



How Ireland can accelerate the rollout of electric buses



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Climate change and local air pollution have driven global efforts to decarbonise transport, and electric buses are emerging as a key solution. In Europe, battery electric vehicles (BEVs) have become a cornerstone of transport policy, with city buses leading the charge thanks to their manageable daily mileage. The global push for electric buses is yielding results: In 2024, BEVs accounted for 49% of new city bus sales across the EU—a significant milestone toward the target of 100% zero-emission city buses by 2035. In addition, the EU saw a 22% growth in e-bus registrations in 2024, and leading nations such as Denmark and the Netherlands have achieved 100% of their new city bus sales being zero-emission.

Towards electrification

In Ireland, the urgency to transition to zero-emission transport is enshrined in its Climate Action Plan, which includes a commitment to achieving a 51% reduction in greenhouse gas emissions by 2030. The plan emphasises the electrification of public transport fleets as a critical step. Legislation such as Ireland's Climate Action and Low Carbon Development (Amendment) Act 2021 sets legally binding targets, holding the government accountable for emissions reductions. Additionally, the Republic of Ireland has pledged to phase out the sale of internal combustion engine (ICE) vehicles by 2030, driving the need for rapid advancements in electric vehicle infrastructure and deployment. In Northern Ireland, the urgency to transition to zero-emission transport is underscored by the UK's commitment to end the sale of new petrol and diesel

cars by 2030, with certain hybrid vehicles permitted until 2035. Translink, Northern Ireland's primary public transport provider, has launched a Climate Positive Strategy aiming for net-zero emissions across buses, trains, and facilities by 2040, demonstrating a proactive approach to sustainable transport solutions.

Ireland has made notable progress, deploying 250 electric buses across the Republic of Ireland and 147 across Northern Ireland. However, compared to The Netherlands' 1,860, Norway's 1,415 or Sweden's 1,213, there is room for more ambitious action¹. For Ireland to fully embrace the transition to electric buses, overcoming infrastructural, financial, and logistical challenges is imperative.

¹ When comparing on a per capita basis, Ireland has 5.5 electric buses per 100,000 people, compared to Sweden, Norway, and the Netherlands, which have 11, 25, and 10, respectively. Ireland's electric bus fleet accounts for approximately 10% of its total public transport fleet, a figure similar to Sweden and Norway. However, the Netherlands stands out, with 21.4% of its public transport fleet being electric.

The case for electric buses

City buses are ideal for electrification². Their relatively fixed routes and extended depot parking simplify charging logistics compared to passenger cars. In addition, they benefit from overnight charging, taking advantage of curtailed energy when energy demand is at its lowest on the grid.

Electric buses do not produce local greenhouse gas emissions or pollutants, providing considerable health benefits, particularly in cities. Because they are powered by electricity, the higher powertrain efficiency means that they emit 73% less CO₂ equivalent than diesel vehicles, rising to 90% if powered by 100% renewable sources. Additionally, unlike diesel bus depots, which are often unwelcome due to air quality issues and noise pollution, electric bus depots are generally more accepted in communities, including residential areas.

Ireland is taking steps forward in this transition. Launched in January 2023, Athlone's bus service became Ireland's first ever all-electric town service, incorporating 11 electric buses. In addition, the National Transport Authority (NTA) has ordered 240 double-decker electric buses for Dublin, with over 100 already in operation. Building on Athlone's success, the NTA has committed €54 million to make Limerick's bus service fully electric, making it the first city in the Republic of Ireland to achieve this milestone. Currently, there are 44 electric buses in operation across Limerick, Galway and Sligo.

In Northern Ireland, 44 Ulsterbuses and 103 Metro buses are zero-emission vehicles, including 10 hydrogen-fuelled buses. In addition, Translink's investment into an all-electric urban fleet for the Foyle Metro service has resulted in Derry becoming one of the first cities in the UK and Ireland to have a fully zero emission bus network.

But with less than 400 electric buses on Irish roads today—compared to thousands in comparable European counterparts—Ireland's rollout needs a significant boost.



² This article is focussed on urban bus fleet. Inter-city coaches are more difficult to electrify and bus operators, in Ireland and elsewhere, are looking at other alternatives to decarbonise, such as hydrogen, propane and electric hybrid.

Challenges in transitioning to electric buses

Infrastructure gaps and grid connection

The deployment of electric buses requires substantial investment in charging infrastructure. Ireland must establish adequate charging facilities, primarily charging depots with some charging points along urban bus routes, while ensuring the power grid can meet the increased demand. By 2030, the network will need to manage a tripling of intermittent renewable generation capacity, up to 600,000 new heat pumps, and up to 1 million electric vehicles in addition to increased demand from new tech loads and data centres. However, the national electricity network is already facing significant constraints and substantial upgrades to the network are needed in the coming years. Connecting depots to the grid presents additional challenges, including securing suitable locations, optimising layouts for operational efficiency, and complying with regulatory standards. A further complication is that charging infrastructure is typically fixed in place, whereas bus routes, particularly in an urban setting, can be subject to change. This can create challenges in accessing charging infrastructure or lead to the unintended consequence of route planning being dictated by the availability of charge points.

Supply chain challenges

To date, all of Ireland's electric buses have been ordered from Wrightbus, a Northern Ireland-based company. The NTA signed an agreement with Wrightbus to supply up to 800 electric buses to the Republic of Ireland over a five-year period, beginning in 2022. However, with growing demand across Europe, bus manufacturers' continued growth is highly dependent on the resilience and efficiency of their supply chain to fulfil all orders. Globally, the supply chain for electric buses is still experiencing post-pandemic disruptions, in particular with respect to access to raw materials required for battery production coming principally from the African continent. With newer technologies, a move away from the reliance on cobalt and nickel could alleviate pressures across the supply chain, provide greater certainty of supply, and more stable costs. An overreliance on one supplier nationally might put Ireland in a vulnerable position with respect to supply.

High initial costs

While electric buses have lower Total Cost of Ownership (TCO) due to savings on fuel and maintenance, their upfront costs remain a barrier. Recent studies suggest that electric buses are, on average, 50% more expensive than their ICE equivalents, with some price volatility due to the varying availability of cobalt for battery production³. Beyond the cost of vehicles, the initial investment required for charging infrastructure, including high fees for connection to the power grid, adds to the financial burden. These investments compete with other decarbonisation solutions, which may be considered more favourable due to lower upfront investments or the perception of being an "easier win".

Operational efficiency

Battery range and charging time are critical factors that influence the practicality of transitioning to electric buses. While manufacturers are making strides in improving these features, with advances in battery technology rapidly coming onstream, transport operators must also contribute by carefully planning fleet schedules to minimise bus (and driver) downtime due to charging requirements, subsequent disruptions to service schedules, and to accommodate for the charging time when buses are not in use.

Addressing these challenges requires a coordinated and strategic approach that balances immediate needs with long-term goals. Overcoming infrastructure gaps, supply chain constraints, and high upfront costs demands collaboration between public authorities, private stakeholders, and international partners. By building on lessons from successful transitions in other countries, Ireland can develop tailored solutions to accelerate the adoption of electric buses and ensure a sustainable, efficient, and equitable transition. Key actions and recommendations to accelerate the transition are outlined next.



³ [What are the Challenges of Transitioning to Electric Buses? - Stratio](#)

Recommendations for faster adoption

01

Prioritise charging infrastructure investments

To facilitate the rapid expansion of electric bus fleets, Ireland needs a strategic plan for public transport charging infrastructure. This includes ensuring that depots are upgraded where necessary and equipped to handle large-scale charging demands and integrating bus renewal programs with charging infrastructure plans. The government must also work with utilities to ensure the power grid can support these upgrades without compromising reliability.

02

Strengthen grid capacity to support electrification

The success of Ireland's electric bus transition depends on a robust and reliable power supply. Strategic upgrades to the national grid are essential to ensure it can handle the growing demand for high-capacity charging infrastructure and other competing energy uses. Investments must focus on scaling grid capacity to support charging depots without compromising overall grid stability. Early engagement with system operators through a clear strategy or timely grid connection applications can improve visibility of future demand, increasing the likelihood of infrastructure upgrades being prioritised.

03

Explore alternative contracting structures

While the NTA has made significant investments, an optimised contracting structure is essential to accelerate the transition to electric buses. Reviewing the current contracting structure—in which the NTA is the primary investor, not individual operators—would require a critical assessment of stakeholder responsibilities and roles. This includes payment flows related to electric bus supply and overall bus operations, as well as procurement and funding considerations. Exploring alternative contracting structures can play a pivotal role in accelerating electrification. Ireland can draw inspiration from countries like Norway and the Netherlands, where well-designed financial incentives have successfully driven the transition to electric buses, due to control of fleet supply being typically under the remit of transport operators.

04

Promote supply chain diversification and collaboration

Ireland should actively engage with multiple electric bus manufacturers and suppliers to reduce reliance on a single local supplier. Establishing partnerships with a diverse range of manufacturers can enhance competition, ensure a steady supply of vehicles, and mitigate risks associated with supply chain disruptions. Additionally, Ireland could explore incentives to attract international manufacturers to establish a local presence, ranging from aftermarket support to full-scale assembly facilities. This approach would not only strengthen the supply chain but also boost domestic expertise in clean transport technologies and create highly skilled jobs.

05

Leverage European funding

Ireland should capitalise on its access to EU grants and funding under programs like the European Green Deal and Horizon Europe. These resources can help bridge funding gaps for infrastructure and vehicle purchases.



Conclusion

Ireland is at a critical juncture in its transition to sustainable public transport. The initial rollout of electric buses across the island has already delivered tangible benefits, including reduced emissions and improved air quality in areas such as Athlone, Derry, and other regions where zero-emission buses have been deployed. However, as overall road transport emissions have rebounded to pre-COVID levels⁴, the current rate of electric bus adoption needs to increase to meet climate and air quality targets.

Alongside other measures such as rail electrification and the expansion of public transport services, the transition to electric buses can play a key role in decarbonising the transport system. With targeted investments in infrastructure, optimised contracting structures and enhanced supply chain engagement, Ireland can accelerate the rollout of electric buses. Experiences from other countries have shown the feasibility and benefits of transitioning to zero-emission fleets, providing valuable insights for Ireland. By acting decisively now, Ireland can transform its public transport system into a model of sustainability, ensuring cleaner air and a healthier future for all.

To conclude, we consider some implications by stakeholder type.

1 Policymakers and public bodies

- **Develop a national charging strategy for public transport**
Develop a strategic plan for public transport charging infrastructure to support the growth of electric buses.
- **Upgrade the grid capacity**
Invest in grid upgrades to ensure the power network can handle the increased demand from electric buses.
- **Facilitate the expansion of charging depots**
Expand charging depots and ensure they are equipped for high-capacity electric bus charging.
- **Optimise investment and procurement models**
Review and enhance investment and procurement approaches to attract both public and private sector participation, drawing on successful models from other countries.
- **Maximise EU funding opportunities**
Leverage EU funding programs to close funding gaps for both fleet purchases and charging infrastructure deployment.



2 Transport providers

- **Engage in proactive fleet planning**
Align bus replacement cycles with electrification goals to ensure a gradual, cost-effective transition to an all-electric fleet.
- **Optimise fleet operations**
Plan for charging schedules, driver training, and fleet size adjustments to ensure seamless operations with electric buses.
- **Invest in workforce training**
Equip bus operators and maintenance staff with the necessary skills to manage and operate electric fleets effectively.

3 Private equity firms and investors

- **Invest in clean transport technologies**
Explore opportunities to finance electric bus fleets, charging infrastructure, and related technologies in Ireland's growing clean transport market.
- **Mitigate risks through supply chain diversification**
Support investment in diversified electric bus manufacturing and infrastructure providers to minimise risks linked to supply chain vulnerabilities.

4 OEMs and supply chain providers

- **Invest in manufacturing capacity**
Strengthen local manufacturing or assembly operations in Ireland to ensure a steady supply of electric buses and components.
- **Diversify supply chains**
Build more resilient and diversified supply chains by seeking alternatives to critical raw materials and fostering local supply chains for components like batteries.
- **Collaborate with utilities and operators**
Partner with power utilities and transport operators to ensure infrastructure is aligned with bus deployment and operational needs.

4 [Transport | Environmental Protection Agency](#)



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