

EUROPEAN
BATTERY
ALLIANCE

EBA250

Wer sind wir?

Was ist unsere Aufgabe?

- Aufgabe: 2017 von der Europäischen Kommission ins Leben gerufen, um die Batterie-Wertschöpfungskette nach Europa zu verlagern und eine widerstandsfähige, wettbewerbsfähige und nachhaltige Batterieindustrie in Europa zu schaffen
- EIT InnoEnergy wurde von der Europäischen Kommission damit beauftragt, die Aktivitäten der EBA250-Aktivitäten voranzutreiben
- Wir arbeiten mit der Industrie und Entscheidungsträgern auf EU- und Mitgliedstaatenebene zusammen, um das Wachstum eines europäischen Batterieökosystems voranzutreiben und handeln wirkungs- und umsetzungsorientiert
- Heute besteht unser Ökosystem aus über 800 wichtigen Stakeholdern, die die gesamte Batterie-Wertschöpfungskette abdecken
- Unsere Stakeholder sind die Europäische Kommission, interessierte EU-Länder, die Industrie, Investitionsinstitutionen sowie wichtige Innovations- und Wissenschaftsakteure

The European Battery Alliance



EU and Member States
providing the
supportive framework

- EU = Strategic Action Plan on Batteries
- EU = Sustainable Batteries Regulation
- Other legislative & funding initiatives at EU and national level



The industrial
workstream of the
Battery Alliance led by
EIT Innoenergy

- Open and inclusive platform for the entire battery ecosystem
- Policy insight
- Accelerating battery projects



Selection of EU and National
R&I Networks and initiatives



- Batteries R&I strategies and short to medium term technology roadmaps
- Coordination of battery initiatives
- Drive forward SET-Plan action on batteries



- A network of research institutions and industry
- Long-term technology roadmap
- Coordination of European R&I projects implementing the roadmap

Horizon Europe R&I programmes



Capture a new market worth 250B€/year
in 2025

A competitive and sustainable European battery value chain!

EBA – an industrial policy success story supported by European Decision Makers

From 2017- a first of its kind



„Das Fehlen heimischer, europäischer Zellfertigungsstandorte gefährdet die Position von EU-Industriekunden...

„Wir müssen also schnell – und gemeinsam – handeln, um diesen Wettbewerbsnachteil zu überwinden und unsere Führungsposition in vielen Bereichen der Batterie-Wertschöpfungskette zu nutzen, von Materialien über Systemintegration bis hin zum Recycling.“

Opening remarks by VP Maros Sefcovic at the launch of the Battery Alliance

To 2022- a blueprint for industrial alliances



„Europa wird immer mehr Batterien brauchen, um unser Ziel der Klimaneutralität zu erreichen. Der europäische Markt für Batterien wird bereits im Jahr 2025 einen Wert von 250 Milliarden Euro haben. Doch Europa verlässt sich immer noch massiv auf Batterien, die ganz oder teilweise im Ausland hergestellt werden, oft mit Umweltstandards, die unseren Ansprüchen nicht entsprechen.

Hier kommt die Europäische Batterieallianz ins Spiel. [...] So sollte Europa immer funktionieren. Wir sollten nicht nur für unsere Branche arbeiten, sondern mit unserer Branche.“

President of the European Commission Ursula von der Leyen speech at EU Industry Days 2021

Kurzer und ehrgeiziger Zeitplan: Erste Handlungsplan in weniger als einem Jahr nach der Gründung der Batterieallianz

Stakeholder-Engagement: Maßnahmen, die mit Stakeholdern aus der gesamten Wertschöpfungskette definiert werden

Dialog mit Entscheidungsträgern: Von Interessengruppen entwickelte Maßnahmen als Beitrag zur EU-Batteriestrategie

11. Oct. 2017: EU launches European Battery Alliance



**December 2017- February 2018:
Work with stakeholder network to develop first EBA Action Plan as input to EU Battery Strategy**

18 recommendations to harvest the 250bn €

49 actionable actions

20 legitimized actions

**March 2018:
EU Battery Strategy**

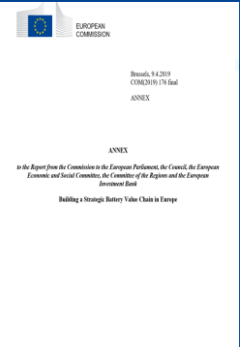
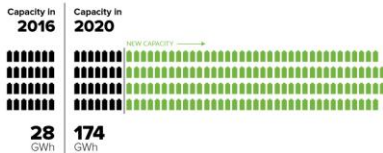


Chart of the Week

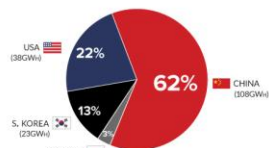
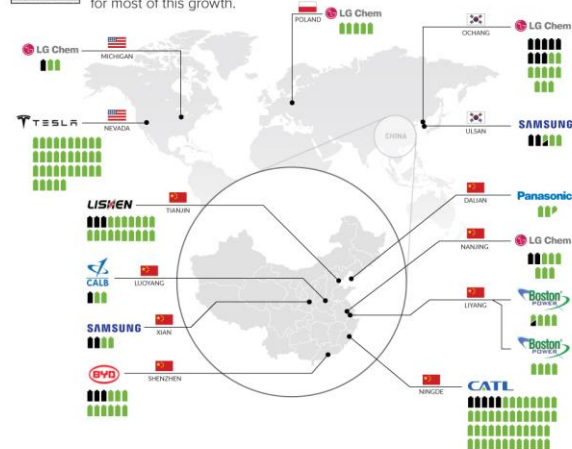
CHINA IS LEADING THE CHARGE

Lithium-ion megafactories in China to grow capacity 6X by 2020

Global lithium-ion battery production capacity will increase by **521%** between 2016 and 2020.



China's battery sector continues to be a hub for most of this growth.



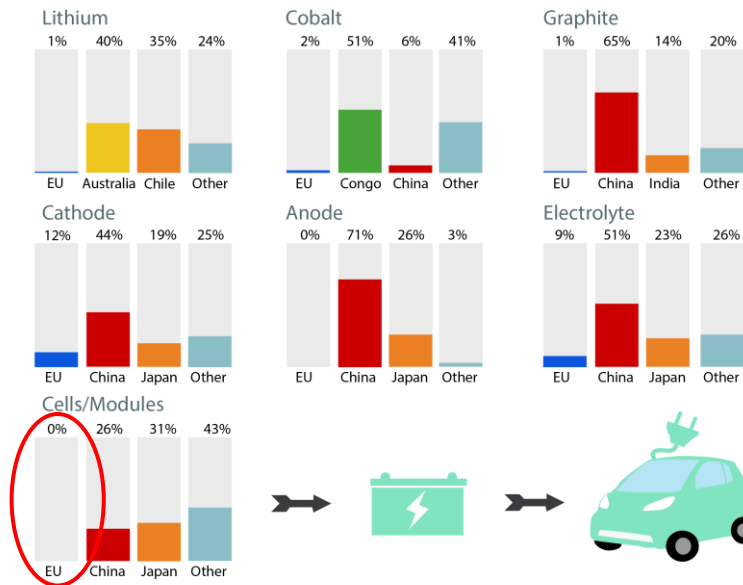
By 2020, mass production of lithium-ion batteries will still be concentrated in just **four** countries.

Source: Benchmark Minerals

Raw materials

Processed materials

Cells/Modules

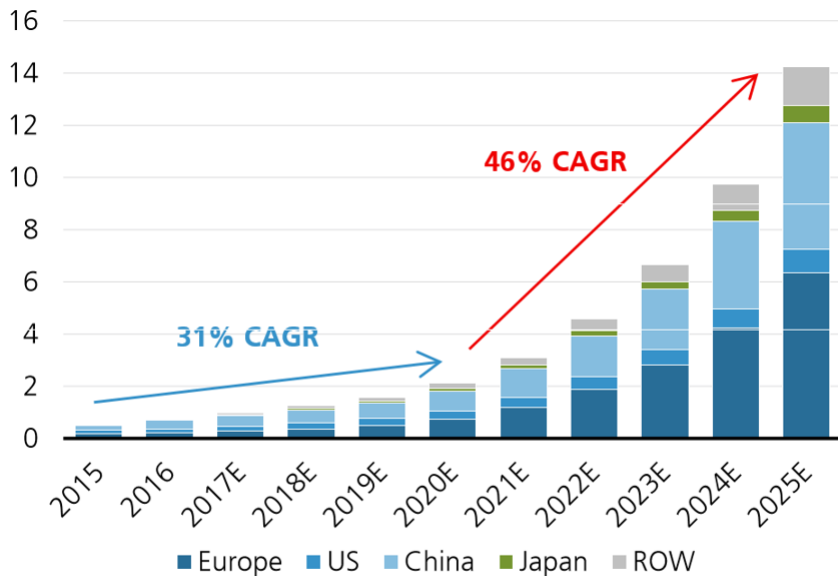


Sources: Roskill, Peteves et al., World Resource Forum 2017, European Commission

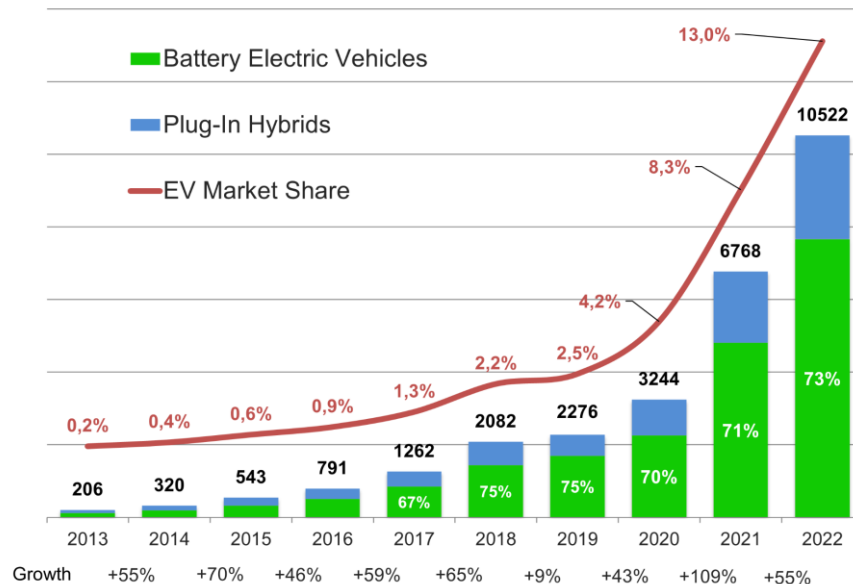
Der tatsächliche Markt für Elektrofahrzeuge im Jahr 2022 war doppelt so hoch wie die Prognose von 2017

Projection 2017

Actual 2023



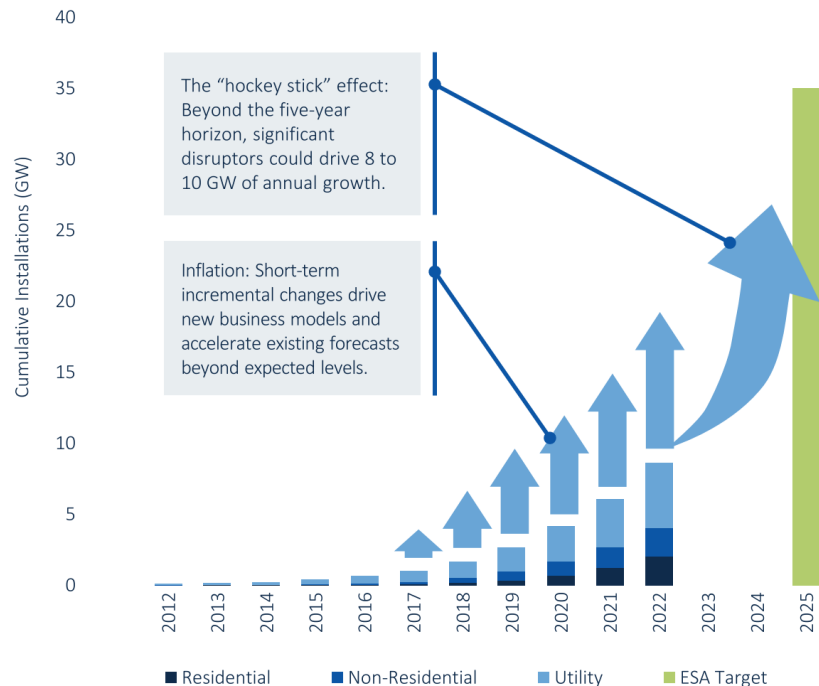
GLOBAL BEV & PHEV SALES ('000s) EV VOLUMES



Source: UBS estimates

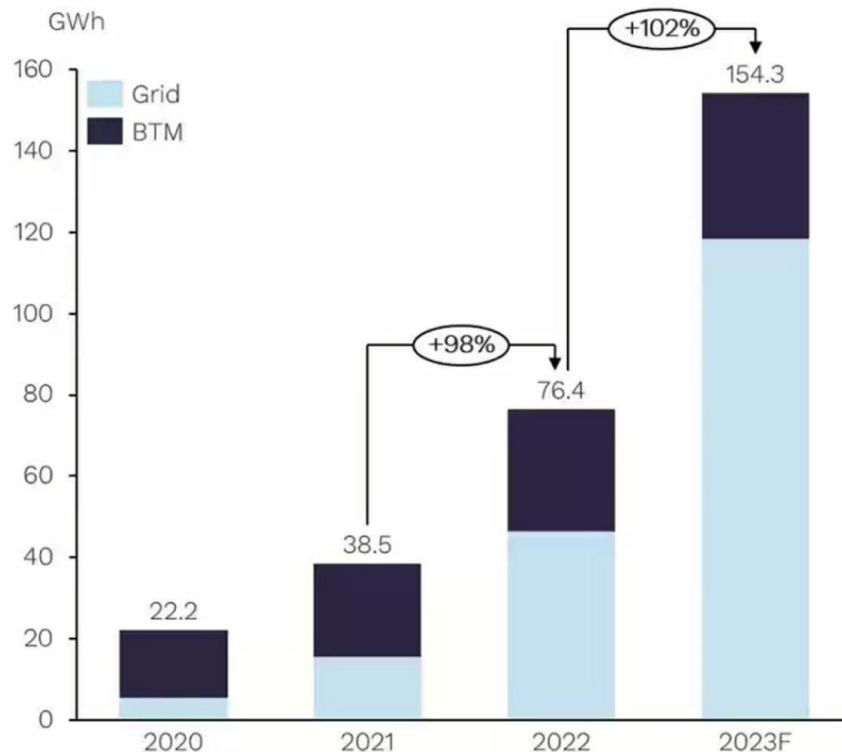
Der Markt für stationäre Speicher im Jahr 2022 betrug das Vierfache der Prognose von 2017

GTM Research Total Cumulative 5-Year Forecast



Source: GTM Research

BESS installed capacity outlook by storage type, new additions



Schwere Nutzfahrzeuge – batterieelektrische Antriebe auch hier auf dem Vormarsch

By 2025, Scania expects that electrified vehicles will account for around 10 percent of our total vehicle sales volumes in Europe and by 2030, 50 percent of our total vehicle sales volumes are expected to be electrified.

We intend to be the catalyst for this transition and aim for 50% of our global sales of new trucks to be electric in 2030," says Roger Alm, President of Volvo Trucks.

Daimler Buses wants to offer CO2-neutral vehicles in all segments in Europe and Latin America by 2030 and only sell all-electric vehicles for city buses in Europe.

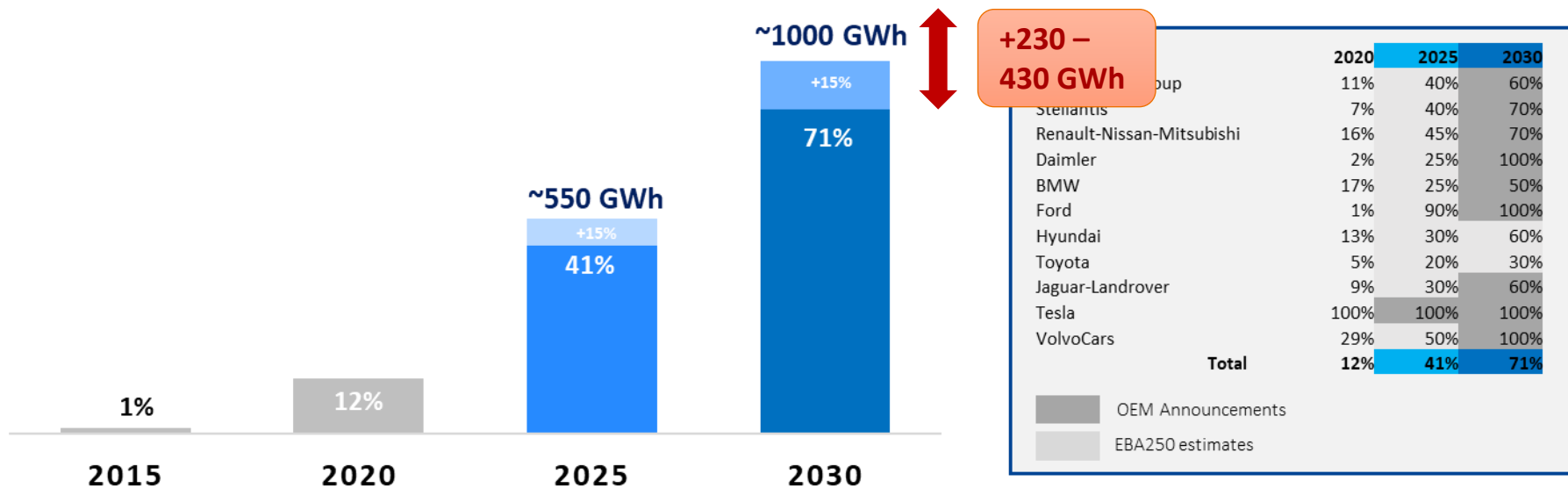
Up to 60% of total Daimler Trucks sold in Europe by 2030 will be zero emission, Rådström said



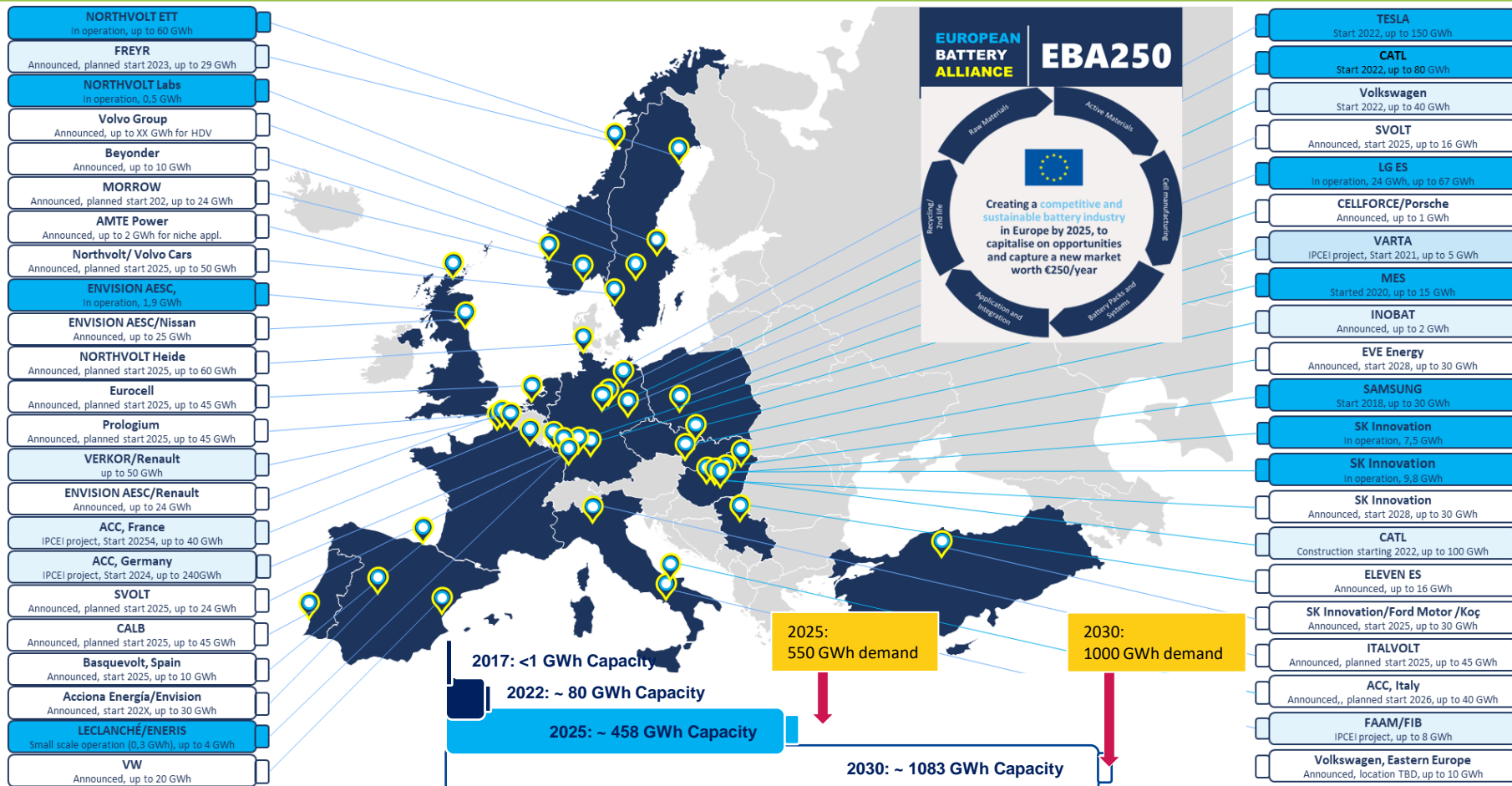
Bis 2030 könnten Lkw und Busse einen 130-GWh-Batteriemarkt in der EU ausmachen

Erhöhte Elektrifizierungsziele erhöhen die Nachfrageprognosen

Volume-averaged Europe forecast EV+PHEV sales forecast, including 15% for other sectors (HDV, busses, yellow machines etc...)



Von keiner bis auf mehr als 1000 GWh angekündigte Produktionskapazität innerhalb 5 Jahren



Wettbewerbsfähigkeit der EU verschlechtert sich seit der Einführung des US Inflation Reduction Acts

Average battery pack price and range by region, real 2022 \$/kWh

\$/kWh

200
180
160
140
120
100
0

127



US average pack price is +24% compared to China

157



EU average pack price is +33% compared to China and +8% compared to US

169



Estimated effects on price by US funding and subsidies (e.g. IRA; DoE) and energy costs on average pack prices

127



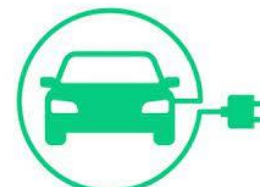
~Price parity for US compared to China thanks to IRA, DoE grants and tariff policy

~127



IRA, DoE

~178



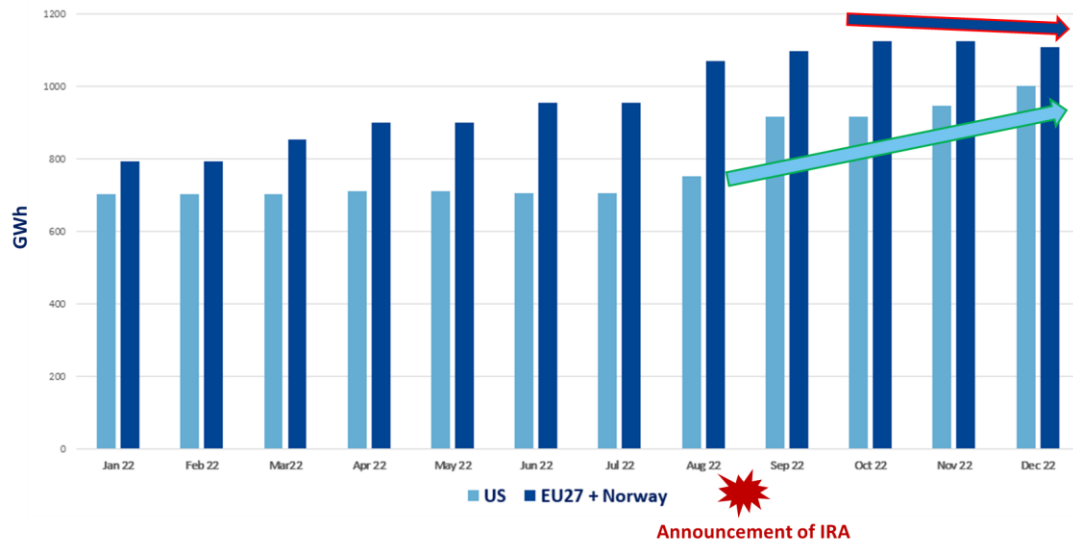
~4.000€ / eV

EU average pack prices +40% compared to China and US due to EU electricity prices far above developments in US and China and other factors

Electricity cost

US policies dramatically expanded and accelerated investment in manufacturing facilities

Announced cell production capacity during 2022, in pipeline for 2032



IRA beschleunigt das Wachstum einer US-amerikanischen Batterie-Wertschöpfungskette

- Hersteller haben in den letzten acht Jahren Investitionen in Höhe von mehr als 120 Milliarden US-Dollar angekündigt
- 42 % dieser 120 Milliarden US-Dollar wurden allein in den letzten sechs Monaten angekündigt – seit der Kongress die IRA verabschiedet hat

Diese Investition wird eine große Zahl neuer Arbeitsplätze im Zusammenhang mit Elektrofahrzeugen in den USA fördern

- Die Hersteller haben in den letzten acht Jahren 143.000 neue Arbeitsplätze im Elektrofahrzeugsektor angekündigt
- 32 % dieser Stellen wurden erst in den letzten sechs Monaten ausgeschrieben – seit der Kongress die IRA verabschiedet hat

The Temporary Crisis and Transition Framework (TCTF)

- Für die Produktion von Batterien, deren Schlüsselkomponenten oder die Rückgewinnung von Rohstoffen dürfen die Mitgliedstaaten staatliche Beihilfen in Höhe von maximal 150 bis 350 Millionen Euro (je nach Standort) gewähren.
- Den Mitgliedstaaten ist es gestattet, angebotene staatliche Beihilfen an außereuropäische Standorte anzugleichen.

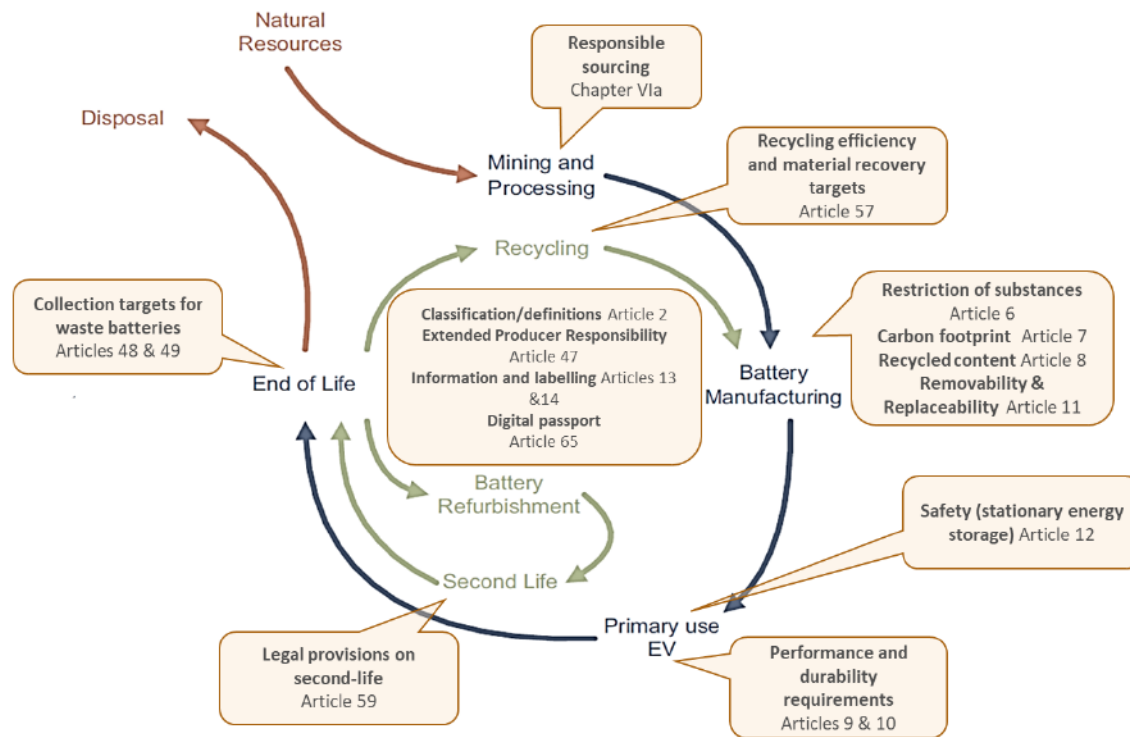
The Critical Raw Materials Act (CRMA)

- Gesetzesvorschlag zur Förderung heimischer Kapazitäten und diversifizierter Lieferketten für strategische Rohstoffe auf Basis des EU-Verbrauchs bis 2030:
- 10 % Extraktion,
- 40 % Verarbeitung,
- 15 % Recycling
- und nicht mehr als 65 % der Beschaffung soll aus einem einzigen Drittland bestehen.

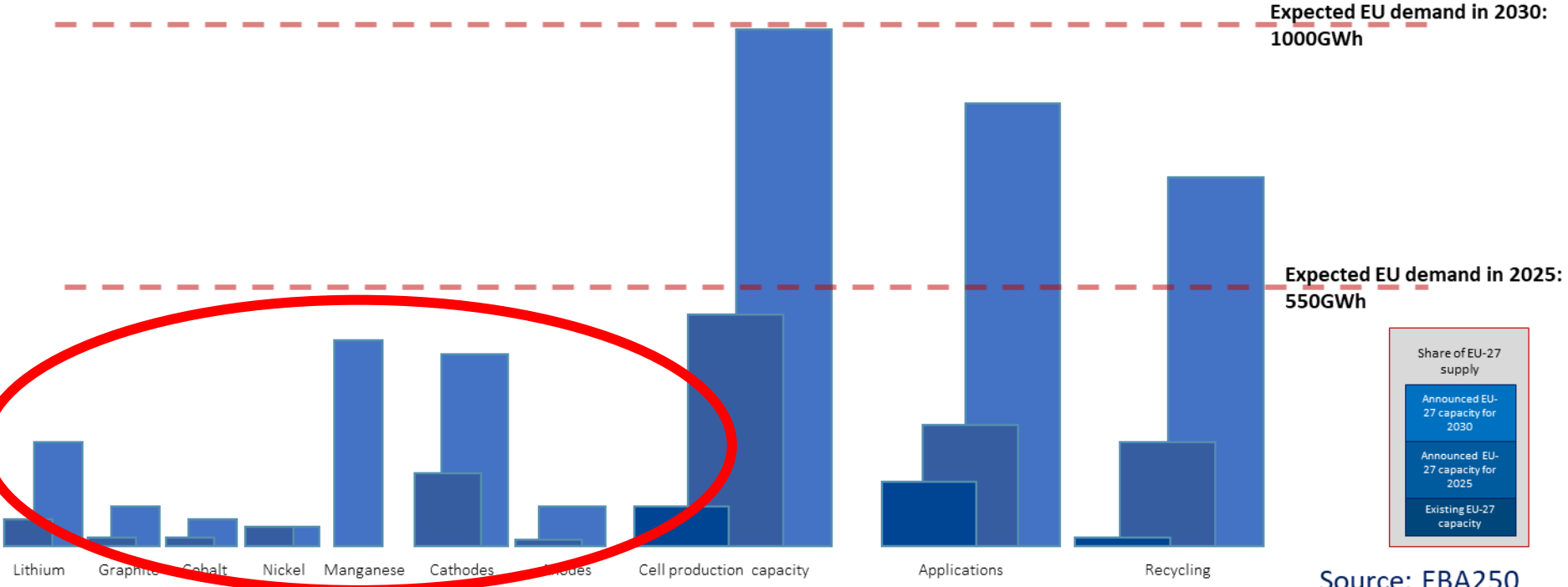
The Net Zero Industry Act (NZIA)

- Vereinfachung des Regulierungsrahmens und beschleunigte Genehmigung von Netto-Null-Technologien.
- Mindestens 550 GWh/a Batterieproduktion und Abdeckung von mindestens 40 % des Elektrodenbedarfs.

- Stärkung des Binnenmarktes durch Gewährleistung gleicher Wettbewerbsbedingungen durch ein gemeinsames Regelwerk
- Förderung einer Kreislaufwirtschaft und Schaffung widerstandsfähigerer Lieferketten durch Recycling
- Reduzierung der ökologischen und sozialen Auswirkungen in allen Phasen des Batterielebenszyklus

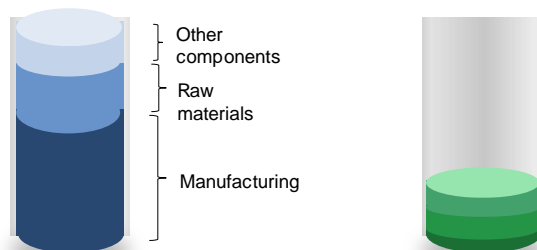


Mehr Arbeit ist notwendig um die noch existierenden Lücken in der Wertschöpfungskette zu schließen



Share of EU-27 supply

- Announced EU-27 capacity for 2030
- Announced EU-27 capacity for 2025
- Existing EU-27 capacity



Rohstoffe

- Nachhaltige, ethische und transparente Lieferketten
- Nachhaltige Rohstoffförderung



Industrielle Fertigung

- Nachhaltige Produktionsanlagen und zirkuläres Design



Andere Emissionen

- Recyceln und Re-use
- Kürzere Transport- und Versandzeiten

Die europäische Batterieindustrie ist in den letzten fünf Jahren gewachsen und der Bedarf an Batterien wird weiterwachsen – auch in neuen Bereichen

Um jedoch eine belastbare und nachhaltige europäische Wertschöpfungskette für Batterien aufzubauen, müssen die folgenden Bereiche stärker in den Mittelpunkt gerückt und verstärkt werden:

- **Kompetenzen und Ausbildung entlang der gesamten Wertschöpfungskette**
- **Rohstoffe (Bergbau, Veredlung, Aktive Materialien, Komponente und Recycling)**
- **Innovative Batterietechnologien (Skalierung und Verbesserung aktueller und zukünftiger Technologien)**
- **Produktionstechnologie und Maschinen für nachhaltige Fertigung und zirkuläres Design**

Mit dem Ziel, den Aufbau einer wettbewerbsfähigen und nachhaltigen europäischen Batterie-Wertschöpfungskette zu fördern!

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EBA key accomplishments and success stories – concrete results from EBA Action Plan-

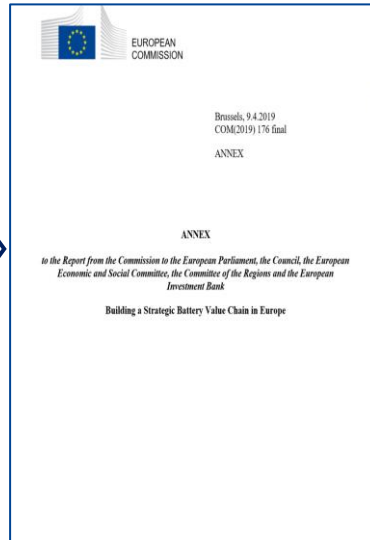
The EBA250 Action plan

The EU Commission's Strategic Action Plan

Concrete Deliverables based on Actions developed by the EBA250 stakeholder ecosystem

Create a pan-European and cross sectoral batteries ecosystem to make Europe a fast follower in battery technology and capture a new market worth 250B€/year in 2025

Objective	Recommendation	Indicator	Target 2025	2023	2024	2025
1. Increase the number of battery manufacturing plants in Europe	1.1. Support the development of battery manufacturing plants in Europe	Number of battery manufacturing plants in Europe	100	0	0	0
2. Increase the number of battery R&D projects in Europe	2.1. Support the development of battery R&D projects in Europe	Number of battery R&D projects in Europe	100	0	0	0
3. Increase the number of battery startups in Europe	3.1. Support the development of battery startups in Europe	Number of battery startups in Europe	100	0	0	0
4. Increase the number of battery investments in Europe	4.1. Support the development of battery investments in Europe	Number of battery investments in Europe	100	0	0	0
5. Increase the number of battery patents in Europe	5.1. Support the development of battery patents in Europe	Number of battery patents in Europe	100	0	0	0
6. Increase the number of battery collaborations in Europe	6.1. Support the development of battery collaborations in Europe	Number of battery collaborations in Europe	100	0	0	0
7. Increase the number of battery standards in Europe	7.1. Support the development of battery standards in Europe	Number of battery standards in Europe	100	0	0	0
8. Increase the number of battery certifications in Europe	8.1. Support the development of battery certifications in Europe	Number of battery certifications in Europe	100	0	0	0
9. Increase the number of battery safety incidents in Europe	9.1. Support the development of battery safety incidents in Europe	Number of battery safety incidents in Europe	100	0	0	0
10. Increase the number of battery recalls in Europe	10.1. Support the development of battery recalls in Europe	Number of battery recalls in Europe	100	0	0	0
11. Increase the number of battery fires in Europe	11.1. Support the development of battery fires in Europe	Number of battery fires in Europe	100	0	0	0
12. Increase the number of battery explosions in Europe	12.1. Support the development of battery explosions in Europe	Number of battery explosions in Europe	100	0	0	0
13. Increase the number of battery thefts in Europe	13.1. Support the development of battery thefts in Europe	Number of battery thefts in Europe	100	0	0	0
14. Increase the number of battery tampering incidents in Europe	14.1. Support the development of battery tampering incidents in Europe	Number of battery tampering incidents in Europe	100	0	0	0
15. Increase the number of battery security breaches in Europe	15.1. Support the development of battery security breaches in Europe	Number of battery security breaches in Europe	100	0	0	0
16. Increase the number of battery data breaches in Europe	16.1. Support the development of battery data breaches in Europe	Number of battery data breaches in Europe	100	0	0	0
17. Increase the number of battery identity thefts in Europe	17.1. Support the development of battery identity thefts in Europe	Number of battery identity thefts in Europe	100	0	0	0
18. Increase the number of battery account takeovers in Europe	18.1. Support the development of battery account takeovers in Europe	Number of battery account takeovers in Europe	100	0	0	0
19. Increase the number of battery phishing attacks in Europe	19.1. Support the development of battery phishing attacks in Europe	Number of battery phishing attacks in Europe	100	0	0	0
20. Increase the number of battery malware infections in Europe	20.1. Support the development of battery malware infections in Europe	Number of battery malware infections in Europe	100	0	0	0
21. Increase the number of battery ransomware attacks in Europe	21.1. Support the development of battery ransomware attacks in Europe	Number of battery ransomware attacks in Europe	100	0	0	0
22. Increase the number of battery data leaks in Europe	22.1. Support the development of battery data leaks in Europe	Number of battery data leaks in Europe	100	0	0	0
23. Increase the number of battery insider threats in Europe	23.1. Support the development of battery insider threats in Europe	Number of battery insider threats in Europe	100	0	0	0
24. Increase the number of battery supply chain attacks in Europe	24.1. Support the development of battery supply chain attacks in Europe	Number of battery supply chain attacks in Europe	100	0	0	0
25. Increase the number of battery zero-day exploits in Europe	25.1. Support the development of battery zero-day exploits in Europe	Number of battery zero-day exploits in Europe	100	0	0	0
26. Increase the number of battery vulnerabilities in Europe	26.1. Support the development of battery vulnerabilities in Europe	Number of battery vulnerabilities in Europe	100	0	0	0
27. Increase the number of battery security audits in Europe	27.1. Support the development of battery security audits in Europe	Number of battery security audits in Europe	100	0	0	0
28. Increase the number of battery penetration tests in Europe	28.1. Support the development of battery penetration tests in Europe	Number of battery penetration tests in Europe	100	0	0	0
29. Increase the number of battery security certifications in Europe	29.1. Support the development of battery security certifications in Europe	Number of battery security certifications in Europe	100	0	0	0
30. Increase the number of battery security incidents in Europe	30.1. Support the development of battery security incidents in Europe	Number of battery security incidents in Europe	100	0	0	0



Launch of **the Critical Raw Materials Act** (based on Action 2: Facilitate the expansion/creation of European sources of raw materials)
Partnerships with Canada, Norway etc...based on Action 1a. Apply diplomacy, strategic investments and stretch trade agreements (e.g. Canada, Republic of Congo) to secure access to raw materials

Launch of two **Battery IPCEI's**, based on Action 7. Front loading financially, e.g. IPCEI (important projects of common European interest) and/or other financial instruments such as tax incentives, the needed investments is a must for not missing the demand uptake.

Launch of **ETIP "BatteRies Europe" and BEPA** based on EBA Action – based on Action 14a. Create stronger focus and more prescriptive R&I calls, co-defined with Industry and sustained over longer periods and 14b. Establish a technology advisory board within the EU Battery Alliance, with the mandate to update the roadmaps and the R&I orientations, and manage the project portfolio (R&I project portfolio management)

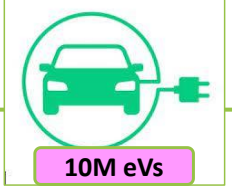
Launch of **LIPlanet**, a Li-Ion Pilot Plant Network based on Action 15b. Establish a European open access pilot line network to gain manufacturing experience and **EBA Academy** based on 15d. Build new degree courses in consultation between universities and industries.

Proposal for a **New Regulatory Framework for Batteries** based on Action 4a: 4b. Define and implement certification/labelling of batteries made in Europe and other actions

Capture a new market worth 250B€/year
A competitive and sustainable
European battery value chain

Still big gaps to address on domestic supply vs EU 2030 demand

Amplified by unbalanced global playing field

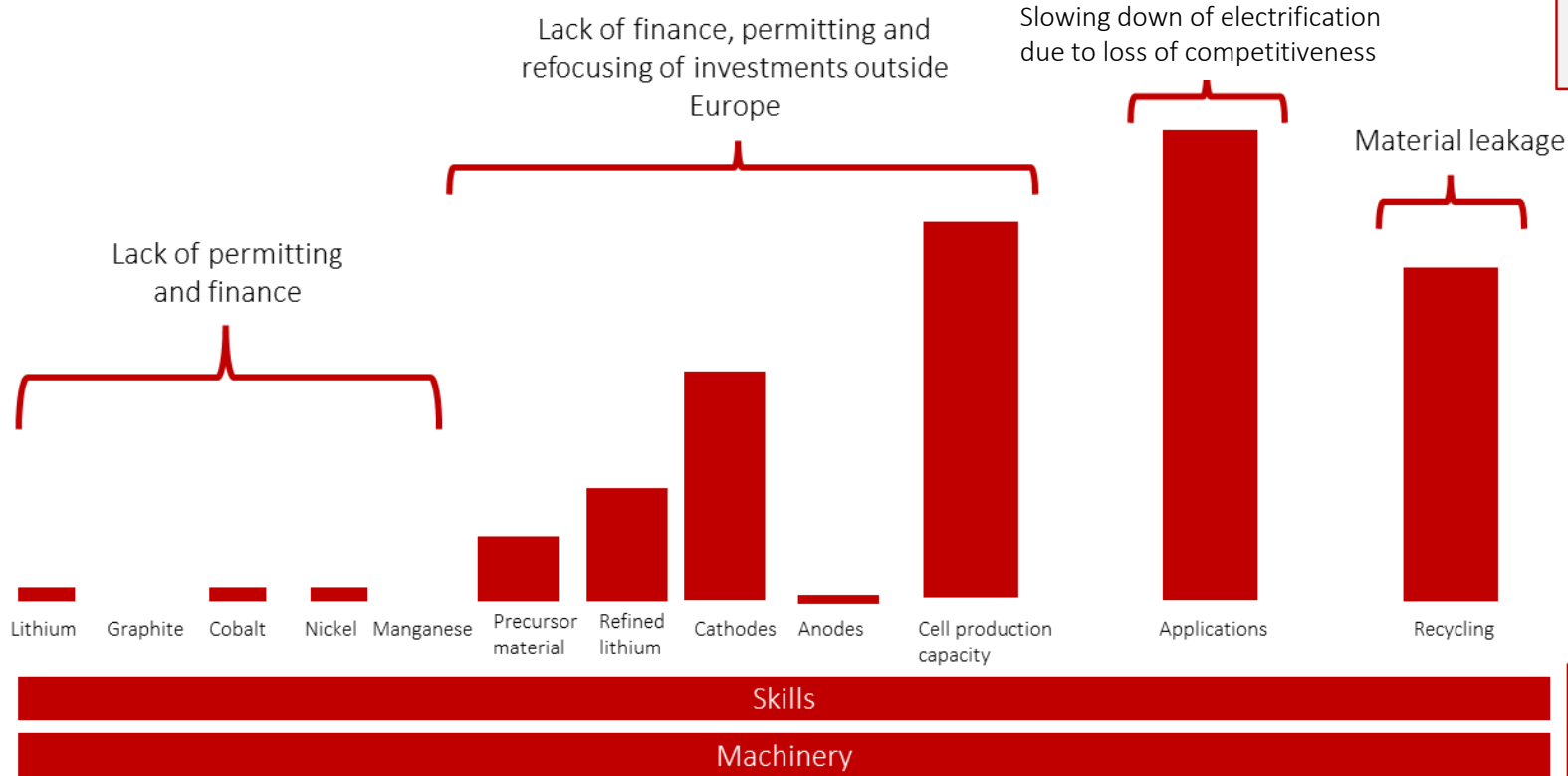


Expected EU demand in 2030: 1000GWh

Cross-sectorial demand gaps

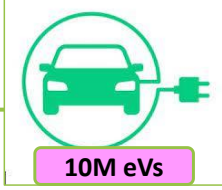


Estimated realistic share of EU + Norway production capacity compared to estimated demands based on public announcements with current framework in 2030



7 emergency proposals for bridging the 2030 gap, and more

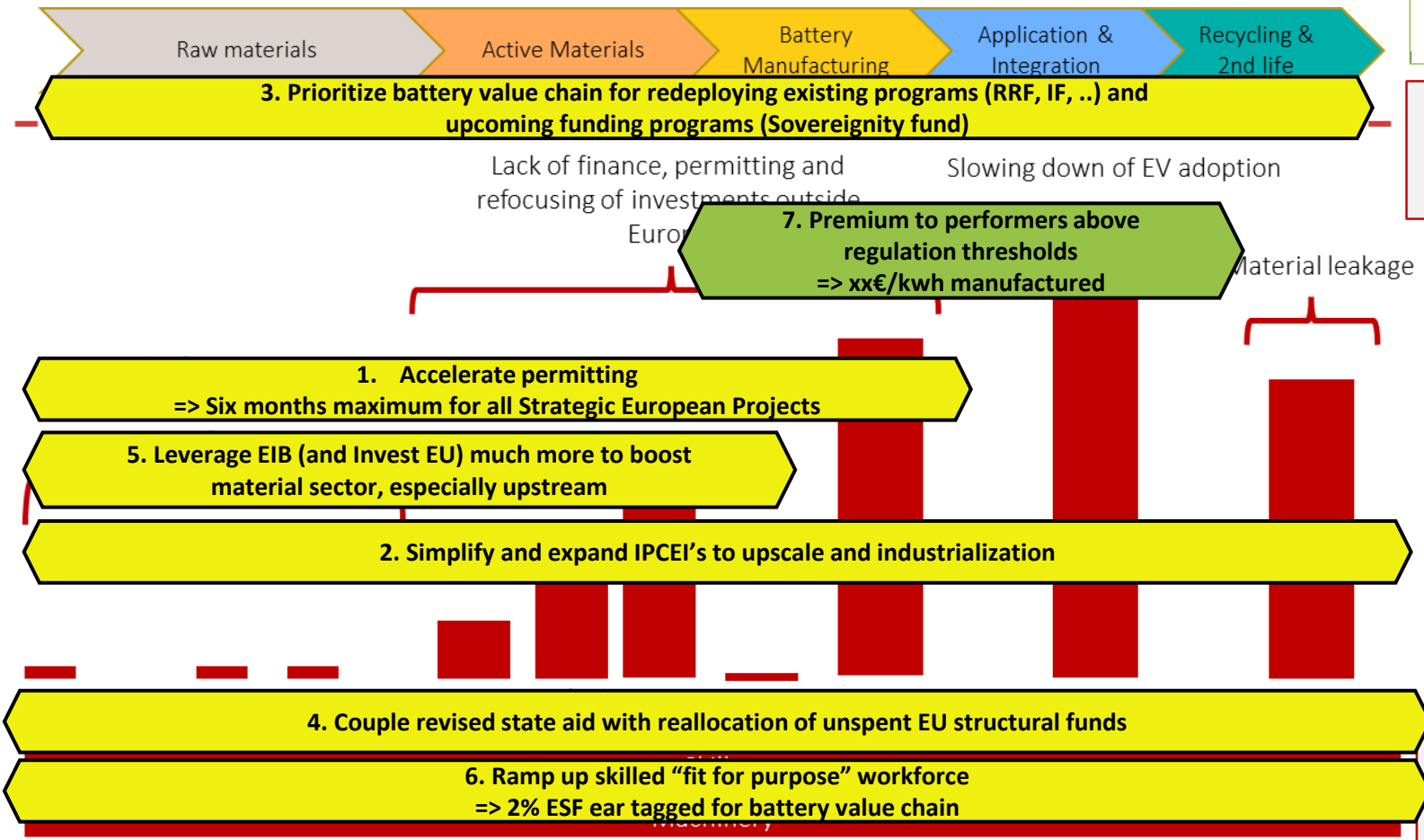
Objective: Actively support our champions' growth, also in Europe



10M eVs

Expected EU demand in 2030: 1000GWh

Estimated realistic share of EU + Norway production capacity compared to estimated demands based on public announcements with current framework in 2030



Lack of finance, permitting and refocusing of investments outside Europe

Slowing down of EV adoption

Material leakage

Cross-sectorial demand gaps