

BOOSTING THE SLOVAK BATTERY ECOSYSTEM INTO THE NEXT DECADE

Discussion on how Slovakia can support Research and Development of batteries as an essential part of the battery ecosystem in the field of energy storage and e-mobility

TUESDAY, MAY 11TH, 2021

A SUMMARY OF PERSPECTIVES FROM THE PRIVATE SECTOR, GOVERNMENT, ACADEMIA AND ASSOCIATIONS

The **Ministry of Economy** has promoted batteries in structural projects and renewal plans because energy storage will key the achievement of 2030 and 2050 climate targets. In order to support investment in batteries, first the right legislation must be in place, then the funding, followed by an honest assessment of technical capabilities. Slovakia is in the process of **transposing Winter Package legislation** to ensure non-discrimination and stop double charging and the RRP will kick-off funding to meet the national energy storage target of **at least 30 MW by 2026**. The Ministry is involved in the European Battery Initiative aiming to achieve cooperation with academia and the private sector, which is only the beginning to help create new jobs in the emerging EU battery market.

The **Ministry of Finance** referred to the significant reforms and investments brought on by the RRP, using the do no environmental harm principle and 37% mandate towards climate action to achieve decarbonisation of industry and transport. This includes **62 million investment to energy storage in batteries** for an estimated 43 MW. In the context of building renovation, the **RRP prioritizes energy efficiency of heating systems more than batteries**. It will also invest in reforming the education system.

The **Ministry of Investments and Regional Development** is re-drafting a strategy for intelligent specialization to update the RIS 3 Strategy, especially applying to the automotive industry. It is clear that Slovakia is facing a **shortage of critical workers in R&D**, with only around half of neighbouring countries in the automotive sector. The aim is to achieve a Technology Readiness Level by

interconnected autonomous mobility, services related to intelligent mobility and mobility systems, and decarbonisation of energy systems, that **reduces and enhances travel time experience**. The state will also support national clusters like **Intelligence Mobility Slovakia** to become part of international consortiums. Full automation of public and rail transportation systems should happen before individual transportation, where the goal is to **flatten vehicle purchases**. Rather than traditional vehicle ownership, the new trend follows a business model where a car is sold together with other services that make up a **mobility package**.

InoBat secured funding for two IPCEIs as part of 14 countries and 42 companies. First, 38 Million or 77% of the cost of an electro mobility project focusing on production of lithium batteries using liquid and solid state electrolytes. InoBat Energy also secured 24 million or 75% of the cost for stationary energy storage. Commercially it will cooperate with Silicon Valley and CEZ this summer while signing a **Memorandum of Understanding with the Slovak Academy of Sciences aiming to establish a National Battery Centre**.

The **ZTS** IPCEI project is under the 4th pillar final stages of the battery cycle to **re-purpose electric car batteries for extended use**. It provides a business model for re-use of the batteries from vehicle to stationary before being recycled to limit the waste of energy and materials, to use the full potential of the battery. This relies on an evaluation system which is being developed through an automated inspection process. With this innovation reducing the cost of disassembling and repurposing, a repurposed battery could be 50% the price of a new one.

Energoaqua brings a hydro and environmental perspective to **energy storage solutions combining different types of batteries for different renewable sources**.

From academia, research was very fragmented until the creation of a consortium of **4 universities and representatives from the automotive industry with a goal of jointly working on R&D**. This project addresses all part of the battery value chain from raw materials to recycling and alternative usage. The consortium has been approached by **SMEs that might lack capacities but could benefit greatly from shared know-how**. Furthermore, **the Battery of Ideas (Baterka nápadov) will support student start-ups in energy storage and batteries in coming months**. While IPCEI's are a great step forward, the reality is that Slovakia is a small country lacking skilled researchers in R&D. The big four car manufacturers for the most part do not support any innovation potential. Since a country like Slovakia cannot be a leading expert in every field, it is important to determine where the core competencies are and invest there. Electro mobility and hydrogen economics are greatly interconnected and dependent on each other, but will also compete for funding.

The **Slovak Electric Vehicle Association (SEVA)** reiterated that decarbonisation is the most important trend in mobility, which is about electric powered vehicles but also buses and maybe

planes. The RRP is important for investments into battery storage capabilities and infrastructure, but also 4 IPCEI's are impressive for a country the size of Slovakia. This creates a solid foundation for the proposed **National Battery Centrum to connect researchers with innovations and provide validation of concepts for SMEs** as opposed to bigger players in the industry. Slovak innovations should be promoted abroad through marketing activities, with more patenting of technologies and protection of intellectual property.

Slovak Energy Innovation Agency (SEIA) noted that the entirety of the EU struggles to apply research into real world practice. Without more investment into R&D, Slovakia will have the correct infrastructure but no way to use it properly. The bottom-up approach needs to be streamlined and **own resources must to be dedicated to ensure for long-term support**. R&D centres are lagging behind due to a shortage of available graduates in the job market because the state has, so far, failed to create the right environment for these centres to flourish. More is needed on the implementation side to make better use of grant funds when they are available. Finally, the **RRP building renovation file is too focused on heating, ignoring emerging technologies like batteries and water storage systems** that would not only improve renovation itself but boost innovation and development of targeted technologies.

