

HUNGARIAN BATTERY ASSOCIATION

HOPE AND FEAR

ADDRESSING SUSTAINABILITY-RELATED ISSUES IN THE DEVELOPING HUNGARIAN BATTERY INDUSTRY

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Managing Director of the Hungarian Battery Association

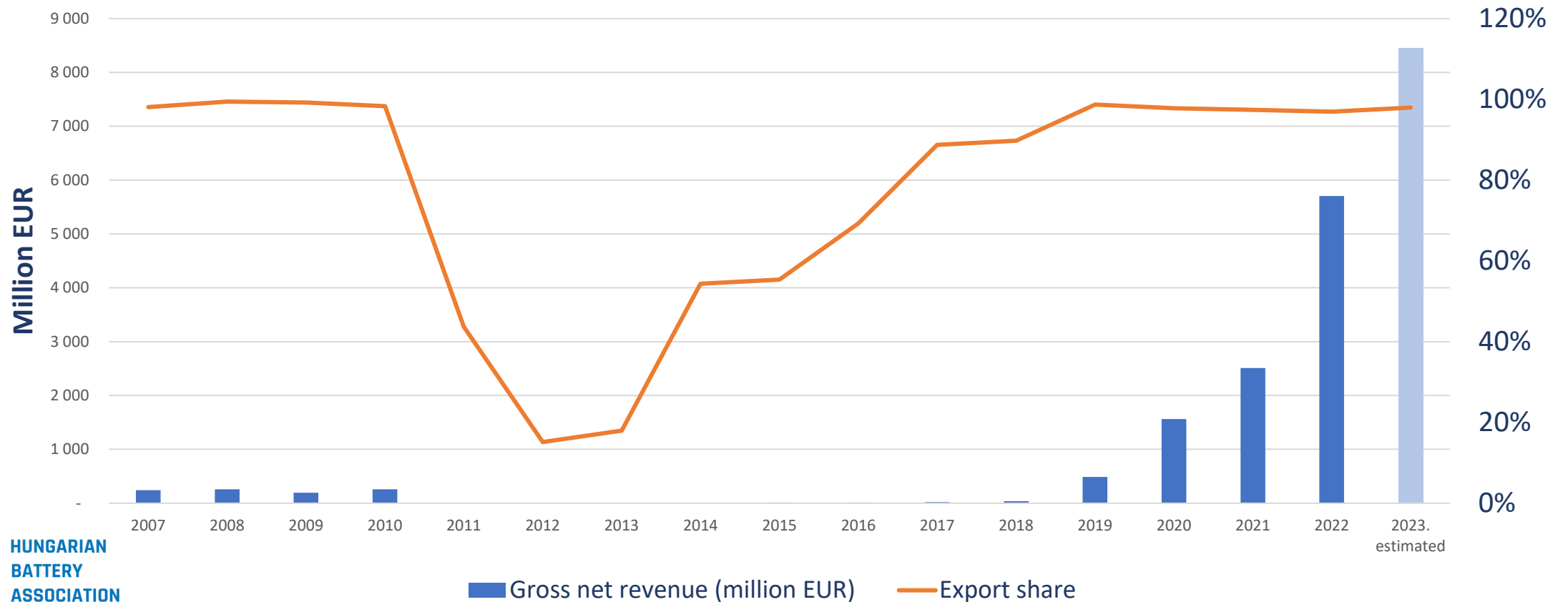


III. Hungarian Battery Day
Marriot Hotel Budapest
26 October 2023, Budapest, Hungary



Exponential growth of the battery industry in the last five years

Net revenue of the Hungarian battery industry and the share of export



Source: Hungarian Statistical Office

A HELYSÉG KALAPÁCSA

Tiltakoznak az akkumulátorgyár terve ellen, kifütyülték a kormánytisztviselőket a győrszentiváni polgárok

2022. szeptember 22. 15 perc


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REZSIKALKULÁTOR
Nálunk kiszámolhatod a várható gáz- és áramköltséged!

KAPCSOLÓDÓ CIKKEK

2022. szeptember 5.
Annyi víz kell a gödi Samsung-gyárnak, amennyi egy százeres lakosú városnak...
2. augusztus 21.

ENERGYNEWS Batteries for electric cars: Fact ch... Gazdaság: 680 milliárd forintos b...
milliárdos_beruhazas_erkezik_Magyarorszagra_DelKoreabol



2021. január 29. 10:48 · GAZDASÁG
...ntos beruházás érkezik a Dél-Koreából

...tőgységét építi a dél-koreai SK Innovation, ez a valaha b zöldmezős beruházás Magyarországon.

...novation 2,3 milliárd dolláros (körülbelül 680 milliárd forintos)

...Kapcsolódó cikkek

2021. március 2.
Újabb tízmilliárdok Mészáros Lőrinc cégeinek a gödi és a komáromi iparterületek közműfejlesztéseire

2021. január 28.
Samsung-gyár: a gödieknek zaj és szennyvíz, a kormánynak kedves

ATLATZSO TÁMOGATOM f @ t t v EN

ORSZÁGSZERTE A vidéki Magyarország blogja - mert Budapesten kívül is van élet, kormányfüggetlen vidéki sajtóorgánium viszont egyre kevesebb.

GÖD

Tovább bővül a Samsung gigagyára, pedig még az első üzemnek sincs meg minden engedélye

2021. május 04. 14 perc

Megosztás 316

BODNÁR ZSUZSA

- Environmental sustainability of battery industry investments and operations is an increasingly important societal concern in Hungary
- Assessing, controlling and reporting about environmental risks is good practice
- Related communication is critical to build up social acceptance towards the industry



Sustainability related concerns: summary

- Weak control over conventional pollutants
 - air, water and land emissions; hazardous waste management
- Natural resource conservation issues
 - water use; critical materials; waste management & recycling; energy conservation
- Decarbonisation
 - High carbon footprint of the industry
- Social sustainability, health & safety issues
 - workplace health problems; acceptance by local communities
- Economic sustainability
 - The problem of developing a low value-added industry

Air emissions control: NMP (N-methyl-pirrolidone)

- NMP is a widely used solvent in various industries
- In 2018 the European Union issued Commission regulation (EU) 2018/588 to modify ANNEX XVII of the REACH Regulation based on experience and detailed research on NMP
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council provides that, where NMP is present in mixtures in a concentration of 0,3 % or higher, they are to be classified as toxic for reproduction, category 1B. The restriction should apply in relation to such mixtures, as well as to the substance on its own
- According to Hungarian regulation Decree 26/2014 VM 6§, the emission limit value for substances with the hazard symbol H360D is **2 mg/m³**.
 - Current practice in Hungary: **1-20 C/Nm³** depending on technology
- Performance of the actual available Best Available Technique: **less than 1 mg/m³**.

NMP



Safety Data Sheet (N-METHYLPYRROLIDONE (NMP))

EMERGENCY OVERVIEW:

Pictograms:



SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.2	Skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	Serious eye damage/eye irritation	2	Eye Irrit. 2	H319
3.7	Reproductive toxicity	1B	Repr. 1B	H360D

At the European Chemicals Agency NMP is on the list of substances of very high concern (SVHC)

ANNEX

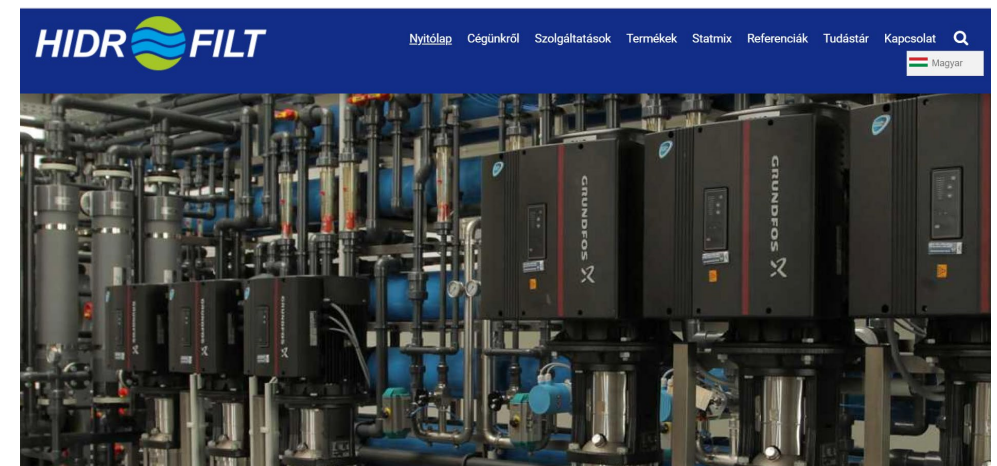
In Annex XVII to Regulation (EC) No 1907/2006, the following new entry is added:

'71. 1-methyl-2-pyrrolidone (NMP) CAS No 872-50-4 EC No 212-828-1	<ol style="list-style-type: none">1. Shall not be placed on the market as a substance on its own or in mixtures in a concentration equal to or greater than 0,3 % after 9 May 2020 unless manufacturers, importers and downstream users have included in the relevant chemical safety reports and safety data sheets, Derived No-Effect Levels (DNELs) relating to exposure of workers of 14,4 mg/m³ for exposure by inhalation and 4,8 mg/kg/day for dermal exposure.2. Shall not be manufactured, or used, as a substance on its own or in mixtures in a concentration equal to or greater than 0,3 % after 9 May 2020 unless manufacturers and downstream users take the appropriate risk management measures and provide the appropriate operational conditions to ensure that exposure of workers is below the DNELs specified in paragraph 1.3. By way of derogation from paragraphs 1 and 2, the obligations laid down therein shall apply from 9 May 2024 in relation to placing on the market for use, or use, as a solvent or reactant in the process of coating wires.'
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Additional limitations on the use of NMP cannot be ruled out!

Water use

- Estimated water use of Li-ion cell production is significant (~40,000 m³/day) and conditional on applied technology
- Room for innovation and improvement: grey water, circular use, ...
- Learning: the grey water issue
- Proposal of the former President of Hungary
- Critical issue: locations with primarily underground resources



Energy intensity

- Estimated additional battery industry electricity demand by 2030: 6-7 TWh/year
- Estimated additional PV and wind generation by 2030: 12 TWh/year
- Battery companies go for renewable energy
- The surge in demand for RES is a great opportunity for local RES developers
- EU level industry – EU level solution: cross-border PPAs



Contemporary Amperex Technology Co Ltd, the world's largest battery maker for electric vehicles, announced plans on Tuesday to achieve carbon neutrality in its core operations by 2025 and across the battery value chain by 2035.

"For CATL, achieving carbon neutrality demonstrates our capability, which also opens up more opportunities," said Jiang Li, CATL's board secretary, at the Auto Shanghai.

April 18, 2023

Recycling and waste management

- Circularity: the spirit of the renewed EU Battery Regulation
- Competition for valuable secondary materials promote recycling
- Current situation in Hungary
 - Lack of proper capacity up to black mass
 - Lack of proper capacity in hydrometallurgy
 - Missing knowledge on battery chemistry: the problem of electrolyte solutions
 - Capacity bottlenecks in the Hungarian hazardous waste management industry
 - Open issues: MOHU concession, EPR implementation, cross-border issues
- Brownfield site utilization should be a policy priority

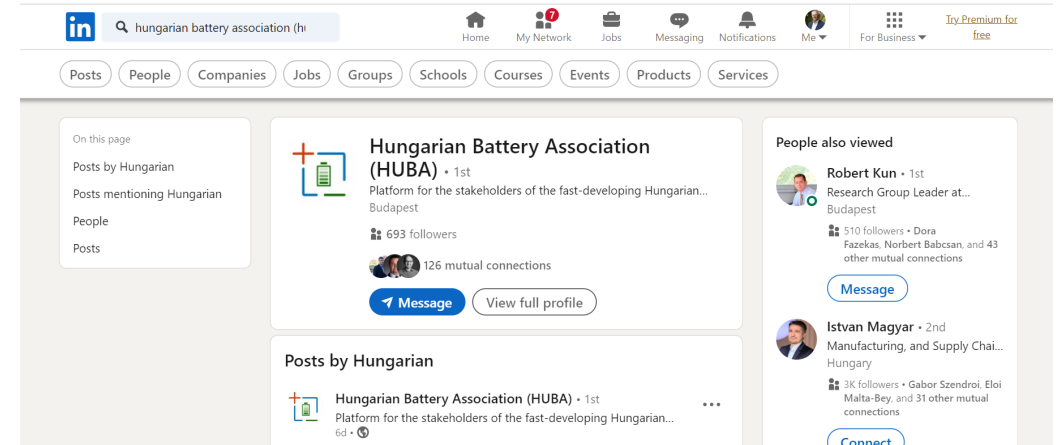
Environmental licensing, regulation and enforcement

- Fully under EU framework , local environmental authorities prescribe, monitor and enforce EU standards
- Potential sanctions for non-compliance: operation limitation (noise problem of SK ON), operation suspension (Bátonyterenye recycling), fines or withdrawal of licence
- Before investment consultation with local authorities, NGOs, environmental authority reps is recommended
- Environmental licensing: EIA (60 days) or IPPC (60 days) or combined (90 days) – current practice: combined
- Business confidentiality should not prevent the provision of full information to the environmental authority
- Due diligence of the site is part of environmental licensing
- EU Industrial Emissions Directive 2010/75/EU is under revision.
 - IPPC license and BAT application will be obligatory for battery industry projects
 - Requirement for an energy conversion plan is likely
 - Revised IED to come in force in early 2024
- Follow-up BAT requirements: + 1-2 years – will include environmental performance, emission and monitoring requirements



Conclusions and to do list for HUBA

- HUBA promotes the development of an environmentally and socially sustainable battery industrial value chain in Hungary
- Promotes „Do as the Germans do” attitude in sustainability
- HUBA’s role is to provide correct information and to promote inclusive discussions with local communities
- HUBA is active in disseminating battery industry knowledge (training, communication, etc)



HUBA – the one-stop-shop to the Hungarian battery value chain!



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