

# IAA Impact Assessment: European Battery Supply Chain Outlook

(Executive Summary)

Prepared for ACEA



September 2026



# List of Abbreviations

| Abbreviation | Full Form                                      |
|--------------|------------------------------------------------|
| ACEA         | European Automobile Manufacturers' Association |
| AAM          | Anode Active Material                          |
| BAU          | Business As Usual                              |
| BEV          | Battery Electric Vehicle                       |
| BMS          | Battery Management System                      |
| BYD          | Build Your Dreams                              |
| CAM          | Cathode Active Material                        |
| CapEx        | Capital Expenditure                            |
| CAGR         | Compound Annual Growth Rate                    |
| CATL         | Contemporary Amperex Technology Co. Limited    |
| EU           | European Union                                 |
| EU27         | European Union 27 Member States                |
| EV           | Electric Vehicle                               |
| FTA          | Free Trade Agreement                           |
| GPA          | Government Procurement Agreement               |

| Abbreviation | Full Form                            |
|--------------|--------------------------------------|
| GWh          | Gigawatt-hour                        |
| HVB          | High Voltage Battery                 |
| IMR          | Industry Market Registration Dataset |
| kWh          | Kilowatt-hour                        |
| LFP          | Lithium Iron Phosphate               |
| L(M)FP       | Lithium (Manganese) Iron Phosphate   |
| MHCV         | Medium and Heavy Commercial Vehicle  |
| NCA          | Nickel Cobalt Aluminium Oxide        |
| NMC          | Nickel Manganese Cobalt Oxide        |
| NZIA         | Net Zero Industry Act                |
| OpEx         | Operating Expenditure                |
| pCAM         | Precursor Cathode Active Material    |
| REEV         | Range Extended Electric Vehicle      |
| SBPT         | Sales Based Powertrain Forecast      |
| TAM          | Total Addressable Market             |

# Executive Summary



## IAA sets near-term localization gate

- Phase 1: EU assembly, 70% EU content (excl. battery),  $\geq 3$  EU battery parts incl. cells
- Phase 2: 5 EU battery parts (cells, CAM, BMS required); e-powertrain and electronics 50% EU



## Mandate scope drives the outcome

- Three registration-based scenarios frame the exposure with BEV reaching 2/3 of the mix by 2032
- Public-only compliance forfeits private-buyer incentives that make vehicles 15–35% cheaper on-road



## Gap for battery cells closes in Public Core

- EU27 net cell production after exports rises from 55 GWh (2025) to 170 GWh (2032)
- Only Public Core scenario is physically achievable from 2033 onwards



## CAM and AAM are the binding constraints

- CAM demand runs at roughly 2x domestic supply in 2030 even under Public Core
- Phase 2's cell + CAM + BMS trio fails on CAM, and AAM compounds the risk upstream

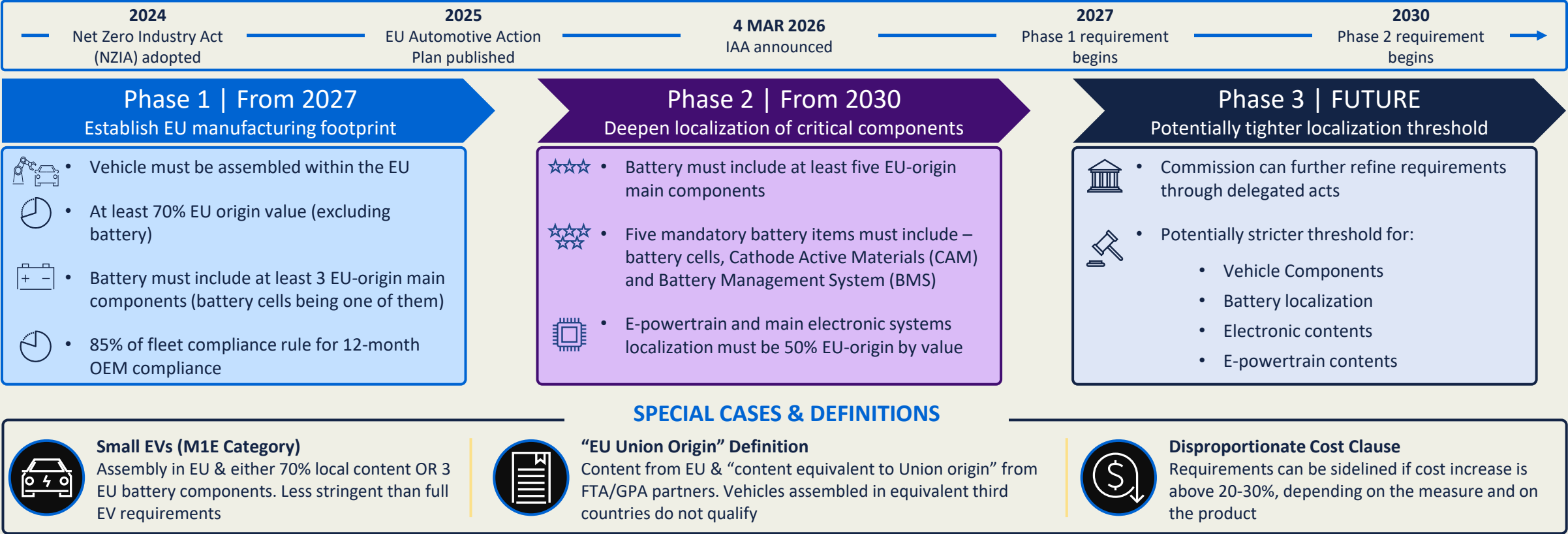


## Localization is constrained by technology, price and availability, not by production capacity

- **Technology:** only two plants can make LFP today; by 2032, three of five LFP-capable plants are Chinese-owned, even as LFP reaches ~35% share
- **Price:** EU-made cells cost 24–33% more than Chinese imports (+\$14.7–19.7/kWh), and EU-made cells from Chinese suppliers still undercut European suppliers by ~12–17%, driven by CATL's and BYD's >50% share of global CAM sourcing and mature-plant scrappage advantages
- **Availability:** the ~300 GWh under construction arrives only via staged ramp-ups, pilot phases and permitting delays through 2030

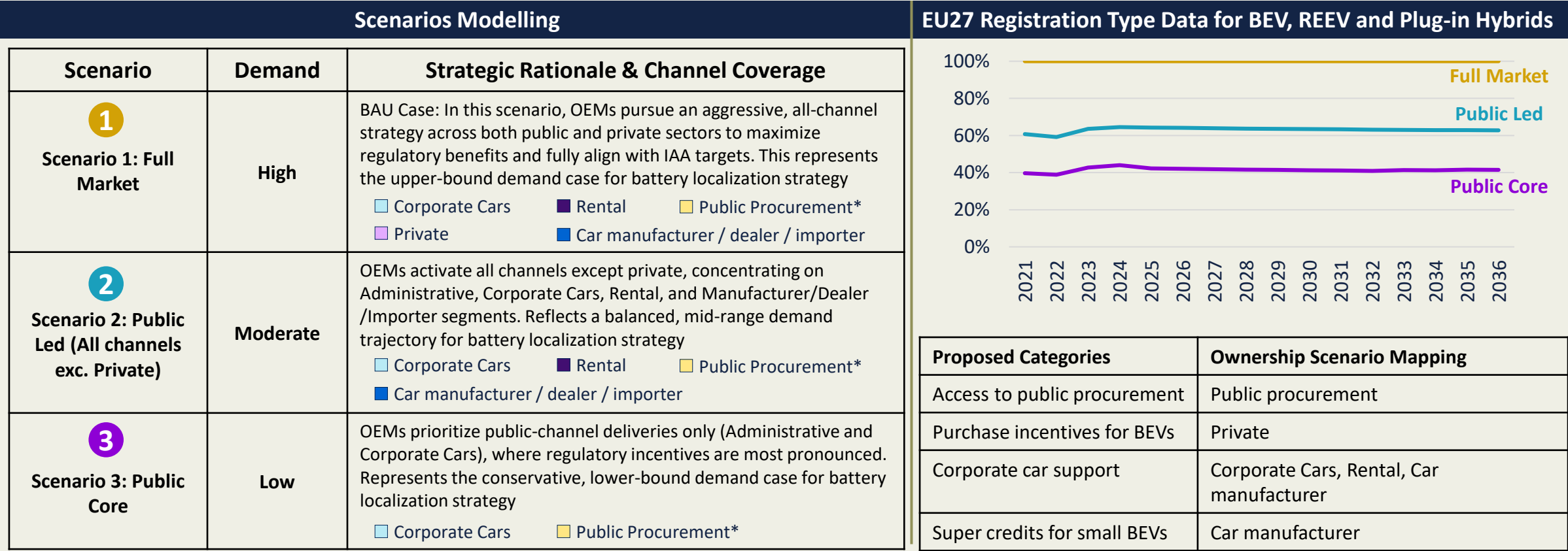
# Industrial Accelerator Act (IAA) | Progressive tightening of EU-origin requirements for vehicles

IAA introduces a phased “Made-in-EU” framework, progressively increasing local-content requirements across vehicle assembly, batteries and key e-powertrain components



# Demand scenarios for IAA

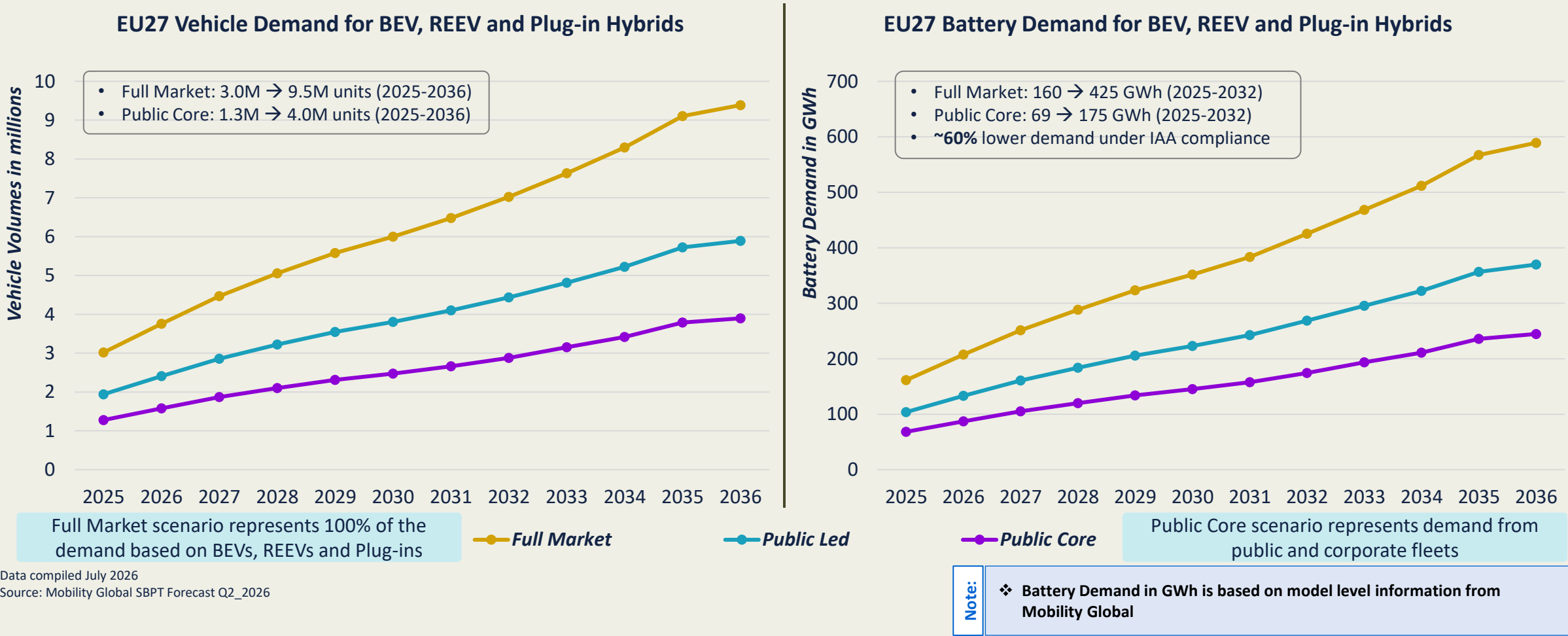
Mobility Global presents three scenarios based on registration type to get 3 levels of demand – Low, Moderate and High



\*Public Procurement is categorized as Administration/Government in Mobility Global registration dataset.  
Source: Mobility Global Registration Dataset

# Demand Outlook | Demand scenarios projection based on EU sales volumes

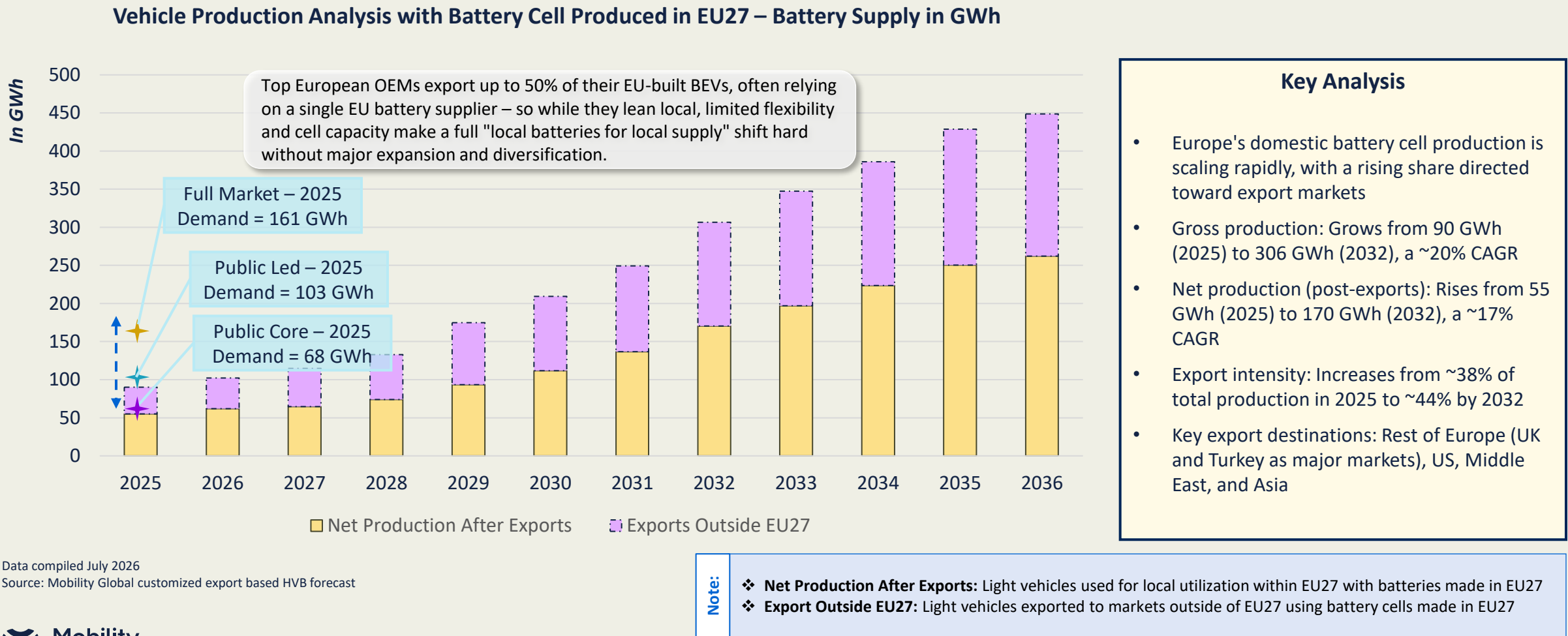
The Public Core outlook yields battery demand roughly 60% lower than the Full Market scenario by 2032. This underscores that the stringency of the IAA mandate is the decisive factor shaping the scale of Europe's entire battery value chain



Data compiled July 2026  
Source: Mobility Global SBPT Forecast Q2\_2026

# Supply scenario – Battery cell production in EU27

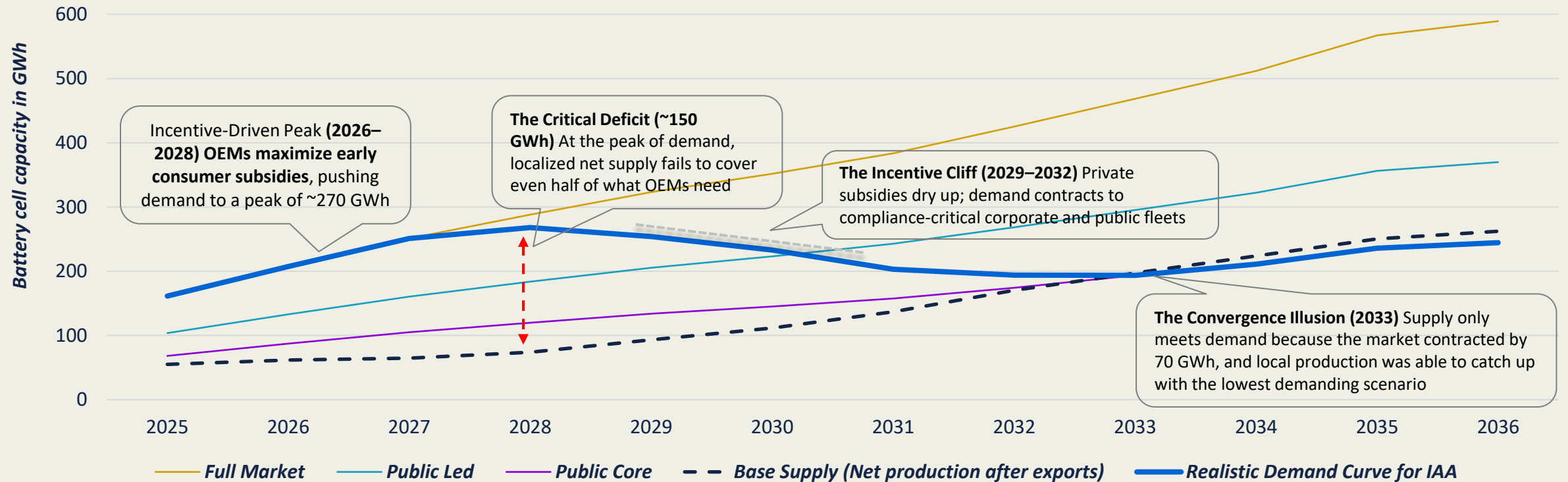
Europe's cell output triples by 2032, but a rising 44% export share leaves only 170 GWh for domestic use



# A Pragmatic Path to Compliance: Mapping Europe's Real-World Battery Supply Gap

Europe only achieves battery cell self-sufficiency by 2032 because the market contracts after incentives dry up, leaving a critical near-term supply deficit of up to 150 GWh

Realistic Gap Analysis: Battery Cell Demand vs. Localized Supply



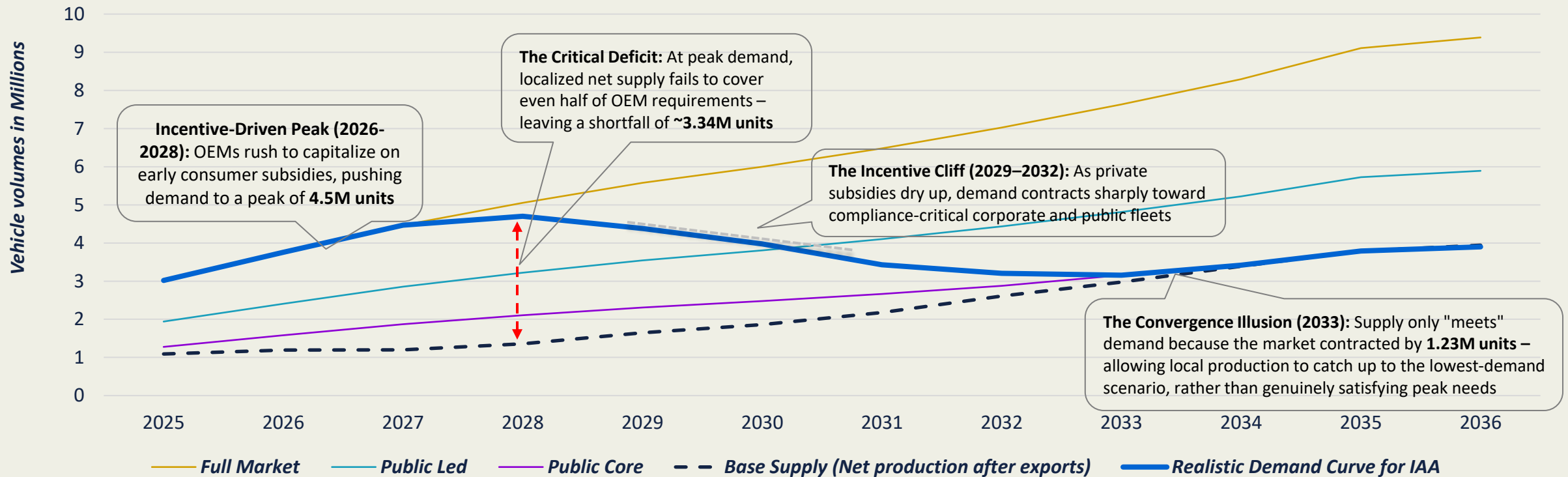
Data compiled July 2026

Source: Mobility Global customized export based HVB forecast

# A Pragmatic Path to Compliance: Mapping Europe's Real-World Battery Supply Gap

Europe achieves battery cell self-sufficiency by 2032 not by scaling supply, but because demand collapses once incentives dry up – leaving a critical near-term deficit of up to 3.34M units

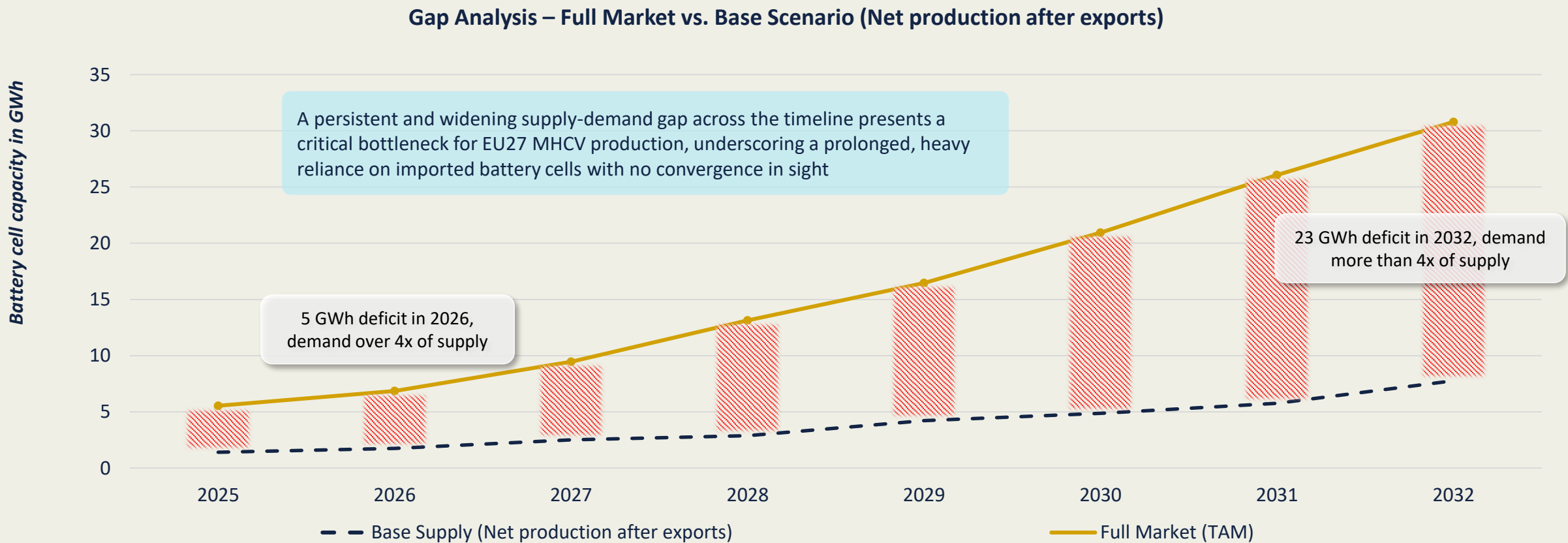
Realistic Gap Analysis: Battery Cell Demand vs. Localized Supply



Data compiled July 2026  
Source: Mobility Global customized export based HVB forecast

# No convergence in sight: MHCV battery deficit widens to 23 GWh

Under the Full Market scenario, EU27 Medium & Heavy Commercial Vehicle (MHCV) battery demand consistently and dramatically outpaces planned domestic capacity – with no convergence in sight across the forecast horizon



Data compiled August 2026  
Source: Mobility Global customized export based HVB forecast

|       |                                                                                                                              |
|-------|------------------------------------------------------------------------------------------------------------------------------|
| Note: | ❖ <b>Full Market (TAM):</b> Represents MHCV total battery capacity demand for battery electric trucks and buses in EU27      |
|       | ❖ <b>Base Supply (Net production after exports):</b> MHCV used for local utilization within EU27 with batteries made in EU27 |

# The Reality of Europe's Battery Localization: Overcoming the Structural Bottlenecks

## Three Strategic Pillars of the European Battery Challenge



### The Chemistry & Sourcing Mismatch

- **The Insight:** There is a fundamental misalignment between planned local capacity and actual market demand
  - **The Reality:** European gigafactory planning remains heavily skewed toward NMC chemistry, which accounts for **13 of the 18 planned facilities**. This creates a structural bottleneck as mass-market EV demand rapidly shifts toward LFP, which is projected to command **40% of the EU27 vehicle production** mix by 2036
  - **The Impact:** Because local LFP production capacity is lagging, European OEMs will remain heavily reliant on established global suppliers (primarily China) for affordable battery chemistries well into the next decade
- 



### The Cost Competitiveness Gap

- **The Insight:** Localized supply does not automatically translate to economically viable supply
  - **The Reality:** Domestic production faces a severe competitiveness gap, with European-manufactured cells carrying a persistent cost premium of up to **26% for NMC and 33% for LFP** compared to cheaper global imports
  - **The Impact:** To protect vehicle margins and keep EVs affordable for consumers, OEMs face a continuous economic pressure to balance localized sourcing targets against the lower cost of imported components
- 



### Project Execution & Timeline Realities

- **The Insight:** Announced capacity does not equal operational volume
- **The Reality:** Gigafactory projects face significant execution headwinds, including permitting delays, capital realignments, and scaling bottlenecks
- **The Impact:** Actual operational capacity is highly likely to lag behind initial public announcements, creating near-term volume risks for OEMs relying on localized supply timelines

# Executive Insights: Addressing Europe's Upstream Materials Gap (CAM & AAM)

## Bridging the structural deficit in CAM and AAM supply

### Why the Gap is Persistent



- **A Long-Term Structural Deficit:** The shortage of critical materials (CAM and AAM) is not a temporary delay; it is a deep, structural deficit that is unlikely to close before **2038–2040**, even under the lowest demand scenario
- **The Upstream Bottleneck:** Building battery cell factories is not enough. Europe lacks the raw chemical processing capacity – specifically precursor CAM (pCAM) and graphite refining (AAM). Without localizing these raw ingredients, Europe simply shifts its dependency one step upstream
- **The High Energy Cost Penalty:** Producing CAM and AAM requires massive amounts of energy. High European energy prices make local production structurally uncompetitive, forcing OEMs to choose between high-cost local compliance or cheaper imports

### What It Will Take to Close It



- **Massive Upstream Investment:** To start producing CAM and AAM locally and match the scale of the demand, heavy investments must be directed specifically toward building the foundational upstream components – such as precursor (pCAM) and graphite refining (AAM) facilities
- **Shift Policy to Operational Support:** Policymakers must move from just funding factory construction (CapEx) to subsidizing ongoing running costs (OpEx) – especially high energy bills – while fast-tracking environmental permits to speed up project timelines
- **Leverage Global Partnerships & Near-Shoring:** Current EU policy remains highly ambiguous, with unclear "rules of origin" definitions that fail to specify whether near-shore FTA partners like Morocco will be treated as equivalent to EU-local production. Clarifying these rules to formally include strategic FTA partners is essential; it would allow Europe to bypass high domestic energy costs and leverage international joint ventures to close the materials gap

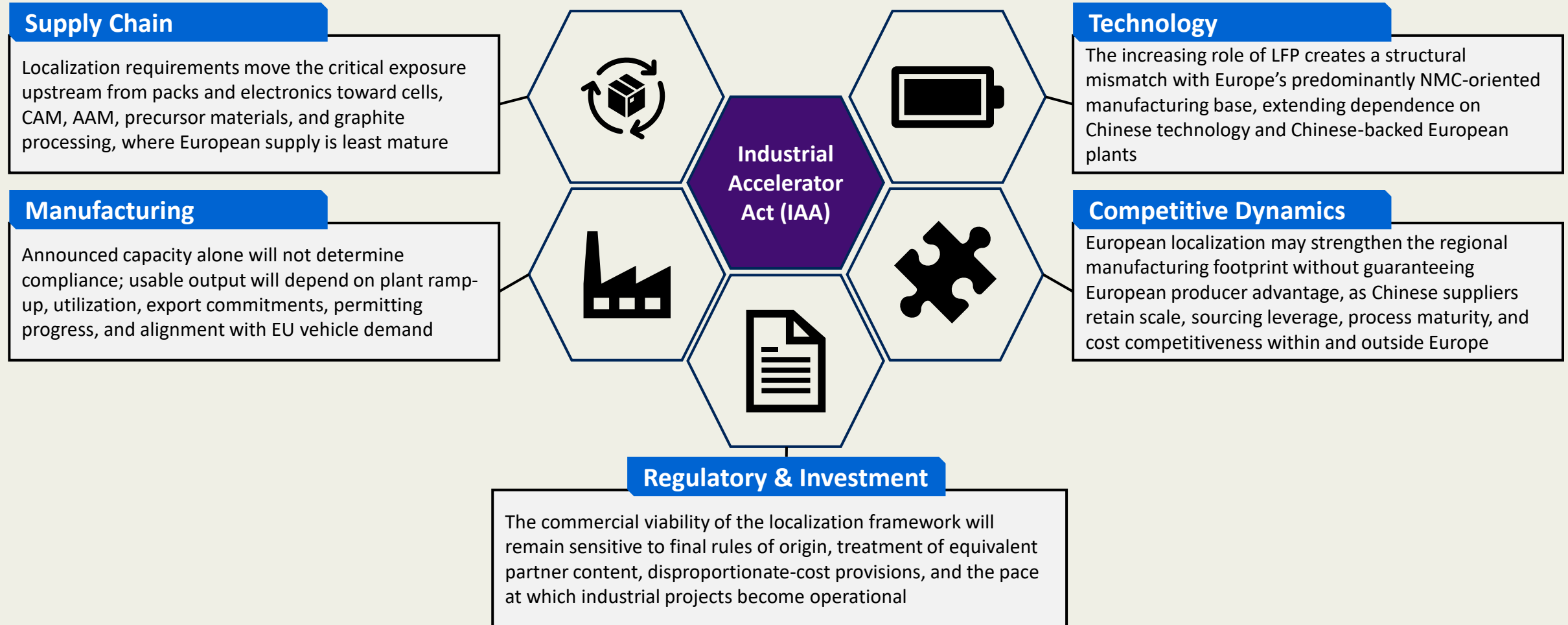
# Industry Preparedness Assessment

Europe is comparatively prepared downstream, partially prepared at the cell level, and materially underprepared in upstream battery materials

|                                                          | Segment                                    | Preparedness | Rationale                                                                                                                                                                                                         |
|----------------------------------------------------------|--------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>High</div> <div>↑</div> <div>↓</div> <div>Low</div> | Supplier: Battery Packs/Modules            | High         | Europe already maintains strong localization in battery pack and module production, with domestic sourcing remaining the dominant supply route throughout the forecast horizon                                    |
|                                                          | Supplier: Battery Management Systems (BMS) | High         | BMS is the most self-sufficient battery component in the ecosystem, with domestic production broadly aligned to demand and moving toward surplus under the Public Core scenario                                   |
|                                                          | Light Vehicle OEMs                         | Mid          | EU assembly, localized pack production, and established regional sourcing provide a foundation, but OEMs remain exposed to near-term cell shortages, upstream deficits, and the cost of compliant supply          |
|                                                          | Supplier: Battery Cell                     | Mid-Low      | Cell capacity is expanding, but chemistry mismatch, cost disadvantages, staged ramp-ups, and severe CAM and AAM shortfalls limit readiness for broad Phase 2 compliance                                           |
|                                                          | Medium and Heavy Commercial Vehicle OEMs   | Low          | The analysis identifies a persistent battery-cell deficit for EU MHCV production with no convergence visible through 2032, indicating continued reliance on imported batteries to support electrification targets |
|                                                          | Raw Material Ecosystem                     | Low          | Europe lacks sufficient precursor, cathode-material, and graphite-processing depth, leaving the value chain structurally dependent on imported and non-European upstream inputs                                   |

# Strategic Implications for European Battery Value Chain

IAA shifts the challenge from battery assembly toward upstream materials, chemistry alignment, and economically viable localization





Thank You



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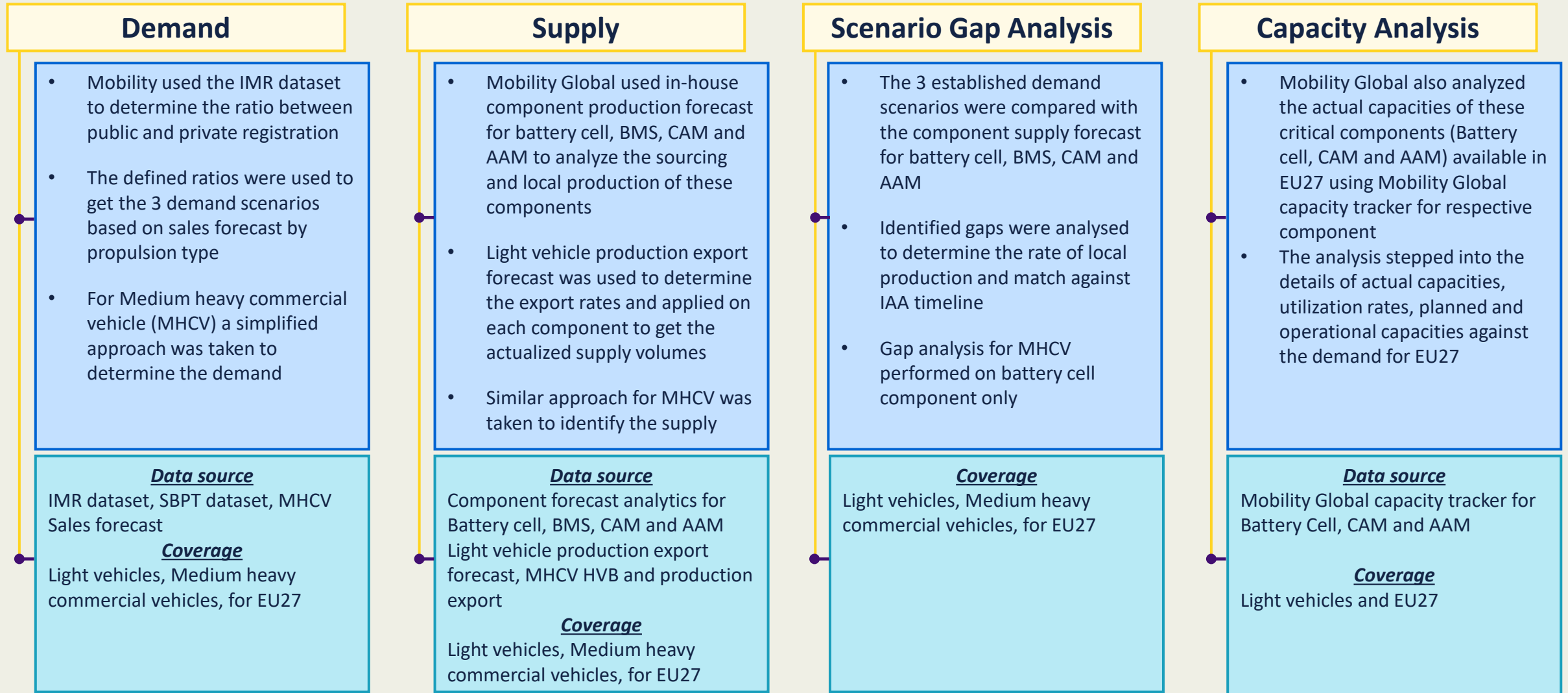
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# Appendix

# Methodology & Data Sources



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