Case Study

Preparing the U.K.'s Electric and Hybrid Vehicle Workforce

Harlow College's Up-Skilling Approach in Essex

Future Skills Centre | Centre des Compétences futures

IRPP — Institut de recherche en politiques publiques | Institute for Research on Public Policy

The Future Skills Centre (FSC) is a forward-thinking centre for research and collaboration dedicated to driving innovation in skills development so that everyone in Canada can be prepared for the future of work. We partner with policymakers, researchers, practitioners, employers and labour, and post-secondary institutions to solve pressing labour market challenges and ensure that everyone can benefit from relevant lifelong learning opportunities. We are founded by a consortium whose members are Toronto Metropolitan University, Blueprint, and The Conference Board of Canada, and are funded by the Government of Canada's Future Skills Program.

The Institute for Research on Public Policy (IRPP) is one of the most trusted and influential think tanks in Canada. In addition to its research programs, the IRPP publishes Policy Options magazine and is the home of the Centre of Excellence on the Canadian Federation. Based in Montreal and established in 1972, the IRPP is one of the only Canadian organizations of its kind to operate in both official languages. Through in-depth research reports, articles and essays, public events, and one-on-one briefings, the IRPP connects decision-makers with the research they need to make sound policy decisions, and amplifies the work of a diverse array of thinkers.

Preparing the U.K.'s Electric and Hybrid Vehicle Workforce: Harlow College's Up-Skilling Approach in Essex is funded by the Government of Canada's Future Skills Program.

To cite this document: Jackson, A., Yassin, S., & Gu, J. (2025b). *Preparing the U.K.'s electric and hybrid vehicle workforce: Harlow College's up-skilling approach in Essex*. Future Skills Centre and Institute for Research on Public Policy.

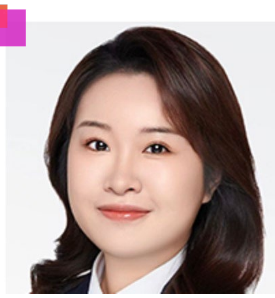
Authors

Abigail Jackson

Abigail Jackson is a research associate at the Institute for Research on Public Policy, where she has worked on a number of initiatives, including the *Toward a More Equitable Canada* research program and the Community Transformations Project. Abigail served on the secretariat of the Affordability Action Council and contributed to the research and writing of five policy briefs related to housing, transportation and food in the context of climate and affordability challenges. In 2023, she received the Jack Layton Prize for a Better Canada. Previously, Abigail worked at Habitat for Humanity, administering programs related to energy efficiency, affordable housing and community development. She holds a Bachelor of Arts in business and international political economy from the University of Puget Sound and a Master of Public Policy from McGill University.

Shaimaa Yassin

Shaimaa Yassin is a senior research director at the Institute for Research on Public Policy, where she leads the *Toward a More Equitable Canada* research program and the IRPP's role as a research and knowledge mobilization partner of the Affordability Action Council, of which she is also a member. She also contributes to IRPP's Community Transformations Project. A labour economist by training, she holds a PhD in economics from the University of Paris 1 Panthéon-Sorbonne and a MSc in empirical and theoretical economics from the Paris School of Economics. Shaimaa has an extensive record of publications, including peer-reviewed journal articles and books. She previously served as senior director at the Community Economic Development and Employability Corporation (CEDEC) in Montreal and has consulted for several governments and organizations such as the World Bank, Chaire "Sécurisation des Parcours Professionnels" in France, and the Economic Research Forum in Egypt. She was also a research fellow in the economics department of several academic institutions, namely McGill University (Swiss National Science Foundation Fellow), the University of Lausanne and the University of Neuchâtel.



Jiaxin Gu

Jiaxin Gu is a PhD candidate in Sociology at the University of British Columbia. She was a research intern at the Institute for Research on Public Policy (IRPP) from February to July 2025, contributing to this project. Her research explores themes of immigration, labour market integration, social epidemiology, and adolescent substance use in North America. She holds a BA (Honours) and an MA in Sociology from the University of British Columbia.

Acknowledgements

The authors thank Tamara Krawchenko for her review and feedback on this case study.
The manuscript was copy-edited by Paul Carlucci.

Publication Date:
December 2025

Table of Contents

Overview

Location	**Harlow, Essex County, United Kingdom**
Initiative	Harlow College's *Electric and Hybrid Vehicle Training Centre*
Program snapshot	In 2022, the Essex County Council (the local authority governing Essex County) partnered with Harlow College (a local college serving over 4,500 learners) and the Harlow District Council (the local authority for the town of Harlow) to launch a pilot program to train local residents in electric vehicle and hybrid vehicle repair and maintenance. The program takes a proactive approach to skills development by equipping local residents, including youth and local practicing mechanics, with industry-recognized professional qualifications to meet emerging demand for the growing electric vehicle sector. During the *Training Centre's* two-year pilot, a £100,000 investment from Essex County Council's Levelling Up fund fully subsidized tuition for 50 new training spots. The pilot targeted smaller local employers who were least able to afford commercial training fees for their technicians. Since the *Centre's* launch, over 200 trainees have participated in courses, ensuring local businesses can meet the growing demand for electric-vehicle-maintenance expertise as electric vehicle adoption continues to expand in the coming years. A secondary objective of the *Training Centre* is to serve as an accessible community space where residents can participate in workshops at the facility's "live garage" to learn about electric and hybrid vehicles, helping build market demand over time.
Sector focus	The focus is on electric and hybrid vehicle aftermarket services and maintenance.
Time frame	The pilot program was launched in 2022, and Harlow College's *Electric and Hybrid Vehicle Training Centre* officially opened in March 2023.

Foundations of the Transition

Background and context

The *Electric and Hybrid Vehicle Training Centre* at Harlow College officially opened in March 2023 (Essex County Council, 2023a), in line with the U.K.'s broader push to decarbonize transportation and achieve net-zero emissions. The U.K. government's Net Zero Strategy includes a zero-emission vehicle (ZEV) mandate, passed into law in January 2024, that requires all new cars and vans sold by 2035 to be ZEVs, and it also requires manufacturers to steadily increase their share of ZEV sales from 22 per cent in 2024 to 80 per cent by 2030 and 100 per cent by 2035 (HM Government 2022a; House of Commons, 2024; Office for National Statistics, 2024). According to the Society of Motor Manufacturers and Traders (n.d.), around 45 per cent of new car registrations in the U.K. in 2024 have been battery electric vehicles (22.8 per cent), plug-in hybrids (8.9 per cent) or hybrid electric vehicles (13.4 per cent). In April 2025, due to evolving global economic pressures and instability, the U.K. government announced adjustments to relax certain ZEV mandate requirements for domestic carmakers, aiming to support them and ease economic pressures on the industry (HM Government, 2025a).

In 2023, more than 198,000 people were directly employed in auto manufacturing in the U.K., and close to 813,000 people were employed across the wider automotive industry, representing 2.2 per cent of the country's workforce that year (Office for National Statistics, 2023; Society of Motor Manufacturers and Traders, 2024). In 2022, 346,000 jobs were tied to automobile aftermarket services in the U.K. (Society of Motor Manufacturers and Traders, 2024). In Essex County in 2021, 103,298 people (15.1 per cent of the county's workforce) were employed in the sector "wholesale and retail trade; repair of motor vehicles and motorcycles " (Essex County Council, 2022a).

Reflecting national policy, Essex County has set ambitious local targets for transportation decarbonization. In 2024, the Essex Climate Action Commission estimated that the number of battery electric and plug-in hybrid vehicles in the county would surge from approximately 24,000 to 50,000 by 2025, then increase to 220,000 by 2030 (Pretty, 2024). Four years ago, Harlow Council (2021) anticipated that the town alone could see between 6,000 and 14,000 battery electric vehicles on the road by 2030. The increasing adoption of electric vehicles underscores the growing need for a local and professionally skilled workforce to maintain and service the expanding fleet.

Harlow, a relatively new town in Essex County, was developed in the postwar era to address population density issues in London through social housing programs (Essex County Council, 2016). The town experiences higher levels of deprivation in areas such as education, employment, health and housing than the rest of England, with 57 per cent of households facing at least one form of deprivation in 2021, compared with 51 per cent nationally (Office for National Statistics, n.d.a). It also has lower employment rates (66.2 per cent at the end of 2023 versus 74.9 per cent nationally); a higher-than-average rate of adults with no recognized secondary, high school or vocational qualifications (21 per cent in 2021 compared with 18 per cent nationally); and a higher proportion of young people who are neither employed nor engaged in education or training (7.1 per cent from November 2014 to January 2015, exceeding the Essex average of 5.7 per cent that year) (Essex County Council, 2016; Office for National Statistics, n.d.a, 2024, 2025). In December 2023, 27.9 per cent of Harlow's 16 to 64 population was economically inactive (i.e., not employed or actively seeking employment), compared with 21.2 per cent across Great Britain (Office for National Statistics, 2024). Small businesses dominate Harlow's local economy, with most employing nine or fewer people (Essex County Council, 2016). These factors contribute to the area's need for specialized place-based training initiatives that can boost local skills and employment opportunities.

Despite the growing trend in electric vehicle adoption, the U.K. faces a shortage of skilled workers to maintain and repair these vehicles. According to the Institute of the Motor Industry (2024a), the U.K. could face a shortfall of 3,000 automotive technicians by 2031, rising to 16,000 by 2035. In the East of England — where Essex County is located — only 9.5 per cent of technicians were qualified to work on electric vehicles in 2024 (Institute of the Motor Industry, 2024a). Essex County has also experienced modest growth in its low-emissions-vehicle and -infrastructure workforce, with positions working on the design and manufacturing of low-emission vehicles and supportive infrastructure, such as charging ports, increasing from 207 direct jobs in 2015 to 242 in 2019 (Essex County Council, 2022b). Harlow's employment profile shows a higher-than-average share of workers (over 20 per cent) in the "wholesale and retail trade; repair of motor vehicles and motorcycles" sector, compared with less than 14 per cent nationally (Office for National Statistics, n.d.b).

Recognizing this skills gap, the *Electric and Hybrid Vehicle Training Centre* at Harlow College takes a proactive approach to skills development by providing accessible training to the local workforce, including youth entering the labour market and practising mechanics and technicians. The courses equip trainees with industry-recognized qualifications that ensure safety and rigour, helping local garages and graduates meet the region's expanding electric vehicle aftermarket and service needs (Harlow College, 2023).

Enablers

After the U.K. left the European Union through Brexit, it began redeveloping its regional development framework to replace the EU Cohesion Policy and structural funds that had traditionally supported economically weaker regions in the country (Bachtler & Begg, 2017; Copeland & Diamond, 2022). The EU model had coupled multi-year funding with a single, partnership-based framework which required central and sub-national governments to engage in long-term planning beyond electoral cycles. The U.K. introduced the Levelling Up strategy in 2022, but, unlike the earlier EU allocations, its funding is smaller, granted in shorter cycles, and split across multiple competitive schemes rather than one long-term fund. In its national white paper on the Levelling Up program, the U.K. government has prioritized devolution as a key policy tool for regional development, aiming to empower local leaders and communities by ensuring decisions are made by locally elected officials who are close to the communities they serve (HM Government, 2022b). Local government structures are undergoing review as this devolution process advances (Harlow Council, 2025), which includes working more directly with local partners and communities (HM Government, 2024b) and decentralizing decision-making powers for economic development (Essex County Council, n.d.a).

Devolution transfers certain powers and resources from the central government to local or regional authorities, giving them more funds and decision-making power. With greater local control over decisions and funding, authorities can tailor place-based policies and programs, such as the Harlow College *Electric and Hybrid Vehicle Training Centre*, to address community-specific needs. Reallocating resources and authority to local decision-makers is tied directly to the national Levelling Up agenda, with the Greater Essex area identified as one of six regions in the U.K.'s Devolution Priority Programme (HM Government, 2025b).

In 2022, Essex County Council (2022c) released its own Levelling Up white paper highlighting a strategy for place-based, long-term and structural cohort-focused interventions to improve the local economy and communities. The strategy identifies six local priority areas in Essex, including Harlow, and four target populations, including children and adults with disabilities, children on free school meals, low-income working families and young adults not in education, training or employment.

Essex County Council (n.d.b) aligned its Levelling Up strategy with the countywide 2021-25 Everyone's Essex strategy, building on its commitments to and renewed focus on place-based working. The council's Levelling Up strategy involves tailoring policies and programs to local needs and conditions with the aim of addressing socio-economic inequality and investing in skills, education, community, health and environmental outcomes (Essex County Council, 2022c). This also supports and aligns with the U.K. government's national Levelling Up strategy and fund,

which is a long-term, whole-of-government approach aimed at reducing geographic economic, social and health inequalities based on where people live, with the goal of spreading opportunities across the country (HM Government, 2022b). The *Electric and Hybrid Vehicle Training Centre* at Harlow College is part of Essex County Council's localized Levelling Up strategy. In 2022, the council provided over 20 million pounds to support the strategy and fund local projects, with 100,000 pounds specifically allocated to the *Electric and Hybrid Vehicle Training Centre* at Harlow College (Doran, 2022; Essex County Council, 2023b).

In addition to Essex County's own Levelling Up fund, the national government provides grants and funding to county and district councils through various departments (HM Government, 2022b). Essex County Council (n.d.c) allocates these grant funds to local priorities, such as skills training, economic renewal and infrastructure projects. Essex County Council and, in turn, Harlow Council work with partners such as Harlow College to implement community initiatives. This multi-tier funding system ensures national Levelling Up goals are realized at the local scale, offering flexibility in how resources are spent.

Place-based strategy

The *Electric and Hybrid Vehicle Training Centre* at Harlow College is a targeted, place-based intervention addressing local skills gaps and employment barriers. By equipping the local workforce with skills relevant to electric vehicles, the initiative proactively and directly enhances employability in a growing industry, aligning with Essex's broader goal of fostering economic resilience and long-term opportunities for disadvantaged communities.

The initiative exemplifies national and local devolution practices. At the national level, it relies on financial support from the central and regional governments and contributes to national emission targets. At the local level, the initiative emerged from collaborations among local decision-makers, including Essex County Council (2023a), Harlow Council, the local educational institution and local employers. It addresses local needs by subsidizing the tuition fees of training opportunities for technicians employed by small businesses, especially those who are least able to afford commercial training fees for their technicians (Local Government Association, 2022), responding to rising electric-vehicle-service needs in Harlow and the surrounding Essex County area.

In addition to skills training and professional qualifications for practising technicians in the automotive workforce, the initiative actively promotes engagement through community learning and workshops to foster a green-skill-friendly environment in Harlow (Local Government Association, 2022).

Addressing net-zero transition workforce challenges

The *Electric and Hybrid Vehicle Training Centre* helps facilitate a smoother transition for local mechanics and technicians working in aftermarket services, including repair and maintenance of vehicles. Servicing electric and hybrid vehicles differs considerably from servicing traditional internal combustion engines (Albatayneh, 2024). The program also prepares local youth for entering the workforce by equipping them with industry-recognized qualifications, thereby helping to cultivate a new generation of skilled professionals for the emerging green economy. Table 1 illustrates the main challenges commonly associated with net-zero transitions and shows how the *Electric and Hybrid Vehicle Training Centre* addresses them.

TABLE 1:
Common net-zero-transition workforce challenges and how the *Electric and Hybrid Vehicle Training Centre* mitigates them

Potential challenges	Mitigation strategies
Workforce displacement	To shift from traditional internal-combustion-engine vehicles to electric vehicles, mechanics and technicians must be up-skilled in aftermarket services to serve the growing emerging sector. Without locally available training, workers may need to change occupations locally or seek employment elsewhere. The *Electric and Hybrid Vehicle Training Centre* provides in-place up-skilling opportunities, allowing local mechanics and youth to gain the qualifications they need in order to remain employed locally, thereby mitigating workforce displacement or the need to seek employment elsewhere.
Skills mismatches	Maintaining electric vehicles requires specialized knowledge in handling high-voltage electricity, for which traditional automotive-technician skills are insufficient. The *Electric and Hybrid Vehicle Training Centre* offers people who work or reside in Harlow with subsidized, formalized and professional in-place training, including industry-recognized safety qualifications, to address local skill gaps and prepare technicians to repair and maintain electric vehicles as demand grows.
Lack of diversity and inclusion	The U.K. automotive industry — from manufacturing to aftermarket services — has long faced criticism for its diversity shortcomings. In 2022-23, women represented only 17.5 per cent of the automotive industry's workforce nationally, while individuals with disabilities represented 15.5 per cent, and non-White British individuals represented 13 per cent (all below their representation in the wider working-age population). The broader Essex County Levelling Up strategy that funds the *Training Centre* targets lower income working families, adults with special educational needs and disabilities and young adults not in education, training or employment. By funding 50 training spots in the program, the initiative makes courses accessible to those who live or work in Harlow, including under-represented local groups.
Worker shortages	The U.K. expects a growing shortfall of skilled electric vehicle technicians in the coming years, with an estimated shortage of 3,000 automotive technicians by 2031 rising to 16,000 by 2035. In the East of England —where Essex County is located — only 9.5 per cent of technicians were qualified to work on electric vehicles in 2024. The *Electric and Hybrid Vehicle Training Centre* up-skills local practising mechanics and new entrants to the labour force, building a pipeline of skilled workers to address projected local worker shortages. By offering localized, industry-recognized qualifications, the *Centre* ensures local workers can meet the region's growing electric vehicle aftermarket service needs, mitigating future worker shortages.

Potential challenges	Mitigation strategies
Insufficient training infrastructure and delivery	Local garages often lack the high-voltage safety equipment and specialized facilities needed to train technicians in electric vehicle maintenance. Prior to the Harlow College initiative, there were no dedicated local training centres, making it costly and inconvenient for local businesses to up-skill. *The Electric and Hybrid Vehicle Training Centre* addresses this gap by offering a fully equipped facility and fully subsidizing 50 training spots in its first two years, effectively removing steep commercial training costs. This community-centred model ensures that small businesses and self-employed mechanics gain affordable, high-quality and industry-recognized qualifications, overcoming the local shortage in electric-vehicle-servicing capacity.
Barriers to geographic mobility	Imbalances in job opportunities may lead some workers to relocate in search of positions that match their skills. Without accessible, in-county training on emerging electric vehicle technologies, local technicians risk displacement or extended commutes. By offering specialized training locally, Harlow College helps technicians acquire new skills without relocating or commuting long distances. This place-based approach retains talent in Essex, supports local small businesses that cannot easily fund or accommodate external training and aligns with the county's Levelling Up strategy to foster local economic growth.
Lack of cross-sector collaboration	A lack of co-ordination among industry, educational and training institutions and levels of governments can fragment workforce development efforts, creating shortages and inefficiencies. The *Electric and Hybrid Vehicle Training Centre* has facilitated partnerships among the county council and the local district council, the local learning institution (Harlow College) and local garages. Even larger companies, such as Ford Motor Company, have begun sending their technicians to the *Centre* for training.
Income insecurity	As electric vehicle adoption accelerates, businesses and technicians who exclusively service traditional internal-combustion-engine vehicles risk losing income. Youth newly entering the labour force without necessary electric vehicle skills may also face limited job opportunities. By providing accessible, local training, the *Electric and Hybrid Vehicle Training Centre* helps businesses retain revenue streams and enables workers to maintain steady earnings. Through subsidized training spots, the *Centre* also reduces cost barriers for small local employers and workers.

Source: IRPP tables based on Albatayneh, 2024; Carey et al., 2023; Doran, 2022; Essex County Council, 2023b, 2024b; Harlow College, 2023; Institute of the Motor Industry, 2024a, 2024b; Local Government Association, 2022; The Manufacturer, 2023; Social Market Foundation, 2022.

Program Implementation

Delivery and operation

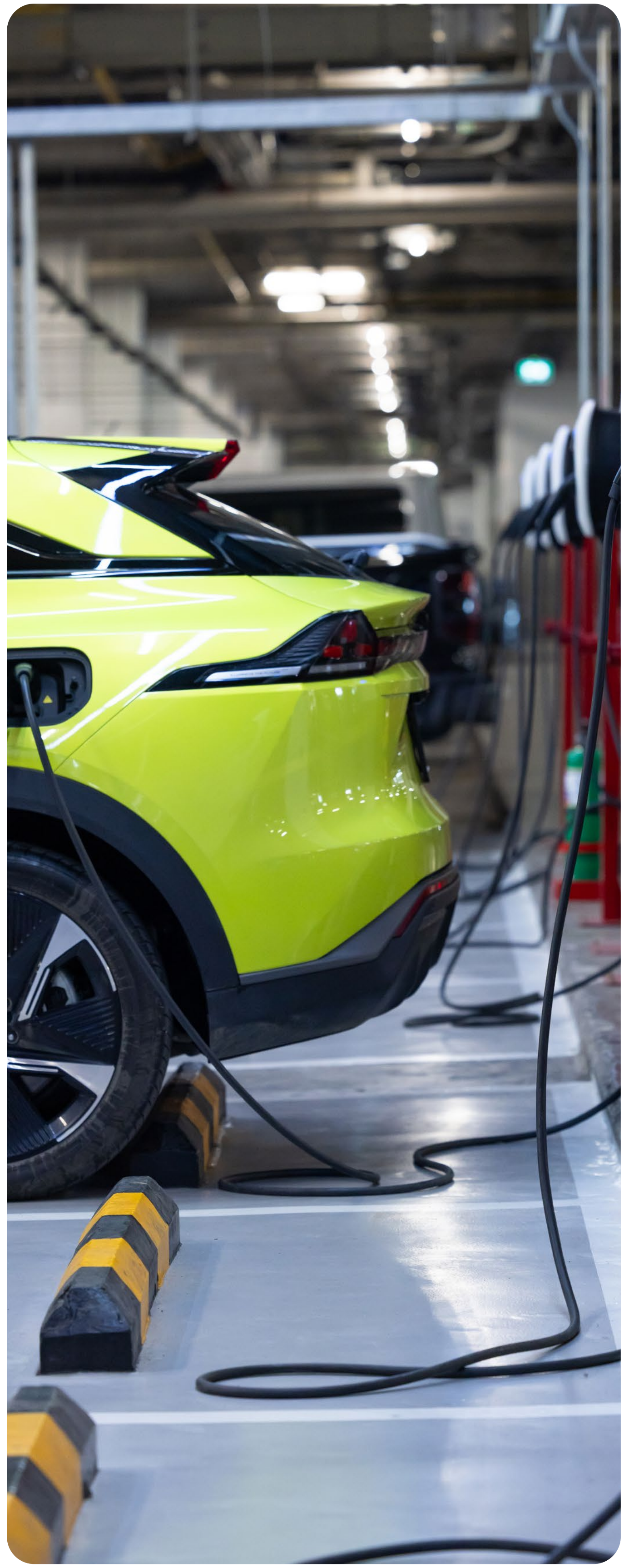
Launched in 2022, the pilot program culminated in the official opening of the *Electric and Hybrid Vehicle Training Centre* at Harlow College in March 2023. The *Training Centre* currently offers four levels of courses focused on electric and hybrid vehicle technology, with levels two to four resulting in IMI TechSafe accreditation (Harlow College, n.d.). The first two levels cover awareness and safety training, and the second two provide hands-on experience in high-voltage systems repair and maintenance (Harlow College, n.d.). These courses lead to industry-recognized qualifications, positioning the college at the forefront of the evolving needs of the growing electric vehicle sector. Reflecting the program's success, Ford Motor Company has begun sending technicians from its main U.K. electric vehicle plant to Harlow College for specialized up-skill training (Essex County Council, 2025).

The *Training Centre* also engages local Harlow residents by operating a "live garage" that supports community workshops and aims to engage at least 100 people (Local Government Association, 2022). The space delivers learning workshops as a means of raising public awareness, thereby supporting the adoption of electric vehicles, and it serves as an entry point for workers interested in automotive training (Local Government Association, 2022).

Harlow's 2023-28 economic development strategy seeks to build on recent investments in electric vehicle maintenance as part of growing a green industry workforce (Harlow Council, 2023). Harlow College's own 2024-29 strategic plan cites the *Training Centre* as a success that will be expanded with new employer-led training modules as green technologies evolve (Harlow College, 2024). These plans indicate that the program is woven into local long-term plans for workforce development and climate action, signalling institutional commitment to sustain it.

Governance and funding

In collaboration with Harlow College and Harlow District Council, Essex County Council (2023a) established the *Electric and Hybrid Vehicle Training Centre* to address local green skills needs and achieve local climate goals. Essex County Council functions as the regional authority, and Harlow District Council serves as the local authority for the town of Harlow. Funding is administered by Essex County Council and implemented at Harlow College, with Harlow District Council providing additional support for program development.



A £100,000 investment from Essex County Council's Levelling Up fund financed the *Training Centre's* pilot phase, covering the development of on-campus facilities and fully subsidizing 50 training spots for local automotive technicians and individuals interested in electric vehicle repair and maintenance (Essex County Council, 2023a). This targeted investment ensures that small businesses, self-employed mechanics and new entrants to the workforce can access high-quality, locally delivered training without incurring steep commercial fees, thereby strengthening the local electric-vehicle-service ecosystem.

In the U.K., sub-national governments, such as Essex County Council, rely primarily on grant funding, which typically comes from numerous competitive funding programs at the national level (Pope et al., 2022). In 2023, local governments in the U.K. collected less than 5 per cent of total general government tax revenue (Organisation for Economic Co-operation and Development, n.d.).

Essex County Council (2024a) funds its Levelling Up strategy through council revenues, which include both council taxes and grants from the national government. Some of these funds come from the £4.8-billion national Levelling Up Fund, which primarily funds infrastructure projects (HM Government, 2024b).

Funding from the U.K.'s Community Renewal Fund was also awarded to Harlow College in 2022 to manage a voucher pilot that provided local students with £1,000 to put toward the cost of certain programs (Harlow College, 2022). In the fall of 2022, the Level 2 Electric/Hybrid Vehicle Routine Maintenance course was eligible for the voucher, making the course accessible to more local residents (Harlow College, 2021).

While no new funding has yet been officially announced for the *Electric and Hybrid Vehicle Training Centre*, it has continued operating through a blended funding model, with training provided under the college's auspices and supplemented by government funding from the Education and Skills Funding Agency, now the Department of Education, to keep access for specific courses free or affordable to low-income households (Harlow College, 2025). Its electric vehicle maintenance courses are now part of Harlow College's regular adult education portfolio (Harlow College, n.d.), offered on a fee basis.

Industry and employer partnerships have enhanced curriculum development at the *Training Centre*. The Local Government Association (2022) cited Essex County Council's intention to "form a basis to expand the offer to employers elsewhere in the county" (para. 2). Collaborations and strategic goals strengthen the *Centre's* financial viability and underscore its long-term role in building local green skills.

Implementation challenges and adaptations

One key challenge for local training initiatives is uncertainty about future demand for electric and hybrid vehicles. The U.K.'s Zero Emission Vehicle (ZEV) mandate, which requires all new car sales to be zero emission by 2035, provides critical policy certainty (HM Government, 2024a). In April 2025, the government (HM Government, 2025a) announced flexibilities in certain ZEV mandate requirements for domestic carmakers, aiming to support them through "the new era of global insecurity" (para. 2) and ease economic pressures on the industry. A clear national target reassures technicians, garages and training providers that electric vehicle skill sets will remain relevant — and increasingly necessary. By aligning its curriculum with ZEV policy objectives, the *Electric and Hybrid Vehicle Training Centre* ensures local participants are equipped with the technical competencies to service the growing number of battery electric and hybrid vehicles entering the market (Institute of the Motor Industry, 2024a).

Another challenge lies in local authorities having sufficient autonomy and resources to establish programs that meet community-specific workforce needs. The U.K.'s devolution agenda — outlined in the national white paper on Levelling Up (HM Government, 2022b) — grants greater decision-making power and funding to local councils, enabling them to craft place-based policies. It is within this context that Essex County Council (2025) developed the *Electric and Hybrid Vehicle Training Centre* as part of its Levelling Up and Everyone's Essex strategies, focusing on green skills and economic renewal. By rooting the *Training Centre's* design and funding in local economic development priorities, Harlow College and its partners ensured the program could effectively address region-specific workforce needs, maintain community buy-in and adapt to changing market conditions. This localized place-based approach also positions the *Training Centre* as a model that could be replicated in other regions with similar devolution arrangements (Local Government Association, 2022).

Impact and Relevance

Outcomes to date

The initial £100,000 investment from Essex County Council fully subsidized 50 training spots in the program. As a pilot, the program "is intended to encourage greater employer investment in green skills and provide evidence of the importance of training for business performance" (Local Government Association, 2022, para. 1).

Cohorts in 2024 and 2025 saw higher-than-expected registrations and completion rates. In 2024, over 150 local residents completed or applied for a course (Essex County Council, 2024b), and by 2025, over 200 local residents had taken up a course (Essex County Council, 2025). Beyond the initial 50 fully subsidized spots, any further cost reductions for additional students could have come from the voucher pilot offered under the Community Renewal Fund project at Harlow College (2022 school year only) or from Department for Education subsidies for low-income households. Due to the success of the program, Ford Motor Company has started sending technicians from their main electric vehicle plant to complete level-four courses at the *Training Centre* (Essex County Council, 2024b).

More broadly, by 2025, 14,500 local Harlow residents are expected to receive support from the county's Levelling Up initiatives, aimed at boosting skills, well-being and long-term economic development in the area. In addition to the *Training Centre*, Essex County Council's wide-ranging Levelling Up initiatives in Harlow include the £300,000 Harlow Futures program to enhance children's resilience and educational prospects, over £40 million to support the regeneration of Harlow's town centre and plans to establish a Health & Social Care Academy at Harlow College (Essex County Council, 2025).

Lessons learned and relevance to Canada

Lesson 1

Aligning skills with Canada's ZEV targets

Based on Canada's zero-emission vehicle (ZEV) sales targets, all new light-duty-vehicle sales (including passenger cars) must be ZEVs by 2035, with interim targets of 20 per cent by 2026 and 60 per cent by 2030 (Government of Canada, 2022; Transport Canada, 2024). In the fourth quarter of 2024, ZEVs and hybrids made up 29 per cent of all new vehicle registrations (Statistics Canada, 2025). However, in 2025, the U.S. caused turmoil in the North American auto sector by imposing tariffs on vehicles and parts from Canada and Mexico, which has created significant uncertainty for businesses and electric vehicle sales targets. Nevertheless, skills training and workforce development initiatives akin to Harlow College's *Electric and Hybrid Vehicle Training Centre* can help bridge skills gaps in the transition to electric vehicles. This includes training existing mechanics in high-voltage safety, battery diagnostics and system repair while also attracting younger workers into automotive trades.

Lesson 2

Prioritizing up-skilling across the automotive sector

As the automotive sector transitions to electric and hybrid vehicles, specialized training is becoming essential not only for manufacturing roles but also for the aftermarket service workforce. Similar to those taking advantage of the Harlow model, Canada's automotive technicians could benefit from industry-recognized qualifications focused on electric/hybrid vehicle repair and maintenance — particularly in smaller or rural communities that lack the capacity or facilities for advanced training (Autotech Recruit, 2025). Access to these qualifications could bolster employee productivity, retention and satisfaction, ultimately strengthening local economies reliant on automotive services. Professional training and lifelong learning has been shown to enhance employees' knowledge, problem-solving capabilities and capacity to transition into emerging roles, thereby improving personal and organizational outcomes while ensuring continued employment and career growth (Albatayneh, 2024; Mustafa & Lleshi, 2024; Shiri et al., 2023).

Lesson 3

Safeguard small businesses and job opportunities for local workers

Harlow's pilot phase targeted small employers reluctant or unable to pay for costly commercial training, mitigating financial barriers for both businesses and mechanics-in-training (Local Government Association, 2022). Rising operational costs and shifting legislation are often major obstacles faced by many garage owners (Autotech Recruit, 2025), and financial instability may ultimately stop small employers and business owners from leveraging necessary training and up-skilling for employees. By offering subsidized, place-based training, programs like Harlow's can safeguard local jobs, stimulate community-level economic activity and ensure youth have pathways to green economy careers.

Lesson 4

Engaging local community to spur electric vehicle adoption

The “live garage” concept, in which local residents receive hands-on exposure to electric vehicle technology, helps build public awareness and trust in the emerging electric vehicle market (Local Government Association, 2022). For Canada — where the 2030 Emissions Reduction Plan of the Liberal government under Justin Trudeau emphasized scaling ZEV uptake (Government of Canada, 2022) — community engagement can similarly expand market demand and foster an ecosystem that supports new automotive services. Decarbonizing transportation will be critical for reducing greenhouse gas emissions, and a key element of this will include increasing the number of ZEVs on Canadian roads as well as the number of trained mechanics to service them (Government of Canada, 2022).

Lesson 5

Ensuring financial stability for small businesses

Harlow’s pilot program underscores that rising operational costs can dissuade small businesses from investing in up-skilling (Local Government Association, 2022). Government-backed initiatives that subsidize training fees — especially during early adoption — can encourage small garages to prepare for future demand without compromising their financial stability. Many mechanics operate informally, requiring tailored, low-cost training and incentives for formal registration to ensure they can access the necessary electric-vehicle-specific skills (Albatayneh, 2024). In Canada, where the majority of repair shops employ fewer than four workers, steep upfront costs may exclude these small businesses (Future of Canadian Automotive Labour Force Initiative, 2024). By embedding these support mechanisms in broader climate or economic strategies, Canadian policymakers can help secure environmental, social and economic benefits.

Appendix A. URLs and Official Websites

Programs, Initiatives and Strategic Frameworks

***Electric & Hybrid Vehicle Training Centre* Announcement**
https://www.local.gov.uk/case-studies/essex-county-council-electric-vehicle-training

***Electric & Hybrid Vehicle Training Centre* Automotive Courses**
https://www.harlow-college.ac.uk/study-options/category/automotive-studies-2019-21?f=1

Essex County Council Levelling Up Strategy
https://www.essex.gov.uk/levelling-up-essex

Everyone's Essex Strategy
https://www.essex.gov.uk/about-council/plans-and-strategies/our-vision-essex/everyones-essex

Harlow Economic Development Strategy (2023-2028)
https://www.harlow.gov.uk/sites/default/files/documents/Economic%20development%20strategy%20 2023%20to%202028.pdf

United Kingdom Levelling Up Strategy
https://www.gov.uk/government/publications/levelling-up-the-united-kingdom

United Kingdom Zero Emission Vehicle (ZEV) Mandate
https://www.gov.uk/government/news/pathway-for-zero-emission-vehicle-transition-by-2035-becomes-law

United Kingdom Devolution White Paper
https://www.gov.uk/government/publications/english-devolution-white-paper-power-and-partnership-foundations-for-growth/english-devolution-white-paper

Organizations and Implementing Bodies

Harlow College
https://www.harlow-college.ac.uk/

Essex County Council
https://www.essex.gov.uk/

Harlow District Council
https://www.harlow.gov.uk/

Canadian Initiatives and Policies Mentioned for Comparison

Canada's Zero-Emission Vehicle Sales Targets
https://tc.canada.ca/en/road-transportation/innovative-technologies/zero-emission-vehicles/canada-s-zero-emission-vehicle-sales-targets

Canada's 2030 Emissions Reduction Plan
https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030/plan.html

References

Albatayneh, A. (2024). The electric cars era transforming the car repairs and services landscape. *Advances in Mechanical Engineering, 16*(7). https://doi.org/10.1177/16878132241266536

Autotech Recruit. (2025, February 11). *The future of the automotive aftermarket: Overcoming challenges in 2025 with smart staffing, training & technology.* https://autotechrecruit.co.uk/news/overcoming-challenges-in-2025-in-automotive-aftermarket/

Bachtler, J., & Begg, I. (2017). Cohesion policy after Brexit: the economic, social and institutional challenges. *Journal of Social Policy, 46*(4), 745-763. DOI: 10.1017/S0047279417000514

Carey, N., Lienert, P., & Piovaccari, G. (2023, September 6). EV broken? Finding a technician to fix it may take a while. *Reuters*. https://www.reuters.com/business/autos-transportation/ev-broken-finding-technician-fix-it-may-take-while-2023-09-06/

Copeland, P., & Diamond, P. (2022). From EU Structural Funds to Levelling Up: Empty signifiers, ungrounded statism and English regional policy. *Local Economy, 37*(1-2), 34-49. https://doi.org/10.1177/02690942221088828

Doran, M. (2022, March 30). *Levelling Up: The only way for Essex.* Bennett Institute for Public Policy. University of Cambridge. https://www.bennettinstitute.cam.ac.uk/blog/levelling-up-essex/

Essex County Council. (n.d.a). *Devolution and local government reorganisation.* https://www.essex.gov.uk/about-council/plans-and-strategies/our-vision-essex/devolution-and-local-government-reorganisation

Essex County Council. (n.d.b). *Everyone's Essex.* https://www.essex.gov.uk/about-council/plans-and-strategies/our-vision-essex/everyones-essex

Essex County Council. (n.d.c). *Spending and council tax.* https://www.essex.gov.uk/about-council/spending-and-council-tax/what-council-tax-pays

Essex County Council. (2016, March 26). *A profile of people living in Harlow.* Organisational Intelligence. https://moderngov.harlow.gov.uk/documents/s10649/Appendix%20C%20-%20A%20Profile%20of%20People%20Living%20in%20Harlow.pdf

Essex County Council. (2022a, December). *Census 2021 – Labour market and travel to work.* https://data.essex.gov.uk/dataset/v83o1/census-2021-labour-market

Essex County Council. (2022b, March). *Green skills infrastructure review for Essex.* Essex Climate Action Commission. https://www.essex.gov.uk/sites/default/files/migration_data/files/assets.ctfassets.net/knkzaf64jx5x/2boS3yEpHGwgLnZMXqRFfp/1918c6857a4f61ed7a73a1b100c730aa/Essex-Green-Skills-Infrastructure-review-2022.pdf

Essex County Council. (2022c). *Levelling Up Essex: An Essex white paper.* https://www.essex.gov.uk/sites/default/files/migration_data/files/assets.ctfassets.net/knkzaf64jx5x/xTQoof74Yb8VF4DIqYGQ2/a1b9223c9730c307979a527a2270261e/Essex-County-Council-Levelling-Up-strategy.pdf

Essex County Council. (2023a, March 10). *£100k investment in new electric vehicle repair and maintenance courses at Harlow College.* https://www.essex.gov.uk/news/2023/ps100k-investment-new-electric-vehicle-repair-and-maintenance-courses-harlow-college

Essex County Council. (2023b, February). *Levelling Up Essex: One year on: Impact report.* https://www.essex.gov.uk/sites/default/files/migration_data/files/downloads.ctfassets.net/knkzaf64jx5x/3dNaIGsRzIVVCAwdhzhcX3/607059bf9b21b3abaa400862a2f29353/Levelling_Up_Essex_v5.pdf

Essex County Council. (2024a). *Annual plan and budget: 2024–25.* https://www.essex.gov.uk/sites/default/files/2024-03/9998%20ECC%20Annual%20Plan%202024-25%20V4%20ACCESSIBLE.pdf

Essex County Council. (2024b). *Reaching new heights: Levelling Up year two impact report 2023/24.* https://www.essex.gov.uk/sites/default/files/2024-03/Levelling%20up%20year%20two%20impact%20report%20-%20Reaching%20new%20heights.pdf

Essex County Council. (2025). *A thriving Essex: More opportunities, better lives.* https://www.essex.gov.uk/sites/default/files/2025-02/Levelling%20Up%20Year%203%20Report.pdf

Future of Canadian Automotive Labour Force Initiative. (2024, March). *Vehicle electrification and its impact on the automotive service, repair, and aftermarket industries.* https://www.futureautolabourforce.ca/wp-content/uploads/2024/05/FOCAL-Initiative-Vehicle-Electrification-and-Its-Impact-on-the-Automotive-Service-Repair-and-Aftermarket-Industries.pdf

Government of Canada. (2022, July 22). *Canada's 2030 emissions reduction plan.* https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030/plan.html

Harlow College. (n.d.). *Automotive studies.* Retrieved April 15, 2025, from https://www.harlow-college.ac.uk/study-options/category/automotive-studies-2019-21?f=1

Harlow College. (2021, December 21). *UK Community Renewal Fund.* https://www.harlow-college.ac.uk/study-options/english-maths-esol/esol-application-links/61-none/771-community-renewal-fund

Harlow College. (2022, January 5). *College awarded significant funding for community renewal project.* https://www.harlow-college.ac.uk/about/news/772-college-awarded-significant-funding-for-community-renewal-project

Harlow College. (2023, March 10). *£100k Essex County Council investment in new electric vehicle repair and maintenance courses at Harlow College.* https://www.harlow-college.ac.uk/about/news/831-100k-essex-county-council-investment-in-new-electric-vehicle-repair-and-maintenance-courses-at-harlow-college

Harlow College. (2024). *Harlow College strategic plan: 2024–2029.* https://www.harlow-college.ac.uk/images/harlow_college/about-us/policies/Strategic_Plan_2024_-_2029.pdf

Harlow College. (2025). *19+ discretionary learner support policy 2024/25.* https://www.harlow-college.ac.uk/images/harlow_college/about-us/policies/19_Discretionary_Learner_Support_Policy_24-25.pdf

Harlow Council. (2021, September 14). *Agreement made to install electric vehicle charging points.* https://www.harlow.gov.uk/news/agreement-made-install-electric-vehicle-charging-points

Harlow Council. (2023, March). *Harlow economic development strategy 2023–2028.* https://www.harlow.gov.uk/sites/default/files/documents/Economic%20development%20strategy%202023%20to%202028.pdf

Harlow Council. (2025, March 17). *Cabinet to discuss proposals for local government reorganisation.* https://www.harlow.gov.uk/news/cabinet-discuss-proposals-local-government-reorganisation

HM Government. (2022a, October). *Net Zero Strategy: Build back greener.* https://www.gov.uk/government/publications/net-zero-strategy

HM Government. (2022b, February 2). *Levelling Up the United Kingdom.* https://assets.publishing.service.gov.uk/media/61fd3c71d3bf7f78df30b3c2/Levelling_Up_WP_HRES.pdf

HM Government. (2024a, January 3). *Pathway for zero emission vehicle transition by 2035 becomes law.* https://www.gov.uk/government/news/pathway-for-zero-emission-vehicle-transition-by-2035-becomes-law

HM Government. (2024b, March 3). *New levelling up and community investments.* https://www.gov.uk/government/collections/new-levelling-up-and-community-investments

HM Government. (2025a, April 6). *Backing British business: Prime minister unveils plan to support carmakers.* https://www.gov.uk/government/news/backing-british-business-prime-minister-unveils-plan-to-support-carmakers

HM Government. (2025b, February 17). *Devolution Priority Programme consultations launch.* https://www.gov.uk/government/news/devolution-priority-programme-consultations-launch

House of Commons. (2024, July 16). *Electric vehicles.* UK Parliament. https://commonslibrary.parliament.uk/electric-vehicles/

Institute of the Motor Industry. (2024a, August 5). *3,000 EV technician shortfall predicted by 2031.* https://tide.theimi.org.uk/industry-latest/news/3000-ev-technician-shortfall-predicted-2031

Institute of the Motor Industry. (2024b, March 18). *Driving towards inclusion: Sector report.* https://tide.theimi.org.uk/research/driving-towards-inclusion-sector-report-0

Local Government Association. (2022, September 21). *Essex County Council: Electric vehicle training.* https://www.local.gov.uk/case-studies/essex-county-council-electric-vehicle-training

The Manufacturer. (2023, November 28). *UK automotive industry pledges to address diversity shortfall.* https://www.themanufacturer.com/articles/uk-automotive-industry-pledges-to-address-diversity-shortfall/

Mustafa, B., & Lleshi, S. (2024). The impact of lifelong learning and investments in employee development on employee productivity and performance. *Multidisciplinary Reviews, 7*(8), 2024175. https://doi.org/10.31893/multirev.2024175

Office for National Statistics. (n.d.a). *Area profile: Harlow.* Retrieved April 14, 2025, https://www.ons.gov.uk/visualisations/customprofiles/build/#E07000073

Office for National Statistics. (n.d.b). *Labour Market Profile – Harlow.* https://www.nomisweb.co.uk/reports/lmp/la/1946157217/report.aspx?#ld

Office for National Statistics. (2023, December 12). *Labour market overview, UK: December 2023.* https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/december2023

Office for National Statistics. (2024, May 13). *Employment, unemployment and economic inactivity in Harlow.* https://www.ons.gov.uk/visualisations/labourmarketlocal/E07000073/

Office for National Statistics. (2025, March 20). *Employment in the UK: March 2025.* https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/employmentintheuk/march2025

Organisation for Economic Co-operation and Development. (n.d.). *Tax revenue as percentage of total general government tax revenue* [Table 9: 1965–2023]. OECD Fiscal Decentralisation Database. Retrieved April 15, 2025, from https://www.oecd.org/en/data/datasets/oecd-fiscal-decentralisation-database.html

Pope, T., Dalton, G., & Coggins, M. (2022). *Subnational government in England: An international comparison.* Institute for Government. https://www.instituteforgovernment.org.uk/sites/default/files/2022-12/subnational-government-in-england-international-comparison.pdf

Pretty, J. (2024). *The Essex Climate Action Commission (ECAC): Review of impacts 2020–2024.* Essex Climate Action Commission. https://www.essexclimate.org.uk/sites/default/files/Essex%20Climate%20Action%20Commission%20Impacts%202020-2024%20FINAL.pdf

Shiri, R., El-Metwally, A., Sallinen, M., Pöyry, M., Härmä, M., & Toppinen-Tanner, S. (2023). The role of continuing professional training or development in maintaining current employment: A systematic review. *Healthcare (Basel), 11*(21), 2900. https://doi:10.3390/healthcare11212900

Social Market Foundation. (2022, December 7). *Britain to run out of electric vehicle mechanics by 2030.* https://www.smf.co.uk/britain-to-run-out-of-electric-vehicle-mechanics-by-2030/

Society of Motor Manufacturers and Traders. (n.d.). *Electric vehicle data.* Retrieved April 14, 2025, from https://www.smmt.co.uk/vehicle-data/electric-vehicle-registrations/

Society of Motor Manufacturers and Traders. (2024, July 2). *SMMT motor industry facts 2024.* SMMT. https://www.smmt.co.uk/smmt-motor-industry-facts-2024

Statistics Canada. (2025, March 13). *Table: 20-10-0024-01 New motor vehicle registrations, quarterly.* Government of Canada. https://doi.org/10.25318/2010002401-eng

Transport Canada. (2024, January 22). *Canada's zero-emission vehicle sales targets.* https://tc.canada.ca/en/road-transportation/innovative-technologies/zero-emission-vehicles/canada-s-zero-emission-vehicle-sales-targets

Future Skills Centre
Centre des Compétences futures

IRPP
INSTITUT DE RECHERCHE EN POLITIQUES PUBLIQUES
INSTITUTE FOR RESEARCH ON PUBLIC POLICY