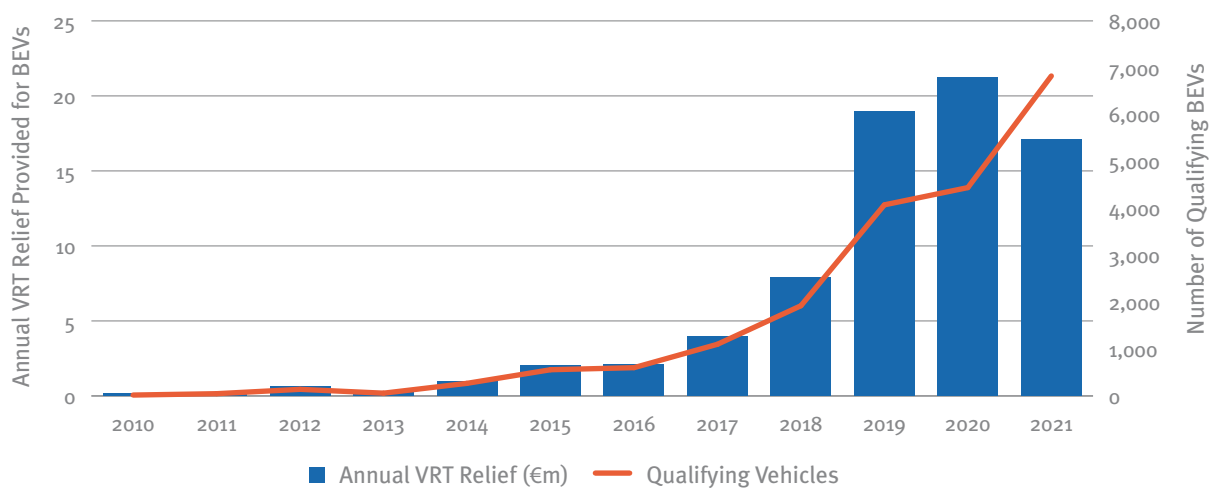
Figure 4: Composition of VRT Relief 2010-2021



As noted above, a total of €166.6 million in VRT relief has been provided for the period 2010-2021. Of this relief, 39% (€64.4 million) was allocated to conventional hybrids, 16% (€26.8 million) to plug-in hybrid electric vehicles and 45% (€75.4 million) to battery electric vehicles. Going forward only battery electric vehicles will be eligible for VRT relief meaning this relief will be a more targeted measure of support for greater EV adoption on Irish roads.

The exclusion of traditional hybrids and plug-in hybrid electric vehicles from VRT relief with a sole focus on battery electric vehicles, puts this expenditure on a more sustainable basis and ensures greater targeting of reliefs. Conversely, the removal of VRT relief for conventional hybrids and PHEVs may affect demand for these vehicles.

Figure 5: Annual VRT Relief Provided for Battery Electric Vehicles (€m) 2010-2021



Motor Tax

Battery electric vehicles and plug-in hybrid electric vehicles pay a lower rate of annual motor tax than traditional vehicles which rely on an internal combustion engine. Motor tax is an annual tax levied on motor vehicles based on their CO₂ emissions. There was a change in the motor tax assessment regime in 2008, with vehicles being assessed based on their CO₂ emissions rather than their engine size, for cars registered after 1st July 2008⁵⁹. Cars registered under the pre-July 2018 regime continued to be taxed on engine size rather than on an emissions-based system. Please refer to the appendix for the current rates of motor tax.

Battery electric or fully electric vehicles qualify for the lowest rate of motor tax of €120 per annum because they produce no tailpipe emissions (as noted above). CO₂ emissions produced by plug-in hybrid electric vehicles varies but they typically qualify for the 2nd and 3rd lowest bands of annual motor tax of €140 and €150 respectively, for PHEVs registered after 1st January 2021. Plug-in hybrid electric vehicles registered prior to this typically pay €170 per annum in motor tax. The average rate of motor tax paid per car in the national fleet was €346 in 2019, falling to an estimated €324 per car in 2020⁶⁰.

⁵⁹ Parliamentary Budget Office (2021), *An Assessment of the Resilience, Sustainability and Vulnerabilities of the Irish Tax Base*.

⁶⁰ Tax Strategy Group (2020), *Climate Action and Tax – 20/06*.

Fuel Excises/Carbon Tax

A significant proportion of the cost of petrol and diesel is tax. Traditional vehicles which rely on an internal combustion engine (ICE) use fossil fuels such as petrol or diesel to power the engine whereas plug-in hybrids can use a combination of electricity and petrol or diesel. Battery electric vehicles do not require any fossil fuel as the battery electric engine is the sole power source. Fuel excises which apply to both diesel and petrol via the Mineral Oil Tax do not apply to the consumption of electricity. The Parliamentary Budget Office (PBO) has previously noted that excise duties on fuel combined with the carbon tax component, constitute a significant proportion of petrol and diesel prices at present.

Table 6: Fuel Tax Rates and Volumes 2020

Product	Non-Carbon Charge (per 1,000 Litres)	Carbon Charge (per 1,000 Litres)	Mineral Oil Tax* (per 1,000 Litres)	VAT	Volumes 2020
Petrol	€541.84	€77.52	€619.36	23%	773
Auto diesel	€425.72	€89.66	€515.38	23%	3,167
MGO ('green diesel')	€47.36	€90.81	€138.17	13.5%	1,134
Kerosene	€0.00	€84.84	€84.84	13.5%	1,257
Jet Kerosene	Exempt	Exempt	Exempt	Exempt	Exempt

Source: Tax Strategy Group (2021), *Climate Action and Tax*, 21/09.

*Mineral Oil Tax comprises non carbon and carbon (carbon tax) components. This is the total rate of the non-carbon and carbon charges.

As of the 8th of March 2022, the non-carbon charge per 1,000 litres for both petrol and diesel remains unchanged from 2020 rates but the carbon charge has increased as part of the commitment for annual increases in the carbon tax. The table below outlines the rates of the Mineral Oil Tax for petrol and diesel prior to the recent changes that took effect at midnight 9th March 2022⁶¹.

Table 7: Rate of Mineral Oil Tax for Petrol and Diesel (€ per 1,000 litres) as of 8th March

Fuel Type	Non-Carbon Component 'A'	Carbon Component 'B'	Total Rate ('A' + 'B')
Petrol	€541.84	€94.87	€636.71
Auto diesel	€425.72	€109.74	€535.46

Source: Revenue Commissioners

61 Government of Ireland (2022), *Press release*.

As can be seen in the table above, mineral oil tax comprises a significant proportion of the cost of fuel for vehicles which rely on an internal combustion engine. Motorists who drive fully electric vehicles do not have to pay fuel excises as the Mineral Oil Tax does not apply to the consumption of electricity. The increasing cost of running a petrol or diesel vehicle may act as a further incentive for motorists to consider alternative, lower emitting vehicles over time such as hybrids, plug-in hybrids, and battery electric vehicles.

The table below outlines the new and temporary rates of the Mineral Oil Tax. The reductions will remain in place until 31st August 2022⁶².

Table 8: Current Rate of Mineral Oil Tax for Petrol and Diesel (€ per 1,000 litres) from 1st April 2022

Fuel Type	Non-Carbon Component 'A'	Carbon Component 'B'	Total Rate ('A' + 'B')
Petrol	€371.11	€94.87	€465.98
Auto diesel	€295.64	€109.74	€405.38

Source: Revenue Commissioners

Benefit-in-Kind (BIK)

Another incentive to encourage greater adoption of electric vehicles on Irish roads is benefit-in-kind (BIK) relief. When an employer provides an employee with a company vehicle, BIK tax is applicable. This relief allows for a 0% rate of benefit-in-kind applicable to electric vehicles (battery electric vehicles only) when provided by an employer to an employee. Regular hybrids and plug-in hybrid electric vehicles do not qualify for this relief.

The 0% rate of benefit-in-kind for electric vehicles was introduced in Budget 2018 for a period of one year⁶³. It was introduced for one year to allow for a comprehensive review which would inform budgetary decisions in Budget 2019. Budget 2018 estimated that the cost of introducing a 0% rate of BIK for electric vehicles for one year would cost the Exchequer €0.5 million in a full year⁶⁴. Electricity used in the workplace for charging vehicles was also exempt from benefit-in-kind⁶⁵.

In Budget 2019 the 0% rate of benefit-in-kind was extended for a period of three years⁶⁶. Budget 2019 also introduced a cap of €50,000 on the original market value (OMV) of a vehicle that qualified for the 0% rate of BIK. Any amount over the €50,000 limit will incur BIK. It was estimated in Budget 2019 that the extension of the 0% rate of BIK relief for electric vehicles would cost the Irish Exchequer €3 million in a full year⁶⁷.

⁶² Ibid.

⁶³ Government of Ireland (2017), *Budget 2018*.

⁶⁴ Government of Ireland (2017), *Budget 2018 Tax Policy Changes*.

⁶⁵ Ibid.

⁶⁶ Government of Ireland (2018), *Budget 2019 Tax Policy Changes*.

⁶⁷ Ibid.

In Budget 2022, benefit-in-kind relief was extended until the end of 2025 however a tapering of BIK supports will occur. As noted in the *Finance Bill 2021 Explanatory Memorandum*, the original market value of an employer provided electric vehicle, for the purposes of determining the cash equivalent, is being reduced by €35,000 in respect of vehicles made available in the 2023 year of assessment; €20,000 in respect of vehicles made available in 2024; and €10,000 in respect of vehicles made available in the 2025 year of assessment⁶⁸. Any excess amount after this reduction is chargeable to benefit-in-kind at the prescribed rates.

From the 1st January 2023, an emissions-based BIK structure takes effect. This was legislated for in the Finance Act 2019 and this new regime will bring in discounts and surcharges based on a car's emissions. Under the new structure, the amount taxable as BIK remains determined by the car's original market value (OMV) and the annual business kilometres driven, while the new CO₂ emissions-based bands will determine whether a standard, discounted, or surcharged rate is taxable⁶⁹. In addition, the rate of benefit-in-kind on employer provided vans will increase from 5% to 8% of the original market value of the van from 1st January 2023⁷⁰.

The Parliamentary Budget Office could not locate any costing estimates to the Exchequer for the extension of the 0% rate of BIK for electric vehicles in Budget 2022 documentation.

Table 9: New BIK Rates Structure from 1st January 2023

Business mileage		Vehicle Categories				
Lower limit (1)	Upper limit (2)	A (3)	B (4)	C (5)	D (6)	E (7)
Kilometres	Kilometres	per cent	per cent	per cent	per cent	per cent
-	26,000	22.5	26.25	30	33.75	37.5
26,001	39,000	18	21	24	27	30
39,001	52,000	13.5	15.75	18	20.25	22.5
52,001	—	9	10.50	12	13.5	15

Vehicle Category (1)	Co ₂ Emissions (Co ₂ g/km) (2)
A	0g/km up to and including 59g/km
B	More than 59g/km up to and including 99g/km
C	More than 99g/km up to and including 139g/km
D	More than 139g/km up to and including 179g/km
E	More than 179g/km

Source: Tax Strategy Group (2021), *Climate Action and Tax*, 21/09.

68 Government of Ireland (2021), *Finance Bill 2021 Explanatory Memorandum*.

69 Tax Strategy Group (2021), *Climate Action and Tax*, 21/09.

70 Government of Ireland (2019), *Finance Bill 2019 Explanatory Memorandum*.

The Electric Small Public Service Vehicle (eSPSV) Grant Scheme

The Electric Small Public Service Vehicle (eSPSV) Grant Scheme provides financial support for the adoption of battery electric vehicles or BEVs in the Small Public Service Vehicles (SPSVs) sector⁷¹. The SPSV sector includes taxis, hackneys, and limousines.

The Electric SPSV Grant Scheme is funded by the Department of Transport and is administered by the National Transport Authority (NTA). Funding for the eSPSV has increased from €500,000 in 2018 and 2019 to €15 million in 2021. This allowed for enhanced grant support of double the 'normal' grant amount of €10,000 where certain eligibility criteria are met. According to the Department of Transport, almost 600 drivers successfully applied for grants in 2021, with over €11 million awarded in grants in addition to provisional grant offers of approximately €4 million⁷².

The table below outlines the number of grants awarded under the eSPSV scheme since its inception in 2018.

Table 10: Overview of the Electric SPSV Grant Scheme

Year	Available Funding	Number of Grants Awarded	Value of Grants Awarded
2018	€500,000	46	€279,000
2019	€500,000	35	€189,000
2020	€1,000,000	20	€159,000
2021 (to 10/12/2021)	€15,000,000	545*	€10,465,000

Source: Data provided to the Parliamentary Budget Office by the Department of Transport.

Due to strong interest among the Small Public Service Vehicle sector, the Electric SPSV scheme closed on 30th September 2021⁷³. Per the terms and conditions of the Electric SPSV Grant Scheme 2021, the scheme may close if funding reaches capacity, and this occurred⁷⁴. The Minister for Transport announced a re-opening of the Electric SPSV Grant Scheme on 4th February 2022 and announced that a further €15 million would be allocated to the scheme for 2022. Like 2021, enhanced grant support is available.

Drivers can apply for grants of up to €10,000 towards the purchase of a new full battery Small Public Service Vehicle or SPSV, with a further €2,500 in grant support available to convert it to a wheelchair accessible model. Drivers scrapping older, more polluting, or high mileage vehicles are now eligible for double the normal grant if they make the switch to fully electric SPSV's with grant support of €20,000 available for new battery electric vehicles and grant support of €25,000 available for new wheelchair accessible battery electric vehicles.

Funding for plug-in hybrid electric vehicles or PHEVs is available if they are wheelchair accessible. PHEVs which are not wheelchair accessible are not eligible for funding under the scheme.

Please see appendix for additional information.

⁷¹ Government of Ireland (2022), *Press Release*.

⁷² Ibid.

⁷³ *Dáil Éireann Debate*, 4th November 2021.

⁷⁴ Ibid.

The Alternately Fuelled Heavy-Duty Vehicle (AFHDV) Purchase Grant

To promote the decarbonisation of the heavy-duty sector, the Alternately Fuelled Heavy-Duty Vehicle (AFHDV) Grant Scheme was launched by the Department of Transport on 15th March 2021⁷⁵.

The scheme, administered by Transport Infrastructure Ireland (TII), is intended to help bridge some of the difference in purchase price between conventional heavy-duty vehicles (HDVs) which rely on an internal combustion engine and those powered by alternative fuels which offer greater environmental benefits over standard diesel technologies.

To comply with the European Union's State Aid rules, grant levels under the AFHDV Scheme are calculated as a percentage of the difference in price between a conventionally fuelled diesel heavy-duty vehicle and its alternately fuelled equivalent. Maximum grant levels for eligible vehicles depend on the size of the company applying for the grant, the fuel-type of the vehicle and whether applicants have already received grants under the scheme⁷⁶.

Supported fuel-types under the scheme include compressed natural gas, liquified natural gas, battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs) and fuel cell electric vehicles (FCEVs). €2 million was initially allocated to the scheme in 2021 but given strong interest and take-up of the scheme, the Department of Transport allocated an additional €1 million to the scheme in 2021⁷⁷.

The Alternately Fuelled Heavy Duty Vehicle Scheme will continue in 2022. A total of €2.75 million in grants were awarded in 2021, however due to supply chain issues caused by the pandemic, delays in obtaining vehicles are widespread. Therefore, only €78,769.60 was drawn down for 2021.

Table 11: The Alternately Fuelled HDV Scheme Grant Allocation 2021

Vehicle Type	Value of Grants Awarded	No. of Vehicles Supported
CNG Truck 16t-46t	€855,000.00	57
EV Midi Bus c.21-32 seats	€360,000.00	5
EV Refuse Collection Truck	€500,000.00	5
EV Single Deck Bus c.40+ seats	€474,000.00	4
EV Van 5.5t-8.5t	€63,645.60	2
LNG Truck 26t-46t	€500,000.00	17
Total	€2,752,645.60	90

Source: Data provided by Transport Infrastructure Ireland (TII).

The Parliamentary Budget Office (PBO) has been advised by Transport Infrastructure Ireland that due to ongoing supply chain issues globally, delivery of vehicles is proving to be a challenge. Drawdown of the grants can only occur once the vehicle has been obtained. Grant offers are valid for a period of 9-months as per the scheme's Service Level Agreement (SLA).

⁷⁵ Department of Transport (2021), *Alternately Fuelled Heavy-Duty Vehicle (AFHDV) Grant Scheme*.

⁷⁶ Transport Infrastructure Ireland, *Alternately Fuelled HDV Purchase Grant Scheme*.

⁷⁷ Figures provided to the Parliamentary Budget Office by the Department of Transport. This information was also made publicly available in a Dáil Éireann Debate, 1 July 2021.

Summary of Ireland's Electric Vehicle Incentives

In summary, Ireland offers a comprehensive range of electric vehicle incentives which include personal incentives, business incentives and a scheme available to Local Authorities to roll-out electric vehicle chargers. These schemes and incentives include an electric vehicle purchase grant, a home charger grant, toll incentives, VRT relief, the lowest available rates of both VRT and Motor Tax, Accelerated Capital Allowance (ACA), a 0% rate of Benefit-in-Kind (BIK), a scheme for Small Public Service Vehicles, a scheme for Alternatively Fuelled Heavy-Duty Vehicles and the Electric Vehicle Public Charge Point Scheme.

The Parliamentary Budget Office (PBO) estimates that the Irish State and its bodies have collectively provided in the region of approximately €322.57 million between 2010 to the end of 2021 in resources to support the longer-term transition of electrifying the national fleet and ensuring a sufficient national charging infrastructure⁷⁸. VRT relief and grants provided by the SEAI make up a significant proportion of this support. The table below provides an overview of the various reliefs, schemes and incentives for electric vehicles and chargers.

Table 12: Summary of Irish Electric Vehicle Incentives⁷⁹

Name	Vehicles/Chargers Supported	Cumulative Spend (€m)
VRT Relief	83,700	€166.63
EV Purchase Grant	27,546	€130.60
Electric SPSV ⁸⁰	646	€11.09
EV Home Charger Grant	15,484	€9.28
The Alternatively Fuelled Heavy-Duty Vehicle ⁸¹	90	€2.75
LEVTI ⁸²	17,789	€1.93
EV Public Charge Point Scheme ⁸³	n/a	€0.09
Accelerated Capital Allowance (ACA) ⁸⁴	14	€0.1
Benefit-in-Kind (BIK) ⁸⁵	n/a	n/a
Total	n/a	€322.47

Sources: Revenue Commissioners, Department of Transport, TII, and PBO calculations.

⁷⁸ Please note that this figure only includes the Home Charger Grant and the Electric Vehicle Public Charge Point Scheme for the national charging infrastructure. It does not include expenditure by the ESB on the national infrastructure of chargers.

⁷⁹ Total figure does not include 0% Benefit-in-Kind relief as data was not available.

⁸⁰ Based on data available as of 10th December 2021. Please note that this figure includes paid and payment pending but does not include grant offers or provisional grant offers.

⁸¹ €2.75 million in grants were awarded in 2021 but actual drawn down of funds are significantly lower at approximately €78,769.60 due to delays in delivery of alternatively fuelled heavy-duty vehicles.

⁸² Based on data available until end October 2021. TII have advised this figure may be revised up by €97,000.

⁸³ This data excludes offers issued and offers to be issued.

⁸⁴ This data is for ACA under Section 285C of the Taxes Consolidation Act (TCA) 1997 'Acceleration of wear and tear allowances for gas and fuelling equipment' for the year 2019. ACA support provided only include 2019 figures as figures for 2020 and 2021 were not yet available.

⁸⁵ Budget 2018 estimated the full year cost of 0% BIK relief at €0.5 million. Budget 2019 estimated the full year cost of continued relief at €3 million per annum. There were no costing estimates contained in Budget 2022.

The Parliamentary Budget Office estimates (based on data available and exclusive of BIK) that circa 92% of the above expenditure has been on two schemes, VRT relief and the EV grant. Due to changes in the eligibility of certain schemes, going forward resources will be increasing focused on fully electric vehicles. The two most expensive schemes to date (VRT relief and the SEAI Electric Vehicle Purchase Grant), are now only available to battery electric vehicles only.

Electric Vehicle Incentives Cost per Vehicle

Going forward, Ireland's electric vehicle incentives are becoming increasingly focused on fully electric vehicles over traditional hybrids and plug-in hybrids. PHEVs no longer qualify for the Electric Vehicle Grant or VRT relief whereas BEVs qualify for both.

Fully electric or battery electric passenger vehicles qualify for total exchequer support of approximately €11,300. This includes the SEAI's Electric Vehicle Grant of up to €5,000, the SEAI Home Charger Grant of up to €600, maximum toll discounts of up to €500 per annum under the LEVTI scheme, up to €5,000 in VRT savings when the new VRT regime is considered in conjunction with VRT relief and finally an annual saving of approximately €200 as fully electric vehicles are eligible for the lowest rate of annual Motor Tax of €120 per year.

Table 13: Maximum Exchequer Support per Private Passenger Vehicle Year One

Scheme/Incentive	Battery Electric Vehicle	Plug-In Hybrid Electric Vehicle
Electric Vehicle Grant ⁸⁶	€5,000.00	n/a
Home Charger Grant ⁸⁷	€600.00	€600.00
LEVTI ⁸⁸	Up to €500.00	Up to €500.00
VRT Relief ⁸⁹	Up to €5,000.00	n/a
Lower rate of VRT ⁹⁰		€2,727.92 ⁹¹
Lower rate of Motor Tax ⁹²	€204	€179
Total⁹³	€11,304.00	€4,006.92
LEVTI Adjustment	-€426.11	-€481.53
Total⁹⁴	€10,877.89	€3,525.39

86 New fully electric vehicles are eligible for the SEAI Electric Vehicle Grant. PHEVs no longer qualify for this support since 1st January 2022. Any BEV with a list price greater than €20,000.00 is eligible for €5,000.00.

87 Both first-hand and second-hand BEVs and PHEVs are eligible for the Electric Vehicle Home Charger Grant of €600.00 administered by the Sustainable Energy Authority of Ireland.

88 Both BEVs and PHEVs qualify for the Low Emissions Vehicle Toll Incentive (LEVTI) with toll reductions of up to 50% and 25% respectively. The scheme offers toll reductions of up to a maximum annual threshold of €500 for private vehicles and €1,000 for commercial vehicles. The PBO estimates that in 2019 the average vehicle benefitted to the tune of €55.42 per vehicle.

89 Fully electric passenger cars or commercial vehicles are eligible for VRT relief up to a maximum of €5,000.00 provided they are registered prior to 31st December 2023. Reliefs have been removed for any fully electric vehicle with a purchase price exceeding €50,000.00. Relief for regular hybrids and plug-in hybrid electric vehicles expired on 31st December 2020. Only BEVs with an Open Market Selling Price (OMSP) of up to €40,000.00 qualify for full relief. In 2021 average VRT relief per vehicle was €2,508.58.

90 The European Environment Agency estimates (based on provisional data for 2020) that the average emissions of new passenger car were 122.4 grams of CO₂ per kilometre. This would equate to a VRT rate of 16.75% (VRT band 11) compared to 7.00% for BEVs (VRT Band 1). Assuming an average car price of €35,199, the VRT saving for a BEV would be €3,431.90 for a BEV, excluding VRT relief. When VRT relief and the lower rate of VRT are considered collectively, the VRT saving for a fully electric vehicle is approximately €5,000.00.

91 PHEVs on average qualify for Band 2 under the new VRT regime of 9.00% compared to 16.75% for Band 11. Assuming an average car price of €35,199 the VRT saving for a PHEV compared to a traditional ICE vehicle is equivalent to a saving of €2,727.92 under the new VRT regime effective 1st January 2022.

92 BEVs qualify for the lowest rate of motor tax of €120.00 per annum, PHEVs typically qualify for the second and third lowest bands of €140-€150 per annum. The average rate of motor tax in the national fleet paid in 2020 was €324 per car. Taking the difference this works out at an average annual saving of €204 for BEVs and circa €179 for PHEVs.

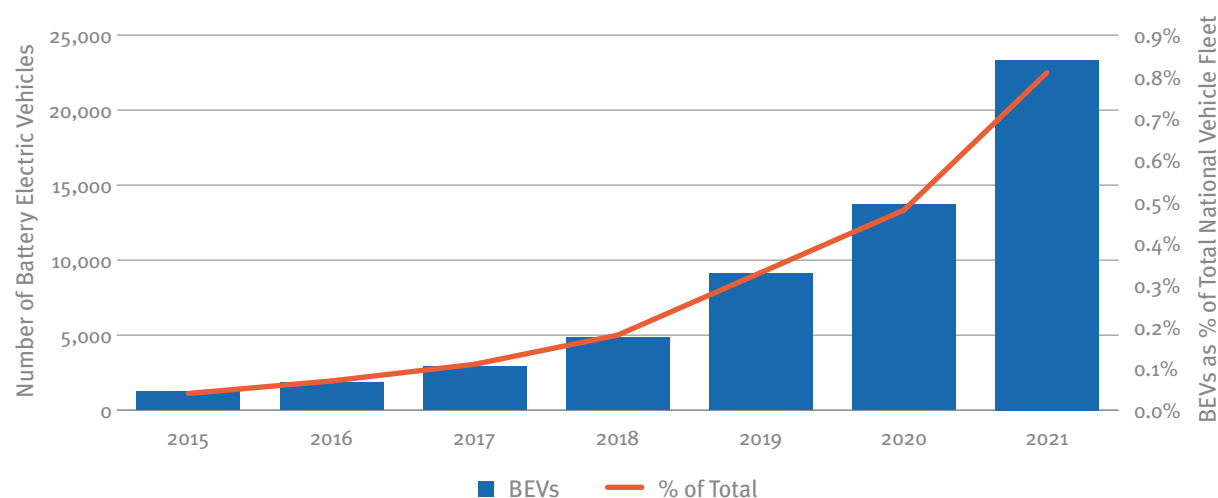
93 This figure assumes the vehicle driver has benefitted from the maximum €500 annual threshold in toll discounts under the Low Emissions Vehicle Toll Incentive (LEVTI) scheme.

94 This figure assumes toll discounts of €73.82 for BEVs and €36.94 for PHEVs.

Overview of the Irish National Vehicle Fleet: Electric Vehicles on Irish Roads

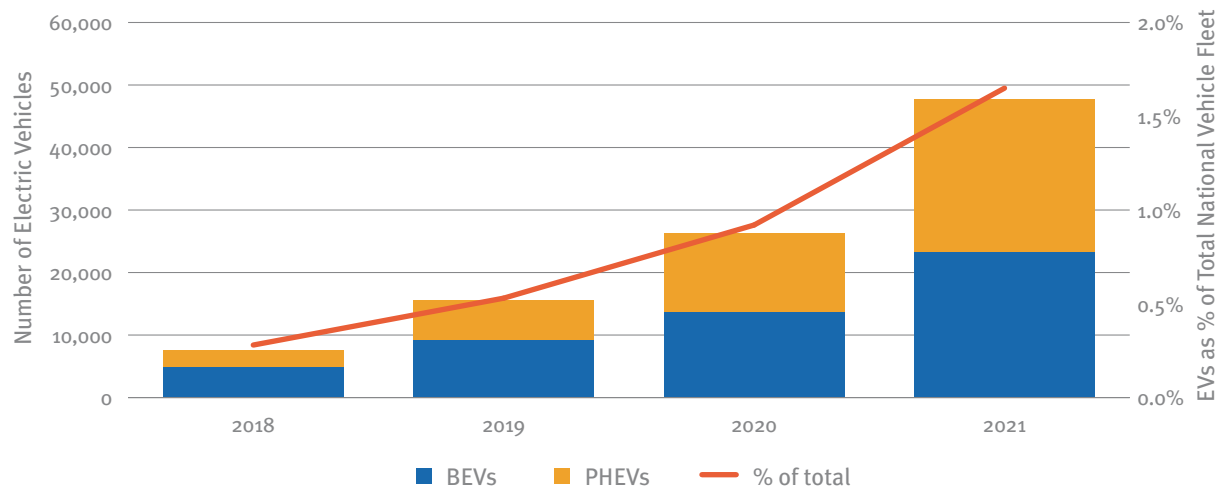
At present, the number of electric vehicles on Irish roads constitutes a small, but growing proportion, of the total national vehicle fleet. At the end of 2021 there were 47,721 electric vehicles in Ireland, comprised of 23,333 battery electric vehicles and 24,388 plug-in hybrid electric vehicles⁹⁵. This corresponds to 1.65% of the national vehicle fleet. Fully electric vehicles comprised 0.81% of the national fleet at the end of 2021, up from 0.48% at the end of 2020.

Figure 6: Total Number of Battery Electric Vehicles (BEVs) 2015-2021



Source: Department of Transport (2016-2022), *Irish Bulletin of Vehicle and Driver Statistics 2015-2018*, *Irish Bulletin of Vehicle and Driver Statistics 2019*, *Irish Bulletin of Vehicle and Driver Statistics 2020*, and provisional 2021 figures provided by the Department of Transport to the Parliamentary Budget Office.

95 Figures provided to the Parliamentary Budget Office by the Department of Transport.

Figure 7: Total Number of Electric Vehicles (BEVs & PHEVs) 2018-2021

Source: *Ibid.*

As can be seen from the graph above, the total number of electric vehicles (battery electric vehicles and plug-in hybrid electric vehicles) in Ireland has increased from 7,614 at the end of 2018, to 15,547 in 2019, 26,184 in 2020 and to 47,721 in 2021.

The total number of electric vehicles on Irish roads (comprised of both battery electric vehicles and plug-in hybrid electric vehicles) has increased just over sixfold since 2018.

At the end of 2021, battery electric vehicles and plug-in hybrid electric vehicles combined, constituted 1.65% of the total national vehicle fleet, up from 0.88% at the end of 2020. The number of battery electric vehicles increased from 13,694 at the end of 2020 to 23,333 at the end of 2021, a year-on-year increase of 70.38%. The number of plug-in hybrid electric vehicles increased from 12,490 at the end of 2020 to 24,388 at the end of 2021, representing an annual increase of 95.2%.

Table 14: The National Vehicle Fleet* by Fuel Type (31st December 2021) and Comparison to 2020

Vehicle Type	Total Number 2021	Total Number 2020	% of Total 2021	% of Total 2020 ⁶
Diesel	1,859,181	1,847,904	64.30%	64.58%
Petrol	888,619	915,321	30.74%	31.99%
Petrol/Electric	83,411	61,756	2.89%	2.16%
Petrol/Diesel Plug-in hybrids	24,388	12,490	0.84%	0.44%
Electric (Battery electric)	23,333	13,694	0.81%	0.48%
Petrol and Ethanol	7,286	7,882	0.25%	0.27%
Others	4,757	1,937	0.17%	0.07%
Total	2,890,975	2,860,984	100%	100%

Source: 2021 figures were provided by the Department of Transport to the Parliamentary Budget Office. 2020 figures were sourced from the Department of Transport (2021), *Irish Bulletin of Vehicle and Driver Statistics 2020*.

*The National Vehicle Fleet refers to the total number of vehicles under current license as of 31st December.

At present, the number of battery electric vehicles and hybrid electric vehicles make up a small, but growing, proportion of the total national vehicle fleet.

At the end of 2021 the national fleet in Ireland stood at 2.89 million vehicles, up from 2.86 million at the end of 2020. Vehicles which rely solely on petrol and diesel constituted 2,747,800 vehicles at the end of 2021, approximately 95% of the fleet.

The other 5% of the fleet is comprised primarily of hybrid electric vehicles, plug-in hybrid electric vehicles, battery electric vehicles and vehicles which rely on petrol/ethanol. There were 83,411 traditional hybrids (petrol), 24,388 PHEVs, 23,333 BEVs, 7,286 petrol/ethanol vehicles, and 4,201 diesel hybrids.

Please see the Appendix for a complete breakdown of the national fleet.

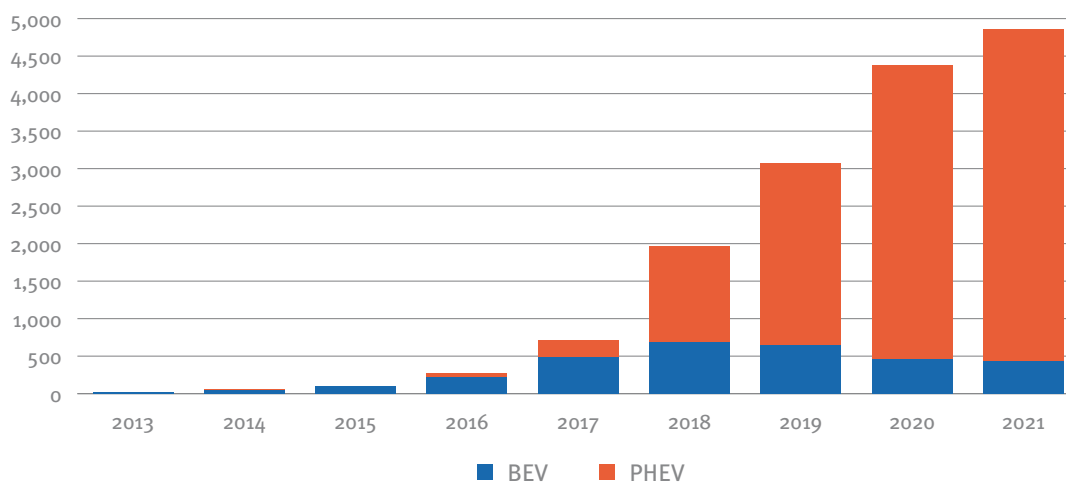
Second-Hand Market for Electric Vehicles

There is evidence of a small but growing second-hand market for electric vehicles in Ireland. The number of second-hand fully electric vehicle registrations increased from 2 in 2012, to 14 in 2013, 96 in 2015, 219 in 2016, and 486 in 2017⁹⁷. second-hand fully electric vehicle registrations peaked in 2018 at 692 and has been decreasing each year post 2018. The number of used battery electric registrations decreased to 643 in 2019, 456 in 2020, and to 438 in 2021.

Conversely, growth in second-hand registrations of plug-in hybrid electric vehicles has been growing at a much faster rate than battery electric vehicles, increasing from 48 in 2016, to 224 in 2017, 1,279 in 2018, 2,436 in 2019, 3,930 in 2020 and to 4,424 in 2021⁹⁸. In essence, there appears to be more interest in plug-in hybrid electric vehicles than battery electric vehicles in the second-hand market for electric vehicles. **The number of registrations for second-hand plug-in hybrid electric vehicles (PHEVs) in 2021 of 4,424 was a little over 10 times larger than the number of registrations for second-hand battery electric vehicles (BEVs) in 2021 of 438.**

The *National Travel Survey 2019* conducted by the CSO found that purchase price and reliability were the two most common influencing factors when considering an electric vehicle purchase.

Figure 8: Used Vehicle Registrations (BEVs and PHEVs) 2013-2021



Source: Revenue Commissioners

⁹⁷ PBO Calculations based on data provided by the Revenue Commissioners.

⁹⁸ Ibid.

Electric Vehicle Targets

The Climate Action Plan of 2021 outlines aspirational targets for continued electric vehicle adoption for the year 2025. This target includes 175,000 electric passenger cars, 20,000 low emission vans, 700 HGVs, 300 electric buses and expanding electrified rail services⁹⁹. At the end of 2021 there were 44,756 private electric cars registered on Irish roads (21,085 battery electric cars and 23,671 plug-in hybrid cars). Ireland has therefore achieved 25% of the 2025 target for 175,000 private passenger electric cars, as at the end of 2022.

However, while Ireland is making progress on the continued roll-out of EV adoption, the longer-term Climate Action Plan targets are much more ambitious. The Climate Action Plan 2021 outlines a national target of *'one million electric vehicles by 2030'* and to achieve carbon neutrality by 2050. The plan sets out the 2030 targets for electric vehicles which includes increasing the size of the national vehicle fleet to 945,000 electric and low emitting vehicles, comprising of: 845,000 electric passenger cars, 95,000 electric vans, 3,500 low emitting trucks and 1,500 electric buses.

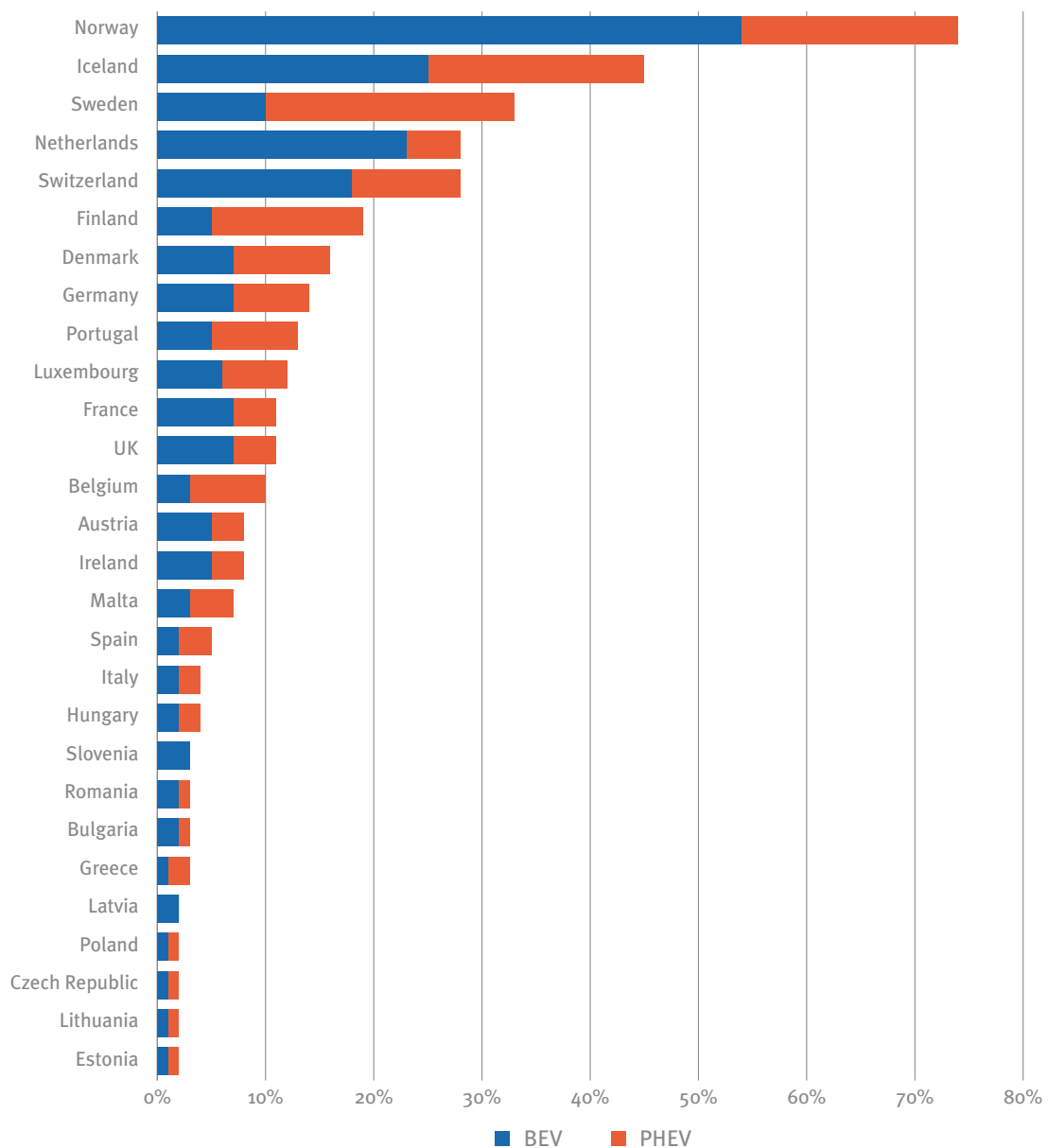
At the end of 2021 and in respect of private passenger cars, Ireland had reached approximately 5% of the 2030 target of 845,000 private passenger cars. **While recent year-on-year increases of the number of electric vehicles on Irish roads has been high, Ireland would need to see a circa twenty-fold increase in electric private passenger cars to reach the 2030 targets**, as set out by the Climate Action Plan. The Parliamentary Budget Office contacted the research services of many European Parliaments to get an overview of their incentive regimes for electric vehicles. 25 countries responded providing details of their electric vehicle incentives and whether they plan to introduce an Office for Low Emitting Vehicles. The next section outlines what policies European peers are pursuing in their attempts to decarbonise their respective transport sectors.

⁹⁹ The Government of Ireland (2021), *Climate Action Plan 2021: Securing Our Future*.

International Incentives for Electric Vehicles

In 2020, the Nordic countries alongside the Netherlands and Switzerland had the highest percentage of newly registered electric vehicles. Ireland's proportion of new electric cars registered in 2020 was largely in line with other median countries such as Belgium, Austria, Malta, and Spain, but significantly below the success achieved by Norway.

Figure 9: Percentage of Newly Registered Electric Cars by Country in the EU27, Iceland, Norway and the UK 2020



Source: European Environment Agency, *Newly registered electric cars by country*.

Observations of Irish and European Electric Vehicle Incentives

- **The countries with the highest levels of electric vehicles per capita such as Norway (with their 'feebate' system) and Sweden ('Bonus-Malus' scheme) have largely closed the price gap between internal combustion engine vehicles and electric vehicles.** This has been achieved by applying punitive taxes on ICE vehicles to pay for generous grants/bonuses for electric vehicles.
- **Scotland is the only place in Europe which offers interest-free loans for electric vehicles.** Scotland currently has six different types of interest free loans under its '*Low Carbon Transport Scheme*'.
- **Greece is the only country in Europe which offers an additional grant bonus for people on societal grounds when purchasing an electric vehicle.** In Greece, people with disabilities and young people up to 29 years of age can qualify for an additional subsidy of €1,000.00. Families with three or more dependent children can qualify for an additional €1,000.00 per child.
- **Slovenia offers subsidised loans for the purchase of hybrid vehicles.** Slovenia offers favourable loan terms for the purchase of hybrid vehicles with a subsidised interest rate of 3-month EURIBOR + 1.3%.
- **Germany is offering up to a ten-year exemption from motor vehicle tax** for first time registrations of fully electric vehicles up until the end of 2025. However, the exemption will end on 31 December 2030 which means that only battery electric vehicles first registered by the end of 2020 will receive the full ten-year tax exemption. For example, a fully electric vehicle which registers on 31 December 2025 would receive a five-year tax exemption¹⁰⁰.
- **Most European countries do not have a dedicated office for low emission vehicles and have no plans at present to introduce one.** The United Kingdom has the Office for Zero Emission Vehicles (OZEV).
- **Several European countries have incentives in place for the leasing of electric vehicles.** Both Germany and Greece offer incentives (such as grants) for leasing purposes.
- **Ireland is among only a handful of countries which offer toll incentives or discounts for electric vehicles.** Norway, Poland, Lithuania, and Latvia also offer (or offered) such incentives¹⁰¹.
- **Most European countries have schemes in place for free parking of electric vehicles.** Poland offers both free parking for EVs in major cities and access to bus lanes. In the Icelandic capital of Reykjavik electric and hydro vehicles up to 5 metres in length can be parked free of charge for up to 90 minutes. Some boroughs in the United Kingdom withdrew free parking initiatives due to perceived abuses of such schemes.
- **Ireland does not offer a tax exemption from either vehicle registration tax or motor taxes while most countries in Europe offer this.** Battery electric vehicles are exempt from road tax in Portugal, both vehicle registration tax and annual road tax in the Flemish region of Belgium, and from motor vehicle tax in the Netherlands as some examples. While Ireland does offer lower rates of VRT and Motor Tax, in most European countries BEVs are fully exempt from at least one tax.

¹⁰⁰ The tax exemption does not apply to hybrid vehicles.

¹⁰¹ In Lithuania, EVs are exempt from tolls in most but not all cases.

Table 15: A Summary Overview of European Electric Vehicle Incentives

Location	Electric Car Purchase Grant or Subsidy	Charger Grant or Tax Deduction ¹⁰²	Toll Incentive	Free Parking and/or Bus Lane Access	Tax Exemption	Interest (%) Free or Discounted Loan	Other Measure
Ireland	€2,000-€5,000	Yes	Yes	No	No	No	No
Portugal	€3,000	No ¹⁰³	No	Yes	Yes ¹⁰⁴	No	No
Greece	Up to €6,000	Yes	No	Yes	Yes	No	Yes ¹⁰⁵
Scotland	Up to £1,500	Yes	No	Limited	Yes	Yes ¹⁰⁶	Yes ¹⁰⁷
Rest of UK	Up to £1,500	Yes	No ¹⁰⁸	Limited ¹⁰⁹	Yes ¹¹⁰	No	Yes ¹¹¹
Belgium	No	Yes	No	No	Yes ¹¹²	No	No
Netherlands	€2,000-€3,350	Yes	No	No ¹¹³	Yes ¹¹⁴	No	Yes
Luxembourg	€5,000/ €8,000 ¹¹⁵	Yes	n/a	Yes	No	No	Yes ¹¹⁶
Slovakia	€8,000 ¹¹⁷	Yes	No	No	Yes ¹¹⁸	No	No
Hungary	Up to c. €6,420	No	No	Yes	Yes ¹¹⁹	No	Yes ¹²⁰
Slovenia	Up to €4,500	No	No	No	Yes	Yes ¹²¹	Yes ¹²²

¹⁰² This is marked 'Yes' if any support is provided to one sector of the economy: i.e., private individuals, businesses, local authorities, farmers and/or housing associations. 'Yes' does not necessarily mean charger grant support is available to a private individual or a private personal purchase of an Electric Vehicle.

¹⁰³ Portugal has taken a legislative approach to expanding the charging infrastructure through a series of Articles in law.

¹⁰⁴ Full electric vehicles (BEVs) are exempt from road tax in Portugal. There are also VAT deductions available for businesses charging electric vehicles subject to certain rules.

¹⁰⁵ In Greece, an additional subsidy of €1,000.00 is available for people with disabilities and young people up to 29 years of age. Families with at least three dependent children will qualify for an additional €1,000.00 for each child.

¹⁰⁶ Scotland is the only country that offers interest free loans for the purchase of electric vehicles in Europe.

¹⁰⁷ Based on an analysis by the Parliamentary Budget Office (PBO), the United Kingdom is the only country in Europe with a centralised and national dedicated Office for Low Emission Vehicles, although Hungary does have a state-owned company with responsibility for promoting electric vehicles.

¹⁰⁸ There is no national scheme offering toll incentives for electric vehicles. Toll roads and bridges in the UK are largely driven by weight of vehicle. However, *Transport for London* has a congestion charge for vehicles driving in London. *Transport for London* offers a discount on the congestion charge to battery electric and hydrogen fuel cell vehicles.

¹⁰⁹ There are some examples of limited free-parking and access to bus lanes but not as part of a nation-wide policy.

¹¹⁰ Since 1st April 2017, zero emission vehicles have been exempted from Vehicle Excise Duty.

¹¹¹ Same as 95 above. The UK Government has set up the Office for Zero Emissions Vehicles (OZEV).

¹¹² The Flemish Regions offers an exemption on the vehicle registration and on the annual road tax.

¹¹³ There is no national policy in the Netherlands on free parking but in most cases free EV charging is available nationwide.

¹¹⁴ Fully electric passenger cars in private ownership are exempt from motor vehicle tax in the Netherlands.

¹¹⁵ Luxembourg offers financial aid of €5,000 for passenger cars and vans. A higher amount of €8,000 is available depending on when the vehicle was registered etc.

¹¹⁶ All public transport in Luxembourg is free of charge.

¹¹⁷ A subsidy of €8,000.00 is available for electric cars of categories M1 and N1. Hybrids can qualify for a subsidy of €5,000.00.

¹¹⁸ Fully electric vehicles (of categories L, M and N) pay no motor vehicle tax in the Slovak Republic.

¹¹⁹ In Hungary, eco-friendly vehicles are exempt from registration tax, among other incentives.

¹²⁰ Government decree 443/2017 (XII.27) established the e-Mobi limited electromobility company, a state-owned company which has responsibility for development of the charging infrastructure, operation of service stations and educating the wide public about electromobility.

¹²¹ Slovenia offers favourable loan terms for the purchase of hybrid vehicles with a subsidised interest rate of 3-month EURIBOR +1.3%.

¹²² Slovenia offers a couple of tax exemptions for electric vehicles. Electric vehicles are fully exempt from annual motor taxes and there is a 0% import tax for electric vehicles.

Location	Electric Car Purchase Grant or Subsidy	Charger Grant or Tax Deduction ¹⁰²	Toll Incentive	Free Parking and/or Bus Lane Access	Tax Exemption	Interest (%) Free or Discounted Loan	Other Measure
Iceland	N/a	Yes	No	Yes	Yes ¹²³	No	No
Sweden	Up to 70,000 SEK (c. €6,440)	Yes	No	Yes	Yes	No	No
Denmark	N/a	Yes	No	Yes	Yes	No	No
Norway	Up to 50,000 Norwegian Kroner (c. €5,105)	Yes	Yes	Yes	Yes	No	Yes
Finland	€2,000	Yes	n/a	No ¹²⁴	Yes	No	No
Poland	Up to €4,400	Yes	Yes ¹²⁵	Yes	Yes	No	No
Germany	€5,000/ €6,000 ¹²⁶	Yes	n/a	Yes	Yes ¹²⁷	No	No
Austria	€5,000 ¹²⁸	Yes	No	No	Yes	No	Yes ¹²⁹
Italy	Up to €8,000	Yes	No	Yes	Yes	No	No
Spain	Up to €7,000	Yes	See below ¹³⁰	See below ¹³¹	Yes	No	No
Cyprus	€9,000 ¹³²	Yes ¹³³	n/a	Yes	Yes	No	No
Romania	C. €4,000-€9,000 ¹³⁴	Yes	No	Yes	No	No	No
Latvia	€4,500 ¹³⁵	No	Yes	Yes	Yes	No	No
Lithuania	Up to €5,000	Yes	Yes	Yes	Yes	No	No
Estonia	€5,000	No	No	Yes	No	No	No

¹²³ Value Added Tax (VAT) of 24% in Iceland has been abolished on electric vehicles up to 1,560,000 Icelandic Krona (approximately €10,7000) for the first 15,000 vehicles. VAT is chargeable above this amount.

¹²⁴ The City of Helsinki does offer reduced parking fees of 50% for electric vehicles.

¹²⁵ Poland offered free use of motorways A1 and A4 from 18th June to 18th October 2021 under the scheme 'Highways towards electromobility.'

¹²⁶ Germany offers a grant of €6,000 for the purchase of an electric vehicle with a price of less than €40,000. A grant of €5,000 is available if the price is above €40,000. Germany also offers grants for leasing.

¹²⁷ There is potential for a 10-year exemption from motor taxes in Germany for electric vehicles.

¹²⁸ Austria offers a grant of €5,000.00 for fully electric vehicles and fuel cell electric vehicles. A flat rate subsidy of €2,500 is available for plug-in hybrids and range extenders.

¹²⁹ Zero emissions cars (such as BEVs and FCEVs) are exempt from the 100km/h speed limit on certain parts of the Austrian high-way system.

¹³⁰ Toll incentives for electric vehicles are under consideration and may be introduced in 2024 in Spain. The Government of Catalonia does offer a 30% discount for hybrids and PHEVs. A 70% discount is available for BEVs.

¹³¹ Regional differences.

¹³² In Cyprus, €9,000.00 is available for the purchase of an electric vehicle for private use. €40,000.00 is available for the purchase of a new minibus (category M2) and €100,000.00 for the purchase of a new electric bus (category M3). Applications for Phase A (€8 million in funding) closed on 3 January 2022. €22 million in funding will be available in Phase B.

¹³³ 20 December 2021 was the deadline for submissions.

¹³⁴ Romania offers 45,000 Romanian Leu (approximately €9,000) for fully electric cars and 20,000 Leu (approximately €4,000) for hybrid cars with emissions of a maximum of 50g CO₂/km. The subsidy cannot exceed 50% of the purchase price of the car.

¹³⁵ Electric vehicles qualify for support of €4,500, plug-in hybrids qualify for support of €2,250.

Table 16: Examples of Unique or Rare International Electric Vehicle Incentives

Location	Scheme/ Incentive	Type	Description
Norway	The 50% Rule	Financial Incentive/Toll Discount	Electric vehicles in Norway pay a maximum of 50% of the full price for parking, tolls, and ferry fares ¹³⁶ .
Scotland	Low Carbon Transport Loan	Finance/Loan Support	Scotland provides six different types of interest-free loans for the purchase of electric vehicles ¹³⁷ .
Scotland	Low Emission Zones	Regulatory Measure	Scotland is in the process of introducing Low Emission Zones in its four largest cities. Scrappage incentives exist for those within a 20km radius of each zone ¹³⁸ .
Scotland	Additional home charger grant support for those in remote areas	Financial Incentive	The United Kingdom's Office for Low Emission Vehicles (OLEZ) offers grant support of £350 towards the cost of a home charger. Energy Saving Trust provides an additional £250 on top of this for those in Scotland ¹³⁹ but there is also an additional £100 available for those living in remote parts of Scotland where the cost of installing charge points has historically been higher ¹⁴⁰ .
The United Kingdom	Green Plates for Electric Vehicles	Awareness Initiative	The then British Transport Secretary confirmed on 16 th June 2020 that the United Kingdom would roll-out the introduction of 'Green plates' which would make it easier to identify electric vehicles, design policies to promote greater adoption and to raise awareness ¹⁴¹ . Green plates were introduced on British roads for the first time on 8 th December 2020 ¹⁴² .
The United Kingdom	A dedicated office for low emission vehicles	Government agency	The British Government set up a dedicated office to oversee the early stages of Britain's transition to a decarbonised fleet of vehicles. The office was initially called <i>The Office for Low Emission Vehicles</i> (OLEV) but is now called <i>The Office for Zero Emission Vehicles</i> (OZEV) ¹⁴³ .
Greece	Subsidies for leasing electric vehicles	Financial Incentive	Greece offers subsidies for the leasing of electric vehicles ¹⁴⁴ .
Greece	Enhanced support based on demographics	Financial Incentive	Greece offers an additional €1,000 for the purchase of an electric vehicle for people with disabilities and young people under the age of 29. Larger families with at least three dependent children will receive an additional €1,000 for each child when an electric vehicle is purchased.
Luxembourg	Free Public Transport	Financial Incentive	Since 29 th February 2020, all public transport in Luxembourg is free of charge, both for residents and tourists ¹⁴⁵ .

¹³⁶ Norsk elbilforening, *Norwegian EV policy*.

¹³⁷ Scottish Parliament Information Centre.

¹³⁸ *Low Emissions Zones Scotland*.

¹³⁹ Energy Saving Trust, *Domestic charge point funding*.

¹⁴⁰ Scottish Parliament Information Centre.

¹⁴¹ British Government (2020), *Green number plates get the green light for a zero-emission future*.

¹⁴² British Government (2020), *Road to Zero in sight as green number plates introduced on UK roads*.

¹⁴³ British Government, *Office for Zero Emission Vehicles*.

¹⁴⁴ Hellenic Parliament (The Greek Parliament).

¹⁴⁵ Luxembourg Parliament.

Location	Scheme/ Incentive	Type	Description
Germany	10-year tax exemption	Tax exemption	Newly registered electric vehicles can qualify for an exemption for motor vehicle tax up until 31 st December 2030, provided the cars are registered by 31 st December 2025 ¹⁴⁶ .
Germany	Leasing financial bonus	Financial Incentive	Germany offers financial support for the leasing of both fully electric vehicles and plug-in hybrid electric vehicles. If the lease period is for at least 2 years, then the financial incentive is the same as that given to someone purchasing an electric vehicle.
Slovenia	Subsidised loan	Finance/ Loan Support	Slovenia offers favourable loans for the purchase of electric vehicles with a subsidised interest rate of 3-month EURIBOR + 1.3% ¹⁴⁷ .
Iceland	Free parking up to 90 minutes	Financial Incentive	In the Icelandic capital of Reykjavik, electric and hydro vehicles up to 5 metres in length can be parked free of charge up to 90 minutes, provided that their tyres are not studded ¹⁴⁸ .
Austria	Emission free buses and infrastructure	Finance Incentive and Public Investment	Austria has a couple of funding programs aimed at converting the fleet of buses and commercial vehicles to be emission free. The objective is to provide people who wish to switch from private to public transport with zero-emission services ¹⁴⁹ .
Australian Capital Territory	Sustainable Household Scheme	Finance/ Loan Support	The Australian Capital Territory (ACT) offers interest-free loans of between \$2,000 and \$15,000 AUD with a repayment period of up to 10 years ¹⁵⁰ .
Australian Capital Territory	Zero-Emission Transition Plan for Transport Canberra	Public Investment	The Australian Capital Territory Government is aiming to achieve zero-emission public transport by 2040 ¹⁵¹ .
Australian Capital Territory	Government fleet initiative	Green Government/ Public Investment	The ACT Government has achieved the goal of 100% of new Government vehicle leases being zero emission vehicles. The Government fleet now has 175 low emission vehicles ¹⁵² .
British Columbia (B.C.)	Graduated rebate amount conditional on PHEV range	Clean BC Go Electric Rebate Program	Newly purchased or leased longer-range PHEVs are eligible for a rebate of up to \$3,000 CAD whereas newly purchased or leased shorter-range PHEVs are eligible for rebates of up to \$1,500 CAD ¹⁵³ .
Nova Scotia	Graduated rebate amount conditional on PHEV range	Electrify Nova Scotia Rebate Program	Newly purchased or leased long-range PHEVs are eligible for a rebate of up to \$3,000 CAD whereas newly purchased or leased short-range PHEV are eligible for rebates of up to \$2,000 CAD ¹⁵⁴ .

¹⁴⁶ German Bundestag.

¹⁴⁷ Republic of Slovenia, National Assembly.

¹⁴⁸ The Parliament of Iceland Research and Information Service.

¹⁴⁹ Republic of Austria, Parliament.

¹⁵⁰ Everyday Climate Choices, *Sustainable Household Scheme*.

¹⁵¹ Transport Canberra, *Zero-Emission Transition Plan for Transport Canberra*.

¹⁵² ACT Government, *2020-21 Minister's Annual Report under the Climate Change and Greenhouse Gas Reduction Act 2010*.

¹⁵³ British Columbia, *Go Electric Passenger Vehicle Rebates*.

¹⁵⁴ EV Assist Nova Scotia, *Rebates*.

Comparing Ireland's Electric Vehicle Incentives to European Peers

Ireland's electric vehicle incentives are largely in line with European countries both in terms of the types of support available and the amount of support available. Most European countries offer a grant when an electric vehicle is purchased and offer grant support for the installation of a domestic or home charger. In addition to the design of schemes being similar, Irish grant levels are largely in line with continental peers. For the purchase of an electric vehicle, Ireland's grant support of up to €5,000 is similar to the support offered in Estonia, Lithuania, Germany, and Austria. It is less generous than amounts available in Cyprus, Italy, Slovakia, and Sweden, but more generous than amounts available in England, Portugal, Finland, and the Netherlands.

Similarly, the grant support in Ireland of up to €600 for the purchase and installation of an electric vehicle home charger unit is largely in line with other European countries which also offer support to households such as Greece (€500), and Scotland (£600-£700¹⁵⁵). The home charger grant is less than the amount offered in Austria (€600-€1,800), but more generous than countries which do not offer this such as Slovenia, Estonia and Latvia, and the rest of the UK which offers support of £350.

There are however several differences in the Irish EV incentive regime compared to some European countries. Several countries offer financial support for the leasing of electric vehicles such as France, Greece, and Germany. Greece also offers extra relief to people with disabilities, young people under the age of 29, and larger families. Scotland offers an additional £100 for householder charger grants for those living in remote areas of Scotland. In addition, Scotland is the only place in Europe which offers interest-free loans for the purchase of electric vehicles¹⁵⁶. Slovakia offers subsidised loans for the purchase of electric vehicles.

Leasing arrangements, subsidised loans, and enhanced support for those with disabilities, those living in remote areas and young people can ensure greater societal inclusive and widen the scope of demographics which benefit from taxpayer support for electric vehicle adoption. Such policies and incentives can to some extent, offset concerns raised about the regressive nature of electric vehicle incentives.

As noted by the 2019 Spending Review on *Incentives for personal Electric Vehicle Purchase* published by the Department of Public Expenditure and Reform, 'Low carbon investment subsidies are often found to be regressive as higher income households tend to have more capital to invest in low-carbon assets.' A recent study published by Queens University Belfast and Trinity College Dublin, *Measuring the equity impacts of government subsidies for electric vehicles*, cited international academic research which found that 'EV adopters are often wealthy, which may contribute and exacerbate important aspects of exclusion, inequality and poverty.'

¹⁵⁵ £700 is available for those residing in remote parts of Scotland.

¹⁵⁶ The Scottish Government's Low Carbon Transport Loan is administered by Energy Saving Trust, an independent non-profit organisation.

In addition to leasing arrangements, subsidised or interest-free-loans, and enhanced support based on geographical and demographic considerations, other radical measures to reduce emissions include Luxembourg which has made public transport completely free, all the time, for everyone. Luxembourg is the only country in Europe to introduce such a measure. Such a policy is progressive in nature as it benefits those who cannot afford to purchase, or lease, an electric vehicle. The Irish Department of Transport recently announced an average reduction of 20% for public transport costs on all subsidised public transport services¹⁵⁷.

Another key difference in Ireland's approach to electric vehicles apart from financial and tax incentives, is regulatory. Most countries in Western Europe operate 'Low Emission zones' which have restrictions on what type of vehicles can operate in that zone. Countries that operate at least one zone include the United Kingdom, Spain, Portugal, France, Germany, Italy, Greece, Austria, Belgium, The Netherlands, Denmark, Sweden, Finland, and Norway. Ireland and Iceland are the only two countries in Western Europe which do not administer at least one Low Emission Zone. Scotland for example is introducing Low Emission Zones in its four largest cities and any one household within a 20km radius will be eligible for a scrappage scheme.

While Ireland offers lower rates of Vehicle Registration Tax (VRT) and motor tax for lower emitting vehicles such as battery electric vehicles and plug-in hybrids, most countries in Europe offer at least one full exemption from either vehicle registration taxes or annual motor taxes, with Germany providing an exemption from motor taxes for up to 10-years.

In addition, it should be noted that several European countries offer scrappage schemes for personal vehicles, including Greece and Luxembourg¹⁵⁸. Finland did operate a scrappage scheme in 2021 but this is no longer available in 2022¹⁵⁹.

It should be noted however, that while there are several European incentives Ireland does not offer such as interest-free loans (Scotland), subsidised loans (Slovenia), Low Emission Zones (most of Western Europe), incentives for leasing (France, Germany, Greece), enhanced charger support for rural areas (Scotland), enhanced support for people with disabilities (Greece), free public transport (Luxembourg) and 10-year tax exemptions (Germany), there are also some policy initiatives Ireland offers which many European countries do not. For example, toll incentives offered via the Low Emissions Vehicle Toll Incentive (LEVTI) and toll discounts in general, are only offered by a handful of other European countries such as Norway, Latvia, and Lithuania. While some European countries do not have tolls and thus such a scheme would not be relevant, other countries do have tolls and provide no discounts for electric or lower emitting vehicles. In addition, only the United Kingdom has a dedicated Office for Zero Emission Vehicles (OZEV). While Ireland plans to introduce an Office of Low Emitting Vehicles, all countries in Europe confirmed they had no plans to introduce such an office.

¹⁵⁷ Government of Ireland (2022), *Reduced Public Transport Fares to Roll-out from April*.

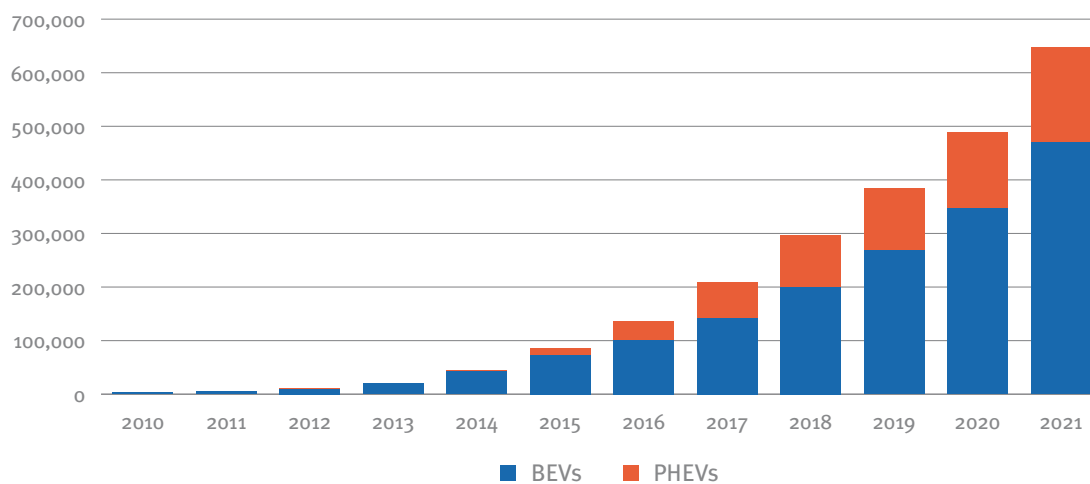
¹⁵⁸ Luxembourg introduced a scrappage scheme in January 2009 called CAR-E. Cars had to be at least 10 years old to be eligible. €1,500 is offered if the new car produces CO₂ of less than 150g/km. €2,500 is available if the new car produces CO₂ of less than 120g/km.

¹⁵⁹ Under Finland's scrappage scheme, buyers of electric vehicles received a discount of either €1,000 or €2,000 (depending on the fuel type of the new car) provided that the car being scrapped was at least 10 years old. The higher scrapping bonus of €2,000 was granted for the purchase of private passenger cars powered entirely by electricity or methane fuel, or cars with electricity or methane as the other fuel type.

Case Study: Norway

Norway has the most electric vehicles per capita in the world and is the prime example of a country successfully achieving widescale adoption of electric vehicles in their national vehicle fleet. In 2021, 64.5% of all new cars sold in Norway were fully electric¹⁶⁰. At the end of 2021 there were almost half a million fully electric vehicles on Norwegian roads. When plug-in hybrid electric vehicles are also considered, Norway had circa 647,000 electric vehicles at year-end 2021, comprised of 470,309 BEVs and 176,691 PHEVs¹⁶¹.

Figure 10: Number of Registered Electric Passenger & Light Commercial Vehicles (BEVs & PHEVs) in the Norwegian Vehicle Fleet 2010-2021



Source: Norsk elbilforening (Norwegian Electric Car Association), *Norwegian EV Market*.

Norway's success has largely been driven by its 'feebate' system. The feebate system is essentially a two-pronged approach which seeks to narrow the price gap between traditional ICE vehicles and EVs by applying higher taxation on environmentally harmful vehicles while at the same time applying rebates and other financial incentives for the purchase of electric vehicles.

Since 1990, there are no import taxes on electric vehicles in Norway and electric vehicles have been exempt from the 25% VAT rate since 2001. In addition, electric vehicles benefit from the '50% rule' paying a maximum of 50% of the full price for tolls, car parking and ferry fares. Electric vehicles have had access to bus lanes since 2005 and there is also the exemption of 25% VAT for the leasing of electric vehicles since 2015.

Please refer to the table below to see an overview of Norway's past and present incentives for electric vehicles.

¹⁶⁰ Norsk elbilforening, *Norwegian EV Market*

¹⁶¹ Ibid.

Table 17: The Norwegian Electric Vehicle Incentives

■	No purchase/import taxes (1990-)
■	Exemption from 25% VAT on purchase (2001-)
■	No annual road tax (1996-2021). Reduced tax from 2021. Full tax from 2022.
■	No charges on toll roads or ferries (1997-2017).
■	Maximum 50% of the total amount on ferry fares for electric vehicles (2018-)
■	Maximum 50% of the total amount on toll roads (2019)
■	Free municipal parking (1997-2017)
■	Parking fee for EVs was introduced locally with an upper limit of a maximum 50% of the full price (2018-)
■	Access to bus lanes (2005-)
■	New rules allow local authorities to limit the access to only include EVs that carry one or more passengers (2016)
■	50% reduced company car tax (2000-2018). Company car tax reduction reduced to 40% (2018-) and 20% from 2022
■	Exemption from 25% VAT on leasing (2015)
■	Fiscal compensation for the scrapping of fossil fuel vans when converting to a zero-emission van (2018)

Source: Norwegian Electric Car Association (*Norsk elbilforening*), *Norwegian EV Policy*.

Case Study: Denmark

The Danish experience with electric vehicle incentives provides insightful empirical evidence of what happens when incentives are removed prematurely. Based on a political agreement between The Liberal Party, The Danish People’s Party, The Social Liberal Party and the Social Democratic Party, the former Danish Government put forward a bill on 18th November 2015 amending the Registration Tax Act, the Fuel Consumption Tax Act, and other various acts for the purposes of gradually phasing out vehicle registration tax relief for electric vehicles¹⁶². The phasing out of vehicle registration tax relief would be as follows: over 5 years and with a maximum threshold of 800,000 DKK, the registration tax for electric vehicles would rise to 100% in 2020 (20% in 2016, 40% in 2017, 65% in 2018, 90% in 2019, and 100% in 2020). Any amount exceeding 800,000 DKK during the gradual phasing period would be payable/subject to the registration tax¹⁶³.

162 Folketinget (The Danish Parliament) provided this information to the Parliamentary Budget Office.
163 Ibid.

The announcement and introduction of a gradual phasing out of relief for registration tax led to a fall in sales of electric vehicles in Denmark¹⁶⁴. Uncertainty around the withdrawal of incentives for electric vehicles created a lack of confidence among Danish consumers. For the 2016 to 2017 period in Denmark, electric vehicle ownership was largely unchanged year over year. Electric vehicle ownership increased from 1,243 in 2013, to 1,536 in 2014, and to 2,919 in 2015¹⁶⁵. However, electric vehicle ownership only increased from 7,888 in 2016, to 8,662 in 2017 and to 8,765 in 2018¹⁶⁶.

This prompted a reversal in policy and on 3rd May 2017, Denmark's Minister for Taxation put forward a bill delaying the gradual phasing out of registration reliefs. The delay in phasing out the relief meant that the registration tax would remain at 20% from 2016, up to and including 2018, rather than increasing to 40% in 2017 and 65% in 2018. It was intended that the registration tax would then rise to 40% in 2019 however in December 2018 the increase in the tax from 20% to 40% was delayed by a further year. Then, in December 2019 the new Danish Government decided to once again to delay the previously announced phasing out of registration tax relief and the 20% rate was maintained for 2020.

After a four-year period from 2017 to 2020 inclusive whereby the 20% rate was maintained, the previously announced phasing out of supports were eventually put on the long finger. Rather than annual postponements in the phasing out of the registration tax relief a longer-term plan was set out. On 18th December 2020 an agreement entitled '*Agreement on green change of road transportation*' was reached between the Danish Government and its supporting parties. The bill to implement this agreement also contained a further revision to the gradual phasing of registration tax with the tax rising to, and remaining at 40% for 2021-2025, and from 2026 up to 2030 the tax would increase by 8% per year reaching 80% by 2030¹⁶⁷.

Denmark has seen a substantial increase in fully electric vehicles in recent years, rising from 15,507 electric vehicles at the beginning of 2020 to 31,866 at the beginning of 2021. In 2021, an additional 24,917 electric vehicles were registered in Denmark which was up approximately 75% on the 14,228 EVs registered in 2020¹⁶⁸.

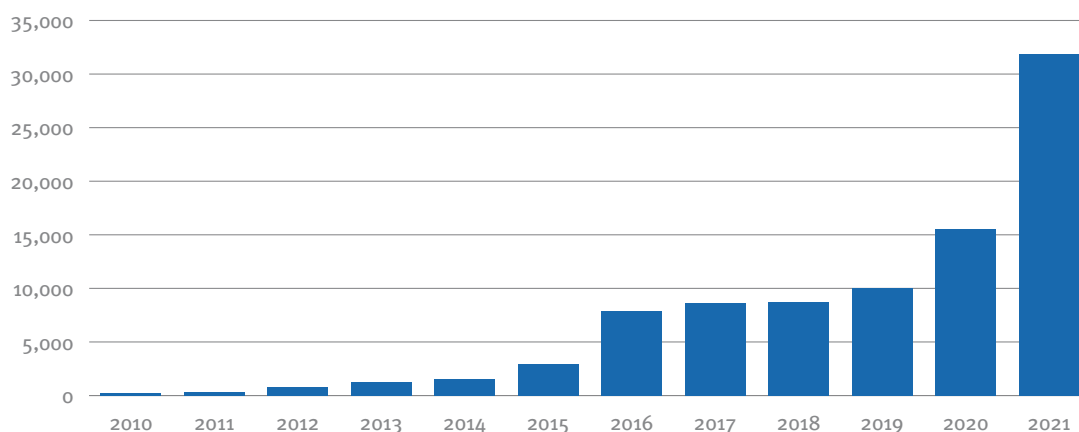
¹⁶⁴ International Energy Agency, *Nordic EV Outlook 2018 Insights from leaders in electric mobility*.

¹⁶⁵ Statistics Denmark, *Stock of Electric Cars in Denmark from 2010 to 2020*.

¹⁶⁶ Ibid.

¹⁶⁷ Folketinget (The Danish Parliament) provided this information to the Parliamentary Budget Office.

¹⁶⁸ Ibid. This data was sourced from *Statistics Denmark*.

Figure 11: Stock of Electric Cars in Denmark from 2010 To 2020

Source: Statistics Denmark

Interestingly, Denmark does not offer a grant directly when an electric vehicle is purchased.

Case Study: Greece

Greece offers subsidies for both the purchase or leasing of an electric vehicle, provides enhanced relief based on demographic factors (for people with disabilities, young people under the age of 29, and larger families), and provides an exemption from vehicle registration tax for electric vehicles.

Greece's state subsidy programme '*I move electrically*' includes financial incentives for those individuals who wish to lease or buy an electric vehicle¹⁶⁹. The subsidy is 20% for cars and 40% for bicycles and is calculated based on the retail price before taxes and, after deducting any discounts that sellers may apply. For a car with a price (before taxes) up to €30,000, the subsidy is 20% of the initial price with a limit of €6,000. For a car with a price from €30,001 to €50,000 the subsidy is 15% with a limit of €6,000. There is also an additional €1,000 bonus when an older car is scrapped.

For the purchase of motorcycles and tricycles, there is a subsidy of 20% of the price up to a limit of €800. For the scrapping of an old motorcycle there an additional €400 bonus applies. For the purchase of a bicycle, the subsidy is 40% with a limit of €800. Greece also offers subsidies for taxis and scrapping for older taxis exists also. Greece also offers an additional €1,000 based on demographic considerations when an electric car is purchased, individuals with disabilities and people with at least three children qualify for this support. Young people under the age of 29 will also qualify for this support, effective from April 2022 onwards.

All electric vehicles in Greece are exempt from vehicle registration tax when a new electric vehicle is purchased. Vehicle registration tax does apply to traditional ICE vehicles which rely on diesel, gas etc. and this tax also applies to hybrids. The rate of tax is determined by CO₂ emissions and the retail price.

¹⁶⁹ Hellenic Parliament (The Greek Parliament).

Case Study: Scotland

Scotland is the only place in Europe that offers interest-free loans for the purchase of electric and fuel-efficient vehicles. The Scottish Government's *Low Carbon Transport Loan* is an interest-free loan with a repayment period of up to six years¹⁷⁰. The Loan is split into six funding streams: The Electric Vehicle Loan, The Used Electric Vehicle Loan, The Low Carbon Transport Business Loan, The Used Electric Vehicle Loan for Business, The Switched on Taxis Loan, and The Low Carbon Hackney Cab Loan. These interest-free loans are funded by Transport Scotland (an agency of the Scottish Government) and administered by Energy Saving Trust.

The Electric Vehicle Loan

Scotland has introduced an interest-free loan for the purchase of fully electric cars, vans and bikes called *The Electric Vehicle Loan*. The Electric Vehicle Loan offers interest-free loans of up to £28,000 to help finance the purchase of new battery electric vehicles and offers up to £10,000 to cover the cost of buying a new electric motorbike or scooter¹⁷¹. The loan has a repayment period of up to six years. Plug-in hybrid electric vehicles are not eligible for inclusion in this scheme as they are not fully electric vehicles.

The Used Electric Vehicle Loan

In addition to the Electric Vehicle Loan for purchases of new electric vehicles, the Scottish Government has also introduced a loan scheme for used or second-hand electric vehicles. *The Used Electric Vehicle Loan* offers eligible drivers in Scotland an interest-free loan of up to £20,000 to assist Scottish motorists buying a second-hand or used fully electric vehicle or up to £5,000 to cover the cost of purchasing a used electric motorbike¹⁷². The maximum vehicle cost and loan available is capped at the amounts indicated above; i.e., only used electric cars bought for £20,000 and under or used electric motorbikes purchased for £5,000 or under are eligible for *The Used Electric Vehicle Loan*¹⁷³.

Plug-in hybrid electric vehicles and current owners of battery electric vehicles are not eligible for this loan. In addition, vehicles purchased must be bought through an accredited UK based dealership. Private person-to-person sales or vehicles bought from any other source, are not eligible for *The Used Electric Vehicle Loan*. The loan can be repaid up to a period of five years, less than the maximum six years offered under *The Electric Vehicle Loan* scheme for new vehicles.

The Low Carbon Transport Business Loan

The Low Carbon Transport Business Loan offers Scottish businesses up to £120,000 in interest-free loans for the purchase of electric vehicles¹⁷⁴. The loan can be used to purchase electric cars (up to £28,000), electric vans (up to £35,000 for each new electric vehicle purchased), new electric motorbikes or scooters (up to £10,000 for each electric vehicle purchased), and new electric HGVs, minibuses, coaches, and buses. An overall cap of £120,000 applies for the purchase of these vehicles. For a business to be eligible for this loan they must be operational for a minimum of 12 months. This loan applies to fully electric vehicles only.

¹⁷⁰ Scottish Parliament Information Centre.

¹⁷¹ Energy Saving Trust, *Electric Vehicle Loan*.

¹⁷² Energy Saving Trust, *Used Electric Vehicle Loan*.

¹⁷³ Ibid.

¹⁷⁴ Energy Saving Trust, *Low Carbon Transport Business Loan*.

The Used Electric Loan for Business

In September 2020, the Low Carbon Transport Loan was extended to cover used electric vehicles¹⁷⁵. The *Used Electric Loan for Business* provides interest-free loans of up to £20,000 to cover the cost of purchasing a used electric car or van, and up to £5,000 to cover the cost of purchasing a used electric motorcycle or moped. The maximum vehicle cost and loan available is £20,000 for cars and vans and £5,000 for motorcycles and mopeds. Businesses in Scotland must be operating for at least 12 months to be eligible for this scheme.

The Switched on Taxis Loan

The Switched on Taxis ('SOT') Loan provides interest-free loans of up to £120,000 to enable owners or operators of hackney cabs or private hire taxis to replace their current vehicle with an eligible ultra-low emission vehicle¹⁷⁶.

The Hackney Cab Loan

The Low Carbon Hackney Cab Loan provides an interest-free loan of up to £100,000 to enable owners or operators of hackney cabs over 10 years old to replace their existing vehicle with a fuel-efficient model¹⁷⁷.

Scotland's Low Carbon Transport Loan Overview

Since inception, Scotland's Low Carbon Transport Loan has provided just under £150 million in interest free loans to individuals and businesses who've purchased electric and fuel-efficient vehicles.

Table 18: Scotland's Low Carbon Transport Loan Data as of 31st December 2021

Loan Type	No. of loans requested	Value of loans requested	No. of loans offered	Value of loans offered	No. of loans paid	Value of loans paid
Business	1,522	£50,226,513	1,087	£34,536,132	893	£29,053,914
Domestic	5,187	£135,622,908	4,480	£116,388,169	3,646	£95,023,943
Hackney	501	£20,628,975	368	£14,672,223	364	£16,272,524
SoT	233	£11,156,904	154	£7,386,792	105	£5,186,265
Used EV Domestic	513	£7,539,836	419	£6,098,135	288	£4,040,774
Used EV Business	61	£1,020,118	39	£627,806	24	£354,652
Total	8,017	£226,195,254	6,547	£179,709,257	5,320	£149,932,072

Source: Data provided to the Parliamentary Budget Office by the Scottish Parliament Information Centre

¹⁷⁵ Energy Saving Trust, *Used Electric Loan for Business*.

¹⁷⁶ Energy Saving Trust, *Switched on Taxis Loan*.

¹⁷⁷ Energy Saving Trust, *Low Carbon Hackney Cab Loan*.

The Parliamentary Budget Office (PBO) was unable to identify any other country in Europe that also offers interest-free loans for electric and fuel-efficient vehicles. All European countries contacted confirmed that they did not offer such a scheme¹⁷⁸.

Scotland's Low Emission Zones

In the 2017-2018 Programme for Government, the Scottish Government committed to the introduction of Low Emission Zones (LEZs) into Scotland's four largest cities – Aberdeen, Dundee, Edinburgh, and Glasgow¹⁷⁹. The powers to do so were introduced in the Transport (Scotland) Act 2019¹⁸⁰. Following a pause in the implementation due to the pandemic, a new indicative timeline was announced in August 2020, with an agreement to introduce Low Emission Zones in the four biggest cities between February 2022 and May 2022. The Low Emission Zones will set an environmental limit on certain road spaces, restricting access for the most polluting vehicles to improve air quality¹⁸¹. The extent, scope and timeline for implementation and enforcement of each Low Emission Zone will be determined by each local authority. The Low Emission Zones will operate continuously, 24 hours a day, 7 days a week, including all public holidays such as New Year's Day and Christmas Day¹⁸². It is intended that Low Emission Zones will be enforced using a *penalty notice approach* (or fine), to discourage non-compliant vehicles from driving into the zone. The fine is expected to be in the region of £60, reduced by 50% if paid within 14 days¹⁸³. The penalty amount doubles with each subsequent breach of the rules detected in the same Low Emission Zone. The penalty charges are capped at £480 for cars and light goods vehicles and £960 for minibuses, buses, coaches, and HGVs. When there are no further breaches of the rules detected within the 90 days following a previous violation, the rate is reset to the base tier charge, i.e., £60.

Some categories of vehicles will be exempt from the Low Emission Zone requirements, including:

- Vehicles for disabled people
- Police vehicles
- Vehicles belonging to emergency and ambulance services
- Scottish Fire and Rescue
- Coastguard vehicles
- Military vehicles and
- Historical vehicles

Each year, local authorities will publish a report on the effectiveness of their Low Emission Zone.

¹⁷⁸ Based on information provided by European Research and Library Services in the respective parliaments.

¹⁷⁹ Scottish Government, *A nation with ambition: The Government's Programme for Scotland 2017-2018*.

¹⁸⁰ Scottish Parliament Information Centre.

¹⁸¹ Low Emission Zones Scotland, *About Low Emission Zones*.

¹⁸² Low Emission Zones Scotland, *How Low Emission Zones Work*.

¹⁸³ Ibid.

Low Emission Zones will have many health benefits due to the lower level of harmful emissions from vehicles however they may be considered a regressive regulatory measure which allows owners of lower emitting vehicles access to the zone at the exclusion of those who are unable to afford lower emitting vehicles. To support the introduction of Low Emission Zones in a more equitable way, the Scottish Government has introduced two funds – one to support households and one to support micro businesses.

Low Emission Zone Support fund for Households

The Low Emission Zone Support Fund offers households up to £3,000 towards the disposal of non-compliant vehicles within a 20km radius of a Low Emission Zone¹⁸⁴. Applications for the scheme for 2021-22 have now closed.

Low Emission Zone Retrofit Fund

The Low Emission Zone Retrofit Fund will provide financial support to microbusinesses who operate inside one of Scotland's four proposed Low Emission Zones¹⁸⁵. Grants of up to 80% to cover the cost of retrofitting are available subject to the following terms and conditions:

- Up to £5,000 per light commercial vehicle and wheelchair accessible taxi installing retrofit exhaust after-treatment systems.
- Up to £10,000 per wheelchair accessible taxi installing re-powering technology
- Up to £16,000 per heavy goods vehicle or refuse collection vehicle

In addition to interest-free loans and Low Emission Zones, Scotland also offers grant support for electric vehicle chargers, but an enhanced rate of grant support is available for those residing in the most remote parts of Scotland where the costs of installing charge points has historically been higher.

Domestic charge point funding – Enhanced EV Grant Support for Remote Parts of Scotland

As part of its Electric Vehicle Homecharge Scheme, the Office for Zero Emission Vehicles (OZEV) currently offers applicants £350 towards the cost of a home charger unit and Scotland's Energy Saving Trust will provide up to £250 further funding on top of this, with an additional £100 available for those living in remote parts of Scotland¹⁸⁶.

¹⁸⁴ Energy Saving Trust, *Low Emission Zone Support Fund for households*.

¹⁸⁵ Energy Saving Trust, *Low Emission Zone Retrofit Fund*.

¹⁸⁶ Energy Saving Trust, *Domestic charge point funding*.

Case Study: Germany

Germany offers a ten-year exemption from motor vehicle tax for first time registrations of fully electric vehicles up to the end of 2025. However, this exemption is only granted until 31st December 2030, which means only vehicles registered that were first registered on or before 31st December 2020 will benefit from the full ten-year exemption. This tax exemption does not apply to hybrid electric vehicles¹⁸⁷.

Germany also offers financial support for not just the purchase of a battery electric vehicles but also the leasing of electric vehicles called '*The Environmental Bonus*'. For cars with a value of under €40,000, the financial incentive is €1,500 when a vehicle is leased for 6-11 months, €3,000 when leased for 12-23 months, and €6,000 when leased for at least two years. For someone leasing an electric vehicle for at least 24 months, the financial bonus is the equivalent/same as someone purchasing an electric vehicle. This means that someone leasing for 2 years will receive the same bonus as someone who is purchasing an electric vehicle outright¹⁸⁸.

Table 19: Environmental Bonus for Battery Electric or Fuel Cell Vehicles

	Price under €40,000	Price over €40,000	Minimum Holding Period
Purchase	€6,000	€5,000	6 months
Lease 6-11 months	€1,500	€1,250	6 months
Lease 12-23 months	€3,000	€2,500	12 months
Lease 23+ months	€6,000	€5,000	24 months

Table 20: Environmental Bonus for Plug-in Hybrid Electric Vehicles

	Price under €40,000	Price over €40,000	Minimum Holding Period
Purchase	€4,500	€3,750	6 months
Lease 6-11 months	€1,125	€937.50	6 months
Lease 12-23 months	€2,250	€1,875	12 months
Lease 23+ months	€4,500	€3,750	24 months

Source: German Bundestag.

¹⁸⁷ This information was provided to the Parliamentary Budget Office by the Germany Bundestag.

¹⁸⁸ Ibid.

Case Study: The Australia Capital Territory (ACT)

The Australian Capital Territory (ACT) is a self-governing territory in the south east of Australia, located between Sydney and Melbourne. The only city in the ACT is Canberra, the capital city of Australia. 100% of the ACT's energy comes from renewable sources and the ACT is aiming to achieve net zero emissions by 2045. 2021 was the second consecutive year that the ACT was powered by 100% renewable electricity and greenhouse gas emissions for the territory were 45% lower than 1990 levels¹⁸⁹. Transport currently makes up 60% of emissions in the ACT¹⁹⁰. The majority of these emissions are from private cars¹⁹¹. The Government of the Australian Capital Territory introduced the *Sustainable Household Scheme*, as part of the territory's nation-leading incentives to reduce carbon emissions. Under the scheme, residents of the territory can qualify for interest-free loans of between \$2000 to \$15,000 to assist with the purchase of an electric vehicle. The scheme will run until 2026 unless extended and eligible households have up to 10 years to repay the loan.

The Scheme will provide \$150 million in interest-free loans over five years and applicants must have a good credit rating, reside in the ACT, and be purchasing a fully electric vehicle that sits below the luxury category threshold of \$79,659 AUD (approximately €54,000¹⁹²).

In addition to interest-free loans and zero stamp duty for zero-emission vehicles in the Australian Capital Territory, the ACT Government also added two years free registration, equivalent to saving of between \$317-\$573 per year, depending on vehicle weight¹⁹³.

The Australia Capital Territory Government also achieved the goal of 100% of new Government vehicle leases being zero emission vehicles¹⁹⁴. The ACT Government continues to operate one of the largest zero emissions passenger fleets in Australia. The Government fleet now has 175 low emission vehicles and 125 electric vehicle charging points.

In addition, under the *Zero-Emission Transition Plan for Transport Canberra*, the bus fleet will transition to zero emissions by 2040¹⁹⁵.

The Australian Capital Territory Government actively measures zero-emission vehicle uptake in the territory. 1,760 ZEVs have been registered in 2022 so far, which is more than total registrations for 2019, 2020 and 2021 combined¹⁹⁶. Total ZEVs registered in the ACT were 224 in 2019, 469 in 2020, and 893 in 2021¹⁹⁷.

¹⁸⁹ ACT Government, *2020-21 Minister's Annual Report under the Climate Change and Greenhouse Gas Reduction Act 2010*.

¹⁹⁰ Australian Government, *Sustainable Household Scheme*.

¹⁹¹ ACT Government, *The ACT's Transition to Zero Emission Vehicles Action Plan 2018-2021*.

¹⁹² Mozo, *ACT households offered up to \$15k interest-free loans for electric vehicles*.

¹⁹³ EV Brief, *Zero interest loans for electric vehicles in Australia first: 2 years free registration and \$15,000 interest free loans*.

¹⁹⁴ ACT Government, *2020-21 Minister's Annual Report under the Climate Change and Greenhouse Gas Reduction Act 2010*.

¹⁹⁵ Ibid.

¹⁹⁶ ACT Government, *Zero Emission Vehicles*.

¹⁹⁷ Ibid.

Case Study: Canada

Several Canadian Provinces offer different levels of grant support for plug-in hybrid electric vehicles depending on whether the plug-in hybrid is a short-range or long-range plug-in hybrid¹⁹⁸. The Canadian Province of British Columbia (B.C.) has a program called '*The CleanBC Go Electric*' light-duty vehicle rebate program, which is intended to make zero-emission vehicles (ZEVs) more affordable for those residing in British Columbia¹⁹⁹. The program provides point-of-purchase rebates on eligible passenger vehicles of up to \$3,000 CAD for the purchase or lease of a new battery electric vehicle, hydrogen fuel cell vehicle or longer-range plug-in hybrid electric vehicle, whereas \$1,500 CAD is available for the purchase or lease of a shorter-range plug-in hybrid electric vehicle²⁰⁰. The vehicle rebates are available to B.C. residents, businesses, non-profit organisations, and local government organisations. To ensure the funds available for rebates go further and are available for more residents of British Columbia purchasing lower-cost ZEVs, the Provincial Government has established a vehicle price cap. Any zero-emission vehicle with a manufacturer suggested retail price (MSRP) above \$55,000 CAD is not eligible for a vehicle rebate. Rebates will be available until the program funding is depleted.

The Canadian Federal level program is called '*The Incentives for Zero-Emission Vehicles (iZEV) Program*' which dictates that rebates are only eligible for leasing purposes for those who lease a vehicle for at least 12 months but will be prorated (adjusted) based on a lease length of less than 48 months (4 years). In other words, a 48-month lease is eligible for the full incentive, while a vehicle with a 24-month lease is eligible for half the incentive.

The Canadian Province of Nova Scotia also offers different grant levels for plug-in hybrid electric vehicles depending on whether the PHEV is a long-range vehicle or a short-range vehicle. Under '*The Electrify Nova Scotia Rebate Program*' newly purchased or leased long-range plug-in hybrids qualify for a rebate of \$3,000 CAD whereas newly purchased or leased short-range plug-in hybrid electric vehicles qualify for a rebate of \$2,000 CAD²⁰¹.

In several Canadian provinces, the purchase of a new and fully electric passenger vehicle is eligible for grant support of up to \$8,000 when both federal and provincial rebates are considered together including but not limited to British Columbia and Quebec.

¹⁹⁸ Government of Canada, *Incentives for purchasing zero-emission vehicles*.

¹⁹⁹ British Columbia, *Go Electric Passenger Vehicle Rebates*.

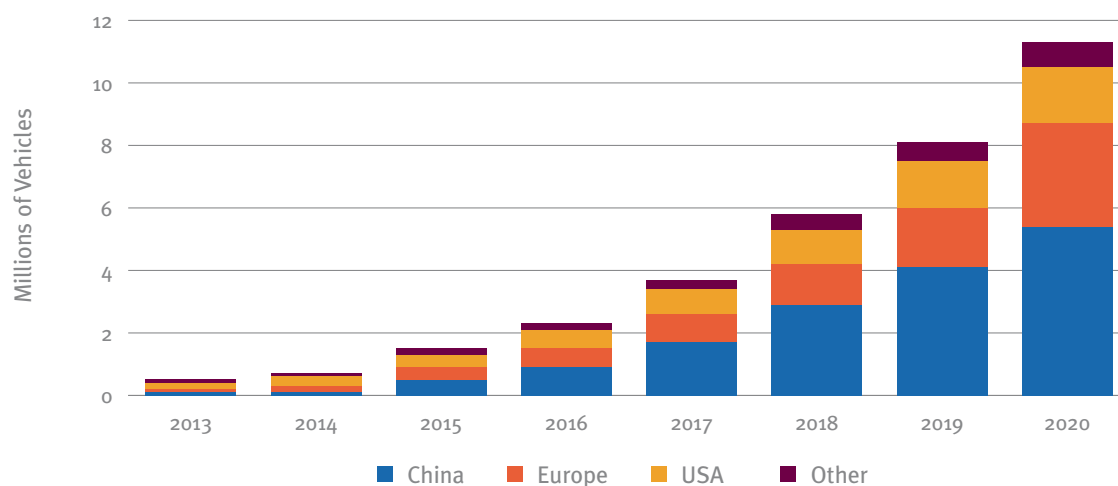
²⁰⁰ Ibid.

²⁰¹ EV Assist Nova Scotia, *Rebates*.

Electric Vehicles – Global Overview

Despite the pandemic, electric car registrations increased by 41% in 2020. At the end of 2020 there were over 10 million electric cars on roads with this figure rising to over 11 million when other types of electric vehicles such as buses and light-commercial vehicles are included²⁰². China has the largest number of electric vehicles of any country in the world, with Norway having the most on a per capita basis. Europe overtook China as the world's largest electric vehicle market.

Figure 12: Global Electric Vehicle Stock by Region 2013-2020²⁰³



Source: The International Energy Agency, *Global EV Outlook 2021*.

The International Energy Agency (IEA) notes in its *Global EV Outlook 2021* report, that the resilience of electric vehicle sales during the pandemic was due to three main factors:

- Supportive regulatory frameworks
- Additional incentives
- The number of EV models expanded and battery cost continued to fall.

²⁰² International Energy Agency (IEA), *Global EV Outlook 2021*.

²⁰³ Electric vehicles include passenger light duty vehicles, light-commercial vehicles, buses, and trucks.

One Million Electric Vehicles: Exchequer Impact

Achieving the ambitious national target of almost one million electric vehicles by 2030 will have a significant exchequer impact and will adversely affect the public finances. The state relies on the purchase and use of ICE vehicles that require fossil fuels such as petrol and diesel for excise duties via the Mineral Oil Tax²⁰⁴. Vehicles with an internal combustion engine are subject to higher rates of Vehicle Registration Tax (VRT) and Motor Tax than fully electric vehicles which produce no tailpipe emissions. In essence, electrification and decarbonisation of the national vehicle fleet will pose a risk to multiple revenue sources including Excise Duty, Vehicle Registration Tax (VRT), Motor tax, Value Added Tax (VAT) and the Carbon Tax.

Motor Tax Impact

Prior to the pandemic, both Motor Tax and VRT raised almost €1 billion each on an annual basis for the Irish Exchequer. Motor Tax raised €981 million, €964 million, and €940 million in 2018, 2019 and 2020 respectively²⁰⁵. As noted by the *Budget 2021 Tax Strategy Group on Climate Action and Tax*, the average yield of motor tax per passenger car has declined from €443 per car in 2015 to an estimated €324 per car in 2020. The current rate of Motor Tax for battery electric vehicles is €120 per annum²⁰⁶, and circa €140/€150 on average for plug-in hybrid electric vehicles. If taxation rates remain unchanged, ceteris paribus, and assuming the national target of one million electric vehicles was reached by 2030, and that the one million vehicles comprised mostly of fully electric vehicles, an average loss of circa €200 per vehicle would cost the exchequer €200 million in permanent losses on an annual basis for this tax stream alone. **Policy makers should be aware that even if a significant proportion of the one million electric vehicles were plug-in hybrid electric vehicles, annual ongoing losses of €200 million per annum is still the base scenario.** While Motor Tax is approximately €20-€30 higher on average for plug-in hybrid electric vehicles over battery electric vehicles, the average annual decline in Motor Tax receipts from 2015 to 2020 is likely to continue. The Tax Strategy Group notes that this fall is largely because pre-2008 cars pay on average €200 more than cars under the current Motor Tax regime. As the number of newly registered cars increase as a proportion of the fleet the average Motor Tax yield per car decreases. The number of passenger cars taxed on engine size rather than emissions has decreased from 59% at the end of 2015 to approximately 27% at the end of 2019²⁰⁷. Thus, ongoing annual losses of at least €200 million for Motor Tax as a revenue source is likely in the event the one million national target is achieved, all else being equal. This assumes no changes in the rates or bands of Motor Tax. Changes in Motor Tax policy can affect this projection.

²⁰⁴ The Mineral Oil Tax has both a 'carbon component' and a 'non carbon component'.

²⁰⁵ Parliamentary Budget Office (2021), *An Overview of Electric Vehicles and Their Impact on The Tax Base*.

²⁰⁶ See appendix.

²⁰⁷ Government of Ireland (2020), *Tax Strategy Group Climate Action and Tax 20-06*.

VRT Impact

Tax receipts from VRT raises a similar amount for the Irish Exchequer on an annual basis when compared with Motor Tax receipts. VRT raised €841 million in 2017, €885 million in 2018, and €942 million in 2019²⁰⁸. The current VRT regime in Ireland is designed to encourage greater take up of electric vehicles with lower VRT rates for less polluting cars and VRT relief for fully electric vehicles. As more lower emitting cars enter the national fleet, average receipts from VRT per car will decline unless there are changes to VRT policy.

Fuel Taxes (Mineral Oil Tax and VAT) Impact

The Irish Exchequer collects circa €2 billion in tax receipts from fuel excises every year²⁰⁹. Excise duties on fuel have contributed more than €2 billion in tax revenues every year from 2005 to 2019, predominantly from auto diesel and petrol²¹⁰. **It should be noted that when all fuel taxes are considered collectively (Mineral Oil Tax, VAT etc.) that these sources collect just under €3 billion in revenue for the Irish Exchequer on an annual basis.** As noted previously by the Parliamentary Budget Office²¹¹, these revenue streams raised €2,935 million in 2019, just over €2.9 billion. This figure includes €1,550 million from excises on diesel, €568 million from excises on light oils, €240 million from carbon taxes (€193 million from diesel and €47.6 million from carbon taxes on petrol), and €576 million from VAT (€299 million from diesel and €277 million from petrol). In 2018 these revenue sources raised a similar amount of circa €2,913 million, a little less than €3 billion.

As noted in the previous Parliamentary Budget Office paper, battery electric vehicles rely solely on electricity as their power source. They produce no tailpipe emissions and require no direct fuel combustion. They are powered purely by an electric motor with battery energy storage. In this context, the circa €3 billion in annual revenue collected from the sources mentioned above are extremely vulnerable to electrification of the national fleet.

Total Impact on Exchequer

If one million fully electric vehicles were on Irish roads by 2030, approximately one billion in revenues each year from Mineral Oil Tax (which includes the Carbon Tax) and VAT on transport fuels less would be collected than if these vehicles were traditional ICE vehicles. Taking together the expected losses in Motor Tax, Vehicle Registration Taxes and lost fuel revenues, the Irish Exchequer can expect permanent annual losses of approximately €1.4 billion assuming no changes in taxation policies. Adjusting taxation on motor taxes and VRT such as the rates and bands, can offset some of these losses.

In addition to the expected revenue losses to the Irish Exchequer from motorists switching to lower carbon intensive means of transport such as public transport and lower emitting vehicles, the costs of continued Exchequer support required to reach one million electric vehicles may be significant if the price differential between electric vehicles and ICE vehicles takes several years to close. This cost can be offset by punitive taxation on traditional ICE vehicles as per the Norwegian and Swedish experiences.

²⁰⁸ The Revenue Commissioners, *Excise Receipts by Commodity*.

²⁰⁹ Parliamentary Budget Office (2021), *An Overview of Electric Vehicles and Their Impact on The Tax Base*.

²¹⁰ Ibid.

²¹¹ Ibid.

Conclusion

The Climate Action Plan sets out an ambitious national target of almost one million electric vehicles on Irish roads by 2030 as part of Ireland's efforts to decarbonise the economy over the longer-term and reach net zero emissions by 2050²¹², as committed to in the Programme for Government²¹³. The transport sector accounts for circa 20% of Ireland's greenhouse gas emissions and road transport accounts for 96% of these emissions²¹⁴, highlighting the importance of decarbonisation of the transportation in Ireland through the roll-out of electric vehicles and other policies.

The future trajectory of emissions from the transport sector and whether Ireland will meet climate targets and commitments will depend largely, but not exclusively, on the uptake of electric vehicles. The Environmental Protection Agency (EPA) has outlined two scenarios for transport emissions in 2030: *With Existing Measures* scenario and *With Additional Measures* scenario²¹⁵. Under the first scenario in which Ireland achieves 490,000 electric vehicles on Irish roads by 2030, transport emissions are still projected to increase by 10.2% from 2020-2030. Under the second scenario which assumes 936,000 electric vehicles on Irish roads by 2030 (as per targets set out in the 2019 Climate Action Plan), transport emissions are projected to decrease by 13.4% from 2020-2030. The projections set out by the EPA highlights the challenge in reducing emissions in the transport sector.

Affordability remains a key barrier to significant uptake of electric vehicles, which are more expensive than traditional internal combustion engine vehicles²¹⁶. Until the total cost of ownership (TCO) of electric vehicles becomes more competitive relative to internal combustion engine (ICE) vehicles, continued incentives for electric vehicles may be required to address this market failure. Some form of Government support for electric vehicles globally may be required until at least 2025²¹⁷. International research suggests that electric vehicle incentives tend to be regressive in nature, benefitting those in more affluent areas. A recent study on Ireland's electric vehicle incentives suggests that current grants for electric vehicles in Ireland privilege high-income people²¹⁸. Nevertheless, until electric vehicle affordability improves Government incentives can ensure continued uptake of electric vehicles. If the 2030 electric vehicle targets are met and the longer-term objective of complete decarbonisation of the transport sector is achieved, there will be a significant exchequer impact. A previous analysis by the Parliamentary Budget Office (PBO) estimated that circa 8% of exchequer revenues could be at risk²¹⁹. The PBO would also like to highlight that if the anticipated reduction in market prices for electric vehicles due to economies of scale and increased mass production take longer to materialise due to unforeseen geopolitical events affecting supply chains, the availability of components such as semiconductors, batteries etc., the materials required for the components, the cost of continued Government EV incentives may be significant. This report estimates that as of the end of 2021, at least €322 million of exchequer support has been provided via incentives to encourage greater adoption of electric vehicles for the period 2010-2021 inclusive.

212 Government of Ireland (2021), *Climate Action Plan 2021: Securing Our Future*.

213 Government of Ireland (2020), *Programme for Government: Our Shared Future*.

214 Government of Ireland (2021), *Climate Action Plan 2021: Securing Our Future*.

215 Environmental Protection Agency (2021), *Ireland's Greenhouse Gas Emissions Projections: 2020-2040*.

216 Kevany, L. (2019), *Spending Review 2019: Incentives for personal Electric Vehicle purchase*, Climate Change Unit, Department of Public Expenditure & Reform.

217 IHS Global Insight (2022), *Global Automobiles*.

218 Caulfield, B., Furszyfer, D., Stefaniec, A., and Foley, A. (2022), *Measuring the equity impacts of government subsidies for electric vehicles*.

219 Parliamentary Budget Office (2021), *An Overview of Electric Vehicles and Their Impact on The Tax Base*.

Yet, Ireland is still a significant way from achieving EV targets with just four-fifths of one percent of the national vehicle fleet being powered solely by battery at the end of 2021. When plug-in hybrid electric vehicles are considered, 1.65% of Ireland's fleet is electric. That said, challenges posed to the exchequer via lost taxes revenues and continued support for incentives must be weighed against the devastating impact caused by climate change and the continued risk to humanity and nation states. Severe climate change has the potential to cause widespread societal disruption, drought, famine, and mass migration. Climate change also poses a threat to homes (via increased risk of flooding), biodiversity, and forestry. Nevertheless, while achieving net zero emissions poses challenges to policymakers there are positive externalities associated with weaning Ireland's dependency off fossil fuels such as cleaner air, rivers, and a planet that can sustain life in various ecosystems. Reducing dependency on vehicles that produce tailpipe emissions also improves human health outcomes.

Appendix

Table 21: Cumulative SEAI Electric Vehicle Grant Expenditure (€m) & EVs Supported 2011-2021

Year	Number of grants	Amount	Cumulative Number of grants	Cumulative Amount
2011	42	€198,000	42	€198,000
2012	183	€747,400	225	€965,400
2013	53	€242,200	278	€1,207,600
2014	257	€1,203,400	535	€2,411,000
2015	555	€2,647,800	1,090	€5,058,800
2016	638	€3,038,800	1,728	€8,097,600
2017	908	€4,262,000	2,636	€12,359,600
2018	1,999	€9,133,600	4,635	€21,493,200
2019	4,616	€20,833,800	9,251	€42,327,000
2020	5,160	€25,086,400	14,411	€67,413,400
2021	13,135	€63,189,700	27,546	€130,603,100
Total	27,546	€130,603,100		

Source: Department of Transport

Table 22: Low Emissions Vehicle Toll Incentive (LEVTI) Scheme (Cumulative Registrations) 2018-2021

Months-Year	LEVs Registered	Months-Year	LEVs Registered
Jul-18	2,433	Jan-20	9,578
Aug-18	3,180	Feb-20	10,245
Sep-18	3,603	Mar-20	10,621
Oct-18	3,843	Apr-20	10,714
Nov-18	3,949	May-20	10,916
Dec-18	4,151	Jun-20	11,200
Jan-19	4,621	Jul-20	11,973
Feb-19	4,870	Aug-20	12,447
Mar-19	5,246	Sep-20	13,109
Apr-19	5,845	Oct-20	13,496
May-19	6,076	Nov-20	13,736
Jun-19	6,409	Dec-20	13,997
Jul-19	6,835	Jan-21	14,436
Aug-19	7,288	Feb-21	15,034
Sep-19	7,578	Mar-21	12,852
Oct-19	8,029	Apr-21	13,428
Nov-19	8,476	May-21	14,290
Dec-19	8,889	Jun-21	14,875
		Jul-21	15,810
		Aug-21	16,434
		Sep-21	16,998
		Oct-21	17,789

Source: Department of Transport

Table 23: VRT Rates Effective 1st January 2022

Band	Range	Rate
1	0-50	7.00%
2	51-80	9.00%
3	81-85	9.75%
4	86-90	10.50%
5	91-95	11.25%
6	96-100	12.00%
7	101-105	12.75%
8	106-110	13.50%
9	111-115	15.25%
10	116-120	16.00%
11	121-125	16.75%
12	126-130	17.50%
13	131-135	19.25%
14	136-140	20.00%
15	141-145	21.50%
16	146-150	25.00%
17	151-155	27.50%
18	156-170	30.00%
19	171-190	35.00%
20	191+	41.00%

Source: Department of Finance, *Budget 2022: Tax Policy Changes*.

Table 24: Current Motor Tax Rates

Cars registered from July 2008 to end 2020		Cars registered from 1 st January 2021	
Range	Rate	Range	Rate
0-0	€120	0-0	€120
1-80	€170	1-50	€140
81-100	€180	51-80	€150
101-110	€190	81-90	€160
111-120	€200	91-100	€170
121-130	€270	101-110	€180
131-140	€280	111-120	€190
141-155	€400	121-130	€200
156-170	€600	131-140	€210
171-190	€790	141-150	€270
191-225	€1,250	151-160	€280
Greater than 225	€2,400	161-170	€420
		171-190	€600
		191-200	€790
		201-225	€1,250
		Greater than 225	€2,400

Table 25: Grant Levels Available under the 2022 Electric SPSV Grant Scheme:

For non-wheelchair accessible vehicles:	
For vehicles <i>eligible</i> for EV Scrappage under the Scheme:	
New Battery Electric Vehicle (<3,000 kms and <3 months old)	€20,000
Battery Electric Vehicle less than one year of age	€18,000
Battery Electric Vehicle less than two years of age	€16,000
Battery Electric Vehicle less than three years of age	€14,000
Battery Electric Vehicle less than four years of age	€12,000
For vehicles <i>not eligible</i> for EV Scrappage under the Scheme:	
New Battery Electric Vehicle (<3,000 kms and <3 months old)	€10,000
Battery Electric Vehicle less than one year of age	€9,000
Battery Electric Vehicle less than two years of age	€8,000
Battery Electric Vehicle less than three years of age	€7,000
Battery Electric Vehicle less than four years of age	€6,000

Source: Department of Transport, *Grant Levels available under the 2022 EV SPSV Grant Scheme*.

For wheelchair accessible vehicles:**For vehicles *eligible* for EV Scrappage under the scheme:**

New Battery Electric Vehicle (<3,000 kms and <3 months old)	€25,000
Battery Electric Vehicle less than one year of age	€23,000
Battery Electric Vehicle less than two years of age	€21,000
Battery Electric Vehicle less than three years of age	€19,000
Battery Electric Vehicle less than four years of age	€17,000
New Plug in Hybrid Electric Vehicle (<3,000 kms and <3 months old)	€15,000
Plug in Hybrid Electric Vehicle less than one year of age	€13,000
Plug in Hybrid Electric Vehicle less than two years of age	€11,000
Plug in Hybrid Electric Vehicle less than three years of age	€9,000
Plug in Hybrid Electric Vehicle less than four years of age	€7,000

For vehicles *not eligible* for EV scrappage under the scheme:

New Battery Electric Vehicle (<3,000 kms and <3 months old)	€12,500
Battery Electric Vehicle less than one year of age	€11,500
Battery Electric Vehicle less than two years of age	€10,500
Battery Electric Vehicle less than three years of age	€9,500
Battery Electric Vehicle less than four years of age	€8,500
New Plug in Hybrid Electric Vehicle (<3,000 kms and <3 months old)	€7,500
Plug in Hybrid Electric Vehicle less than one year of age	€6,500
Plug in Hybrid Electric Vehicle less than two years of age	€5,500
Plug in Hybrid Electric Vehicle less than three years of age	€4,500
Plug in Hybrid Electric Vehicle less than four years of age	€3,500

Source: Department of Transport, *Grant Levels available under the 2022 EV SPSV Grant Scheme*.

Table 26: Number of Vehicles Under Current License as of 31st December 2021 by Fuel Type:

Fuel Type	Number of Vehicles
Diesel	1,859,181
Petrol	888,619
Petrol/Electric Hybrid	83,411
Petrol/Plug-in Hybrid Electric	23,579
Electric	23,333
Petrol/Ethanol	7,286
Diesel/Electric Hybrid	4,201
Diesel/Plug-in Hybrid Electric	807
Petrol & Gas	414
Gas	72
Blank	20
Unknown	17
Diesel & Gas	7
Hybrid	6
Diesel/Ethanol	6
TVO	6
VTO/Petrol	3
Hydrogen	3
Plug-in Hybrid Electric	2
Steam	2
Total	2,890,975

Source: Department of Transport.



Contact: PBO@Oireachtas.ie
Go to our webpage: www.Oireachtas.ie/PBO
Publication date: 1 June 2022

Houses of the Oireachtas

Leinster House

Kildare Street

Dublin 2

D02 XR20

www.oireachtas.ie

Tel: +353 (0)1 6183000 or 076 1001700

Twitter: @OireachtasNews

Connect with us



Download our App

