Industry Report: The EV Transition – Challenges and Opportunities for Companies, SMEs, and the Workforce

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CONTENT

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Introduction

Systemic Changes

The automotive industry is undergoing a major shift as electric vehicles (EVs) are set to start replacing internal combustion engine (ICE) vehicles. Regulatory mandates, such as the European Union's legally binding ban on the sale of new petrol and diesel cars by 2035, and competitive pressures from EV manufacturers—particularly from China—are driving this transformation. This transition is not only reshaping the automotive supply chain but also redefining global competition, workforce requirements and industry priorities.

European manufacturers accustomed to dominance, are now facing challenges from multiple fronts. The rise of Chinese EV manufacturers known for cost-effective production and superior technology, is threatening market share. For example, BYD is expected to surpass 4 million global EV sales annually, driven by affordable, high-quality vehicles.

Legacy automakers such as Volkswagen and Renault are investing billions into electrification to retain relevance. However, they continue to face operational barriers such as higher costs, and slower infrastructure development, placing them at a disadvantage. At the same time, small and medium-sized enterprises (SMEs) are facing declining demand for ICE components. Support for SME's is readily available and needs to be taken advantage of to remain competitive.

This report provides examination of these changes across Germany, Europe, and North America, outlining key challenges and opportunities for manufacturers, suppliers, and workers.

Content: DTO (2025)

CONTENT

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The EV Market Growth

Market Growth

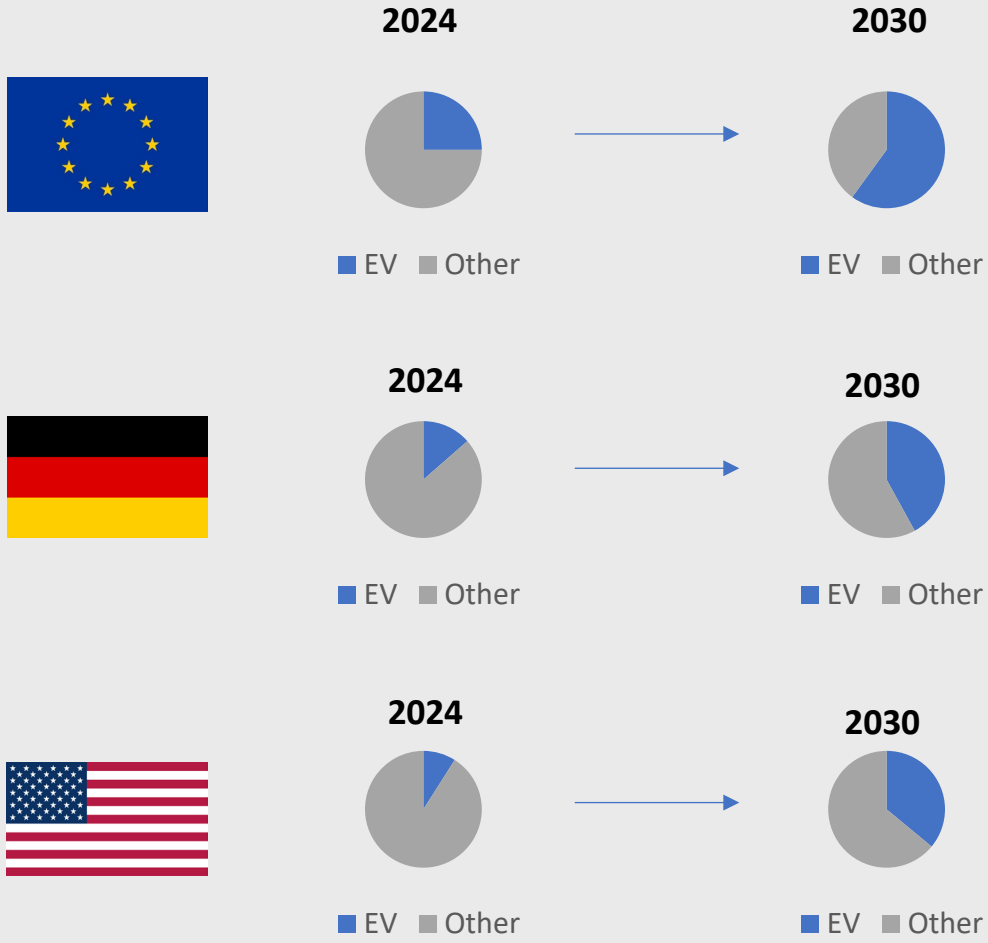
The electric vehicle market is experiencing rapid global growth, driven by regulatory policies, technological advancements, and consumer demand. While China remains the global leader in EV production, and infrastructure, Europe is emerging as a major player with aggressive regulatory targets and substantial investments. Germany, as Europe's largest automotive market, plays a critical role in driving this transition.

The United States EV market is steadily growing, supported by government funding and growing consumer interest. Examining current and projected growth rates in these regions underscores the global race toward electrification and the opportunities it presents.

- **Europe**: EVs to made up 25% of new car sales in 2024 and expected to increase to 60% by 2030.
- **Germany**: Aligning closely with Europe, Germany's EV share is around 13.5% in 2024, rising to around 42% by 2030.
- **United States**: By comparison, EVs account for around 8% of new car sales in 2024, with projections reaching 36% by 2030.

The pace of electrification varies significantly across regions, with Europe leading due to regulatory targets, while the U.S. market progresses more gradually. These trends highlight both the opportunities and challenges in maintaining competitiveness in a large global market.

Predicted Change in Number of EV cars Purchased Between 2024 and 2030



Content: DTO (2025) , Barron's. (2024), International Energy Agency. (2024), Reuters. (2025).

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The EV Market Growth

Key Development

The shift toward EVs is pressuring companies to adapt to market demands and technological advancements. History shows that failure to innovate, as seen with Kodak's downfall for not embracing digital technology, can lead to major consequences. Automotive companies face a critical choice: embrace the EV market's potential or risk being left behind, highlighting the importance of innovation and adaptation to remain competitive.

Honda-Nissan-Mitsubushi Merger Talks

In December 2024, Honda and Nissan revealed plans to begin discussions on a potential merger, signaling a significant step toward collaboration. Mitsubishi Motors is anticipated to announce its decision regarding participation in January 2025, potentially expanding the alliance’s reach and capabilities. This strategic move could become a historic milestone, symbolizing how traditional automakers are finding ways such as merging to be able to remain competitive and innovative.

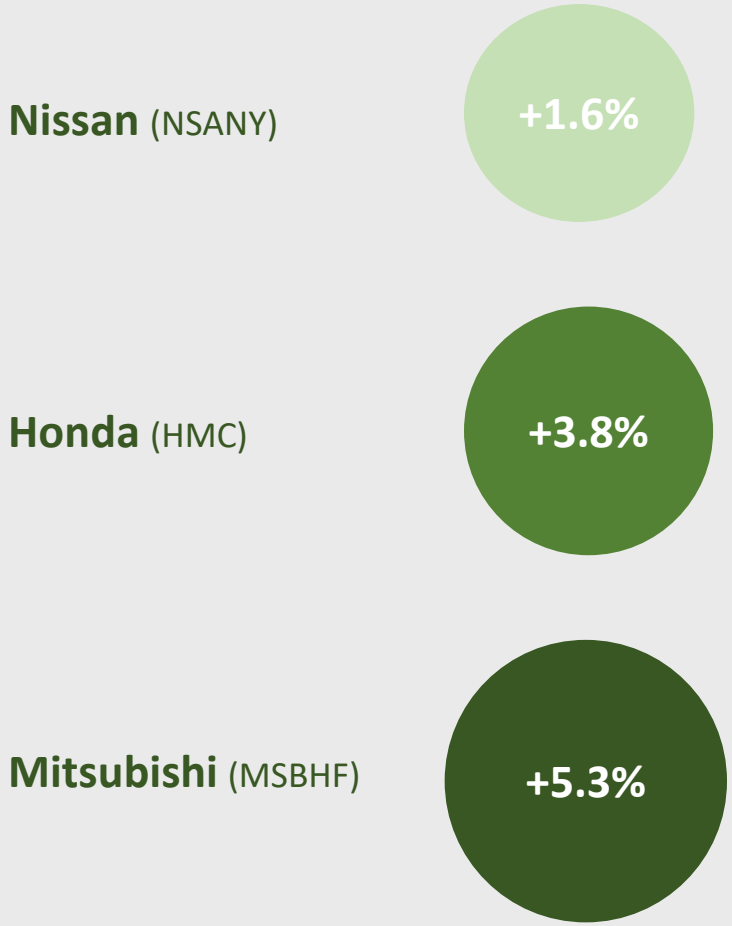
Goals of the Collaboration:

- **Reduce costs through shared EV platforms and infrastructure**
- **Enhance research and development by combining and sharing knowledge**
- **Accelerate market penetration**

Market Reaction

The stock market reflects investor confidence in such decisions. Following the announcement, all three companies saw stock prices rise, as illustrated on the right. This underscores the importance of a decisive commitments to EV technology and the urgency for companies to adapt to market demands.

Stock Price Reaction



Content: DTO (2025), BBC (2024), Reuters (2024)

CONTENT

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Market Outlook for SME's

Challenges for SME's

Declining Demand for ICE Components:

Small and medium-sized enterprises (SMEs) specializing in ICE components—such as transmissions, exhaust systems, and fuel systems will face significant disruption. As automakers pivot toward EVs, demand for these parts has plummeted. In Europe alone, over 600,000 supplier jobs remain tied to ICE technology, placing SMEs at substantial risk of job cuts and revenue declines.

- **Future Outlook:** SMEs are significantly less optimistic about their business prospects amidst the ongoing transition to electrification.
- **Loss of Competitiveness**: Many SMEs lack the capital to invest in retooling and transitioning their production lines, widening the gap with larger, well-funded suppliers.

High Costs of Transition:

Adapting to EV supply chains requires investment in research, retooling, and workforce development. Financing these transitions remains a significant challenge for SMEs:

- Volkswagen's €1.2 billion investment to convert its Zwickau plant into an EV-exclusive facility exemplifies the high costs associated with transitioning production lines. While this is not an SME example, it highlights the scale of financial commitments required for such transformations.
- For SMEs, limited access to capital often forces them to delay or reduce the scale of their adaptations, making it difficult to remain competitive in an industry shifting toward electrification.

Content: DTO (2025), Clepa (2023), Clepa (n.d), Teslarati (2023)

Key Statistics

501K — **Estimated number of EU ICE Jobs at risk**

64% — **of EU ICE suppliers report a negative viewpoint on their prospects**

€1.2bn — **Volkswagen investment to convert Zwickau factory from ICE to EV**

Market Outlook for SME’s

Opportunities for SME’s

Diversification into High Demand Components:

The EV transition creates opportunities for SMEs to adapt by producing EV-specific components. SMEs can capitalize on rising demand for battery modules, contributing to Germany’s battery electric vehicle (BEV) market, which is projected to reach €57.5 billion by 2029. Additionally, Europe’s expansion of charging infrastructure is an example of how SMEs can specialize in different aspects of the new market. There is also growing demand for lightweight materials like aluminum and composites as automakers prioritize energy efficiency in EV design.

Opportunities for SMEs: Charging Stations as a Key Example

Charging infrastructure is one of the fastest-growing sectors in the EV market, representing a lucrative opportunity for SMEs to enter a high-demand, high-growth industry. As the EV market grows, the need for accessible, reliable, and efficient charging stations is accelerating simultaneously.

Revenue Growth as Proof of Opportunity

The chart highlights the growth potential of charging stations:

- In **2016**, the EU charging station market generated just **€0.06 billion** in revenue.
- By **2029**, this figure is projected to reach **€8.14 billion**.

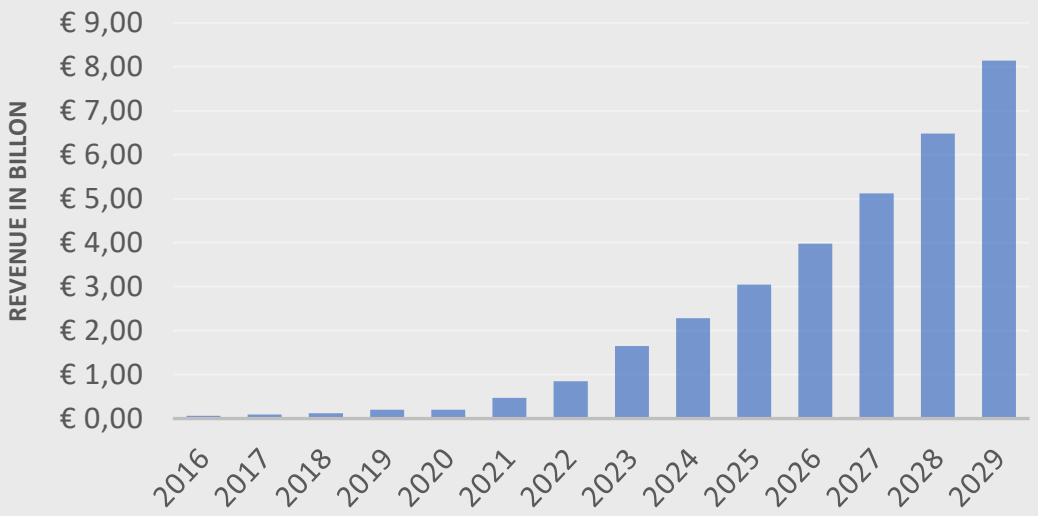
This exponential growth is fueled by government incentives, increasing EV adoption, and private investments. SMEs are uniquely positioned to tap into this market, as they can operate efficiently in specialized niches or underutilized areas that larger corporations may overlook.

Key Statistics

€57.5bn

Predicted Market Size for Battery Electric Vehicles (BEV’s) in 2029

Projected Revenue Growth of Charging Stations



Content: DTO (2025), Statista (2024)

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Market Outlook for SME's

EU Supports for SME's

There are opportunities for SMEs to alleviate financial burdens through various funding programs. With specific criteria to meet, these initiatives offer significant support to help SMEs unlock their full potential and drive growth.

NextGenerationEU Fund:

The NextGenerationEU Fund, worth €750 billion, is a key part of the EU's economic recovery plan and supports projects that drive green and digital transformation. Active until 2026, it helps businesses transition to EVs by funding investments in EV infrastructure, battery production, and advanced components. Aligned with the EU's target of reducing emissions by 55% by 2030, it has enabled SMEs in Spain to pivot from ICE manufacturing to EV component production enabling companies to transition.

Horizon Europe:

The Horizon Europe program, with a budget of €95.5 billion (2021–2027), supports R&D for EV technologies like batteries, lightweight materials, and autonomous systems. It helps businesses collaborate with research institutions to drive innovation and meet EU goals for climate neutrality by 2050. For instance, Horizon Europe has funded projects for ultra-fast EV charging solutions, enabling SMEs to lead in cutting-edge EV development.

InvestEU Program:

The InvestEU Program, with €26.2 billion in guarantees to mobilize over €372 billion by 2027, supports businesses in scaling EV production and developing supply chains. SMEs can access funding for lightweight vehicle components and battery systems. For example, in France, InvestEU has co-financed projects for EV battery and chassis manufacturing, helping companies compete in the green economy.

Content: DTO (2025), NextGenerationEU (2023), Horizon Europe (2024), InvestEU (2023)

Key Statistics

€1bn+

Has been allocated to support companies in the EU transitioning to green practices

19.9%

Success rate of Horizon Europe funding in 2020

CONTENT

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Workforce Changes and Recruitment Dynamics

Workforce Changes

The transition from internal combustion engine vehicles to electric vehicles is reshaping workforce dynamics across the automotive industry. As EV production requires fewer components and relies more heavily on technology, traditional roles are being displaced, particularly in regions where ICE manufacturing has historically been a keystone for employment. At the same time, the EV sector is driving new demand for specialized skills.

Focus Areas: The EV industry requires expertise in:

- **Battery Technology**: Proficiency in battery management systems and electric powertrains.
- **Software Engineering**: Skills in developing vehicle software and integrating digital technologies.
- **Renewable Energy Systems**: Knowledge in sustainable manufacturing processes and charging infrastructure.

Recruitment Challenges and Solutions

Barriers: The rapid evolution of the automotive industry towards electrification presents challenges in sourcing talent with the requisite skills, leading to a competitive recruitment landscape.

Strategies:

- **Industry-Academia Partnerships**: Collaborations between automotive companies and educational institutions can develop targeted training programs to equip workers with necessary skills.
- **Government Initiatives**: Public policies and investments, such as those seen in the U.S. and Europe, are crucial in supporting workforce development for the EV sector.

"The green and digital shift will transform the automotive industry, potentially causing job losses. Support is needed to help the workforce adapt," ACEA 2024

Content: DTO (2025), Reuters (2024), WardsAuto (2024)

Workforce Changes and Recruitment Dynamics

Regional Workforce Displacement - Germany

The transition from internal combustion engine vehicles to electric vehicles is causing disruptions across Germany's automotive workforce. Traditional manufacturing regions, such as Baden-Württemberg and Lower Saxony, are facing challenges as factories adapt or close in response to declining ICE production.

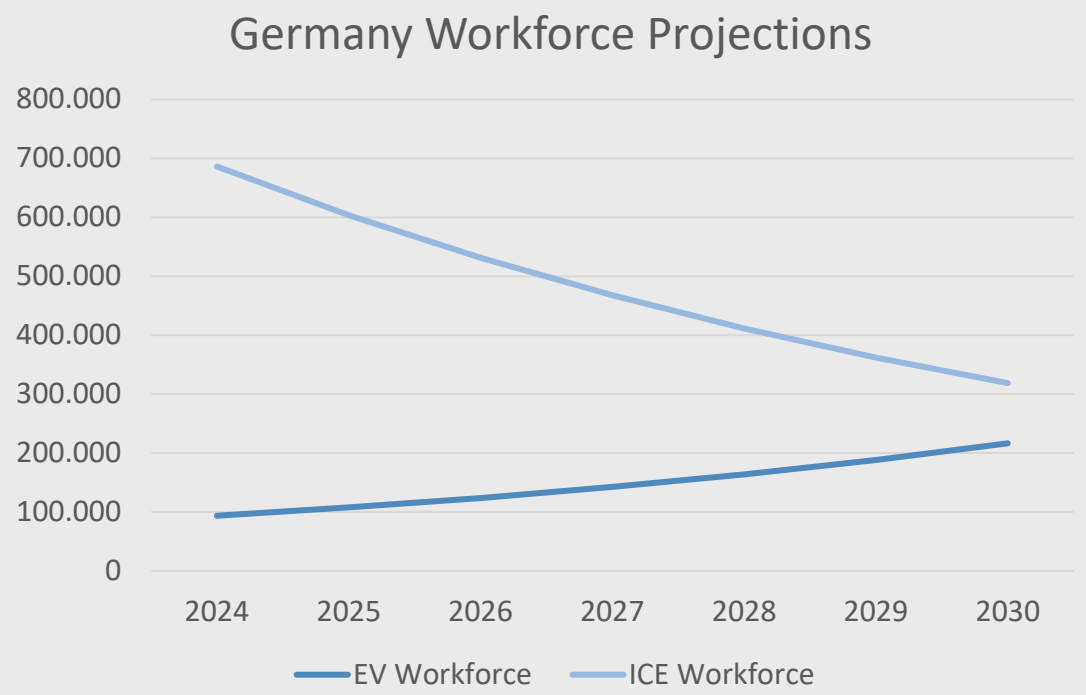
Volkswagen plans to cut over 35,000 jobs by 2030 through early retirement and buyouts, citing streamlined EV production and falling European demand. Unlike ICE vehicles, which require systems like transmissions and exhausts, EVs have 40% fewer components. This simplification drastically reduces labor requirements, particularly for assembly-line workers.

However, while ICE workforce numbers are projected to shrink, the EV sector is providing new opportunities. By 2030, Germany's EV workforce is expected to grow to 360,000, reflecting the country's push toward electrification and investment in battery production. In contrast, the ICE workforce is projected to decline to 200,000 as older production lines phase out.

Balancing the Workforce Shift

Germany must transition to the EV market while minimizing social disruption:

- **Reskilling and Training Programs:** Policymakers and manufacturers must invest in programs that retrain ICE workers for EV-specific roles, such as battery assembly, software development, and high-voltage system maintenance.
- **Collaboration with SMEs:** Small and medium-sized enterprises (SMEs) must be integrated into the EV supply chain to create local employment opportunities. This includes building new capacities in battery modules, charging infrastructure, and lightweight materials.
- **Regional Support:** Targeted government support for regions most affected can prevent long-term economic downturns in areas dependent on automotive manufacturing.



The graph underscores a shift, showing a clear trend**:**

- **While the ICE workforce declines steadily, the EV workforce rises as Germany accelerates its transition towards 2030 electrification targets.**
- **The ICE workforce is projected to decline, falling from ~686,000 workers in 2024 to approximately 318,000 workers by 2030.*** (Not all jobs are not assumed 'lost', just transferred from ICE to EV)
- **The EV workforce is expected to increase steadily from ~93,000 workers in 2024 to approximately 216,000 workers by 2030.**

Content: DTO (2025), DW News (2024), AW News (2024), Statista (2024)

Workforce Changes and Recruitment Dynamics

Investments Driving Employment Growth - Europe

Europe's transition to electric vehicles is driven by significant investments that fuel economic growth and job creation. Countries like France, Germany, Spain, and Hungary are receiving billions in funding for gigafactories, battery production, and EV hubs. At the same time, automakers like Mercedes-Benz and Volkswagen are retraining their workforce for roles in battery assembly, software development, and renewable energy systems. This combination of new job creation and workforce reskilling highlights Europe's efforts to minimize displacement and strengthen its industrial competitiveness.

Notable Investments

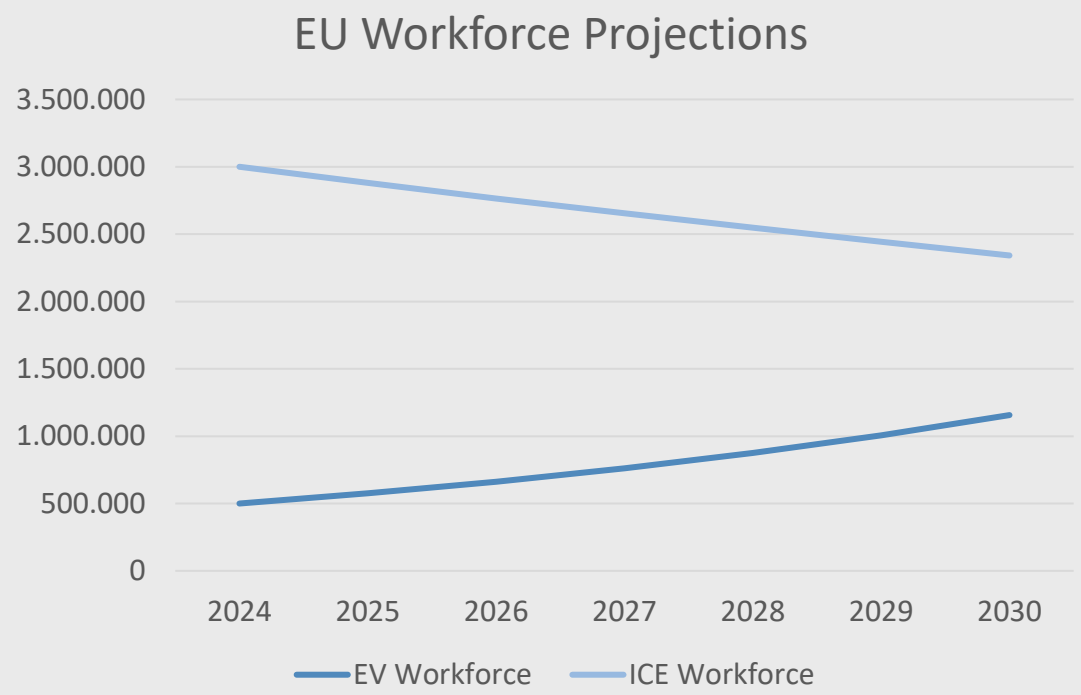
Spain: CATL and Stellantis Joint Venture: A €4.1 billion investment in a battery factory in Zaragoza, expected to create thousands of jobs by 2026.

Germany: Tesla Gigafactory Berlin-Brandenburg: Tesla's factory in Grünheide aims to expand production capacity to 50 GWh, driving local employment growth and enhancing Germany's EV manufacturing hub.

France: Verkor Gigafactory in Dunkirk: A €2.5 billion investment by French startup Verkor, supported by Renault, aims to produce EV batteries for Renault's electric vehicle lineup. The project will create up to 1,200 direct jobs by 2025. A €7 billion joint venture between Stellantis, TotalEnergies, and Mercedes-Benz is developing gigafactories, with one site in Douvrin already operational. The project is expected to create 2,000 jobs.

Hungary: CATL Debrecen Gigafactory: A €7.3 billion investment targeting 100 GWh capacity will position Hungary as a leading EV battery production hub, generating substantial employment.

United Kingdom: Tata Group Somerset Gigafactory: A £4 billion project expected to create up to 4,000 jobs.



The graph underscores a shift, showing a clear trend**:**

- **ICE Decline: From 3 million in 2024 to 2.35 million in 2030 (-4% annually).**
- **EV Growth: From 500,000 in 2024 to 1.5 million in 2030 (+15% annually).**
- **Key Insight**: The EV workforce will nearly triple, while ICE employment will continue its steady decline, underscoring Europe's leadership in EV transition but highlighting regional disparities

Content: DTO. (2025), Electrek. (2023), Verkor. (n.d.), Stellantis. (n.d.), City of Debrecen. (n.d.), BBC. (2023)

Workforce Changes and Recruitment Dynamics

Insights into U.S. Workforce Projections

Job Creation in EV Manufacturing:
By 2030, the EV workforce is projected to grow significantly, increasing from ~250,000 workers in 2024 to approximately 641,000 workers. This growth is fueled by substantial investments in EV production plants, battery gigafactories, and charging infrastructure across the United States.

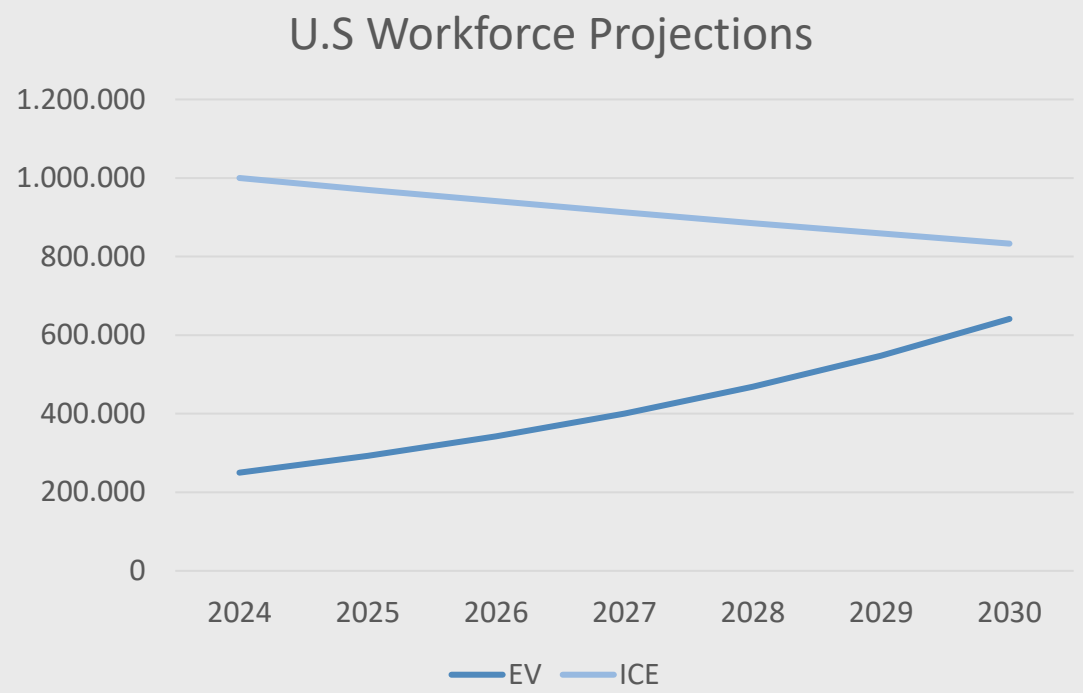
Steady Decline in ICE Jobs:
Traditional ICE-related jobs are expected to decline steadily from 1 million workers in 2024 to approximately 833,000 workers by 2030. Factors contributing to this decline include the simpler manufacturing processes of EVs, reduced demand for ICE vehicles, and the phasing out of older production facilities.

Federal Investments Driving Job Growth:
Policies such as the Inflation Reduction Act (IRA) and the Bipartisan Infrastructure Law have allocated over $100 billion to EV manufacturing and charging infrastructure. This has already led to announcements of 195,000 new jobs in the EV sector, with more expected as automakers ramp up production.

Regional Workforce Hubs:
States like Georgia, Michigan, and Tennessee are emerging as EV manufacturing hubs, driven by major automaker and battery investments: Ford's BlueOval City in Tennessee will employ 6,000 workers and become one of the largest EV production sites in the country. Hyundai and Rivian have committed over $10 billion combined in Georgia, further boosting EV employment opportunities.

Challenges and Opportunities:
While job losses in ICE-related sectors present challenges for traditional automotive workers, the rapid rise of EV production offers opportunities for reskilling and transitioning to high-demand roles in battery manufacturing, software development, and charging infrastructure maintenance.

Content: DTO (2025), Environmental Defense Fund. (2023), World Resources Institute. (2023).



- **ICE Decline:** From **1 million** in 2024 to **832,000** in 2030 (an annual decrease of ~3%).
- **EV Growth:** From **250,000** in 2024 to **641,000** in 2030 (an annual increase of ~15%).

Key Insight: The EV workforce in the U.S. will **more than double** over this period, driven by investments in battery production, manufacturing hubs, and charging infrastructure. However, the decline in ICE employment highlights the ongoing disruption for traditional automotive roles, emphasizing the need for workforce reskilling programs.

CONTENT

Industry Report Content Table

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Debating the ICE Ban

Support for the 2035 ICE Ban

Economic Opportunities

The 2035 ICE ban has initiated significant economic growth in the European EV market, with projections indicating it will reach €477 billion annually by 2030. This expansion is fueled by advancements in three pivotal sectors. Battery production is witnessing heightened demand, driving the establishment of gigafactories, such as those in Hungary. Software development has become essential as advanced EV systems require skilled engineers and tech specialists across Europe. Furthermore, renewable energy systems are expanding to support EV infrastructure, including charging networks and clean energy integration. By 2035, these sectors are collectively expected to contribute hundreds of thousands of jobs across Europe. Volkswagen's ambitious €89 billion electrification strategy demonstrates this growth, with plans to create 25,000 EV-related roles in Germany by 2026.

Corporate and Investment Support

The target has garnered strong backing from over 50 major companies, including Uber, IKEA's Ingka Group, and Polestar. This coalition highlights the pivotal role of regulatory stability in driving transformative investments.

- **Investment**: The adoption of the transition to EV would bring in considerable investment from outside of the EU, subsequently allowing EU companies to become more competitive especially against EV giants like China who currently saturate the majority of the global market.
- **Economic Disruptions**: Delays or policy reversals could jeopardize investments, derailing projects and impacting Europe's competitive edge in the EV sector.

"The 2035 target is crucial to align all stakeholders on this journey and ensure European competitiveness."
– Jim Rowan, CEO of Volvo Cars

"The 2035 zero-emission cars goal is Europe's most straightforward EV industrial strategy, bringing vital investment to European companies,"
– Platform for Electromobility

Content: DTO (2025), Transport & Environment. (n.d.), Platform for Electromobility. (2024), Motor Finance Online. (n.d.). Fortune Business Insights. (n.d.), Volkswagen Group. (n.d.).

Debating the ICE Ban

Criticism of the Ban

Lack of Skilled Workforce

The shift to EV production demands specialized skills in battery assembly, software development, and renewable energy systems. However, the automotive sector is facing a significant skills gap. For example, a European Automobile Manufacturers' Association (ACEA) report highlights that over 40% of EU automotive companies are struggling to find workers with the necessary expertise.

Technological Uncertainty

Critics argue that alternative technologies, such as biofuels and synthetic fuels, could complement EVs in reducing emissions without requiring a complete overhaul of infrastructure. These solutions offer a more incremental transition, particularly for sectors like long-haul transport that are less suited to current EV technology. Furthermore, large-scale EV battery recycling remains underdeveloped, raising questions about the sustainability of EV production and its long-term environmental impact.

Current Infrastructure and Time Constraint

Europe's EV charging infrastructure is under significant strain as BEV adoption outpaces growth. By the end of 2023, the EU had ~632,423 public charging points serving approximately three million BEVs. While BEV sales increased 18-fold between 2017 and 2023, charging infrastructure only grew sixfold. According to ACEA, 8.8 million charging points will be needed by 2030, requiring 1.2 million chargers to be installed annually—nearly ten times the current rate. In 2023, only 153,000 chargers were added, highlighting the urgency of scaling deployment.
Regional disparities exacerbate the challenge. The Netherlands (144,453), Germany (120,625), and France (119,255) lead in charging points, while countries like Croatia (1,074), Estonia (683), and Malta (101) lag far behind. These gaps discourage EV adoption in regions, where charging access remains limited.
If deployment does not accelerate by 2025, the EU risks missing its 2030 infrastructure targets, undermining the feasibility of a complete EV transition by 2035.

Content: DTO (2025), EV Magazine (2023), Financial Times (2023), ACEA (2024), Dieselnet (2024)

"No longer realistic." Oliver Zipse, CEO of BMW, 2023

"The road map of the Green Deal, as it was designed, has already demonstrated its contradictions with the collapse of the European electric vehicle market and the grave crisis of European carmakers,"– Adolfo Urso, Italy's Industry Minister (2023)

"A continuous trend of shrinking market share for battery electric cars in the EU sends an extremely worrying signal to industry and policymakers." - ACEA

Debating the ICE Ban

Will the 2035 Legislation Take Place?

The 2035 ICE ban is highly likely to proceed as planned. The EU has established a clear roadmap supported by significant investments in EV infrastructure, manufacturing, and workforce reskilling. Automakers such as Volkswagen and Mercedes-Benz have already committed billions to electrification strategies, while initiatives like the €750 billion NextGenerationEU fund are driving the transition forward. These actions demonstrate the long-term planning and financial backing that make the 2035 target achievable.

Penalties for non-compliance, such as the €95 per gram CO_2 fine for exceeding emission limits starting in 2025, further underline the EU's determination to enforce its climate goals. These fines reflect the regulatory rigor needed to ensure compliance and emphasize the importance of adhering to the roadmap. They serve as a warning to all stakeholders that deviations from the plan will have tangible financial consequences.

While concerns about infrastructure readiness and workforce challenges persist, these issues are being actively addressed through targeted policies and industry collaboration. The support of over 50 prominent companies, which have publicly backed the legislation, has added significant momentum to the initiative. These partnerships reflect a growing consensus within the industry that the transition to electrification is both necessary and inevitable.

Delaying or overturning the legislation at this stage would disrupt planning and jeopardize billions in investments. The groundwork laid by governments, automakers, and industry stakeholders underscores the EU's determination to meet this target. The transition is not without challenges, but the collective commitment to electrification makes the 2035 ban a cornerstone of Europe's climate and economic strategy.

Content: DTO (2025), Autovista24 (2024)

CONTENT

Industry Report Content Table

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Recommendations

Strategic Recommendations for SMEs in the EV Transition

To adapt to the 2035 ICE ban and the growing EV market, SMEs must focus on three core strategies:

Targeting High-Growth Sectors

SMEs should align with high-demand segments such as battery components, materials, and charging infrastructure. Specialization in these areas not only ensures relevance but also opens opportunities for partnerships with automakers seeking innovative suppliers.

Leveraging Partnerships and Financial Support

Collaborations with automakers, industry associations, and research institutions can provide SMEs access to critical resources and technologies. Additionally, SMEs should actively seek government subsidies and EU funds, such as those supporting green innovation to finance the shift towards EV-compatible production lines.

Upskilling and Workforce Development

Investing in a workforce reskilling to meet the demands of battery technology, software integration, and renewable systems is critical. Partnering with technical institutions and using public training programs can ensure that the workforce has the appropriate qualifications needed for this transitioning industry

Content: DTO (2025)

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