HYDROGEN VALLEY
ESTONIA
Joint Mission Statement

Joint Mission Statement Hydrogen Valley Estonia
June 20th, 2022

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Table of contents

HYDROGEN VALLEY ESTONIA.............................................................................................................................................. 1
1. Who we are.................................................................................................................................................................. 4
2. Preliminary boundaries of the Hydrogen Valley scope.................................................................................................. 5
3. Our fundament for the Hydrogen Valley strategy......................................................................................................... 6
4. Regarding governance.................................................................................................................................................... 8
5. Further information...................................................................................................................................................... 9
1. Who we are

The first nationwide Hydrogen Valley ever is being developed in close cooperation between three regions, one university and five of the largest companies in energy and industry in Estonia. They have formed a Management Team and a Steering Group to build up the strategy, the governance, and the European recognition of the Valley. These nine initiating partners are open to additional partners to strengthen the Valley and its strategy.

Table 1 shows the representatives who take part in the Steering Group on behalf of their organizations. Other organizations are invited to participate in the Support Group.

In addition to these nine partners, a Support Group has been identified consisting of the following organizations: XFly; Skeleton Technologies; Stargate Hydrogen; Aviation Academy, Tallinn University of Technology; TS Laevad; Liwathon; HHLA TK; Estiko; Keila Municipality; Põlva Rural Municipality; SKYCORP, Tartu County and Lääne–Harju Rural Municipality.

The members of the Support Group are invited to bring projects into the Valley scope to further complete the hydrogen value chain in Estonia and additional organizations are invited to participate in the Support Group.

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<tr>
<th>Steering Group Hydrogen Valley Estonia</th>
<th>Organization</th>
<th>Name</th>
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<tr>
<td>Port of Tallinn</td>
<td>Taavi Tilk</td>
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<td>Tallinn Airport</td>
<td>Riivo Tuuive</td>
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<td>Alexela</td>
<td>Marti Hääl</td>
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<td>Eesti Energia</td>
<td>Margus Vals</td>
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<td>Terminal</td>
<td>Rauno/Raino Raudsepp</td>
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<td>Tartu University</td>
<td>Enn Lust</td>
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<td>Tartu</td>
<td>Raimond Tamm</td>
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<td>Pärnu</td>
<td>Erik Reinhold</td>
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<td>Saaremaa</td>
<td>Rander Süld</td>
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<td>Secretary</td>
<td>Petrus Postma</td>
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2. Preliminary boundaries of the Hydrogen Valley scope

As a result of our preliminary scoping of the Valley, we have identified thirty projects to be included into the scope. Almost every single project is initiated by one of the partners in the Steering Group. They range from generation of renewable energy to use cases, across the country. By far most of the projects are in the idea and feasibility phase. The schemes below summarize the preliminary findings to date. We are working on getting the scope of the Valley complete by July 2022 and present a comprehensive overview in the yearly development as well.

In short, Hydrogen Valley Estonia is a complete and nationwide systems development that will accelerate the energy transition and independency of the whole country under the motto ‘from zero to green.’

In the coming six years, hydrogen production will be developed at least six regions in the country. Parallel to that, transport and storage infrastructure is developed, including import and export terminal infrastructure, fuelling stations and storage facilities. This will lay the fundament for the hydrogen backbone to be developed afterwards. Hydrogen use cases under development range from fuelling public transport, heavy duty vehicles, rail, shipping, aviation, and other transport modalities to feedstock for industry, net balancing and even heating cases in the built environment. Finally, a range of innovation-, research- and development projects are included.
3. Our fundament for the Hydrogen Valley strategy

As the scope of the Valley is emerging, based on the content of the projects that have been identified so far, so is the strategy. The following elements form the base for the strategy, which is being developed further and aimed to be finalized in July 2022:

- In these troubled times, one ambition brings all partners in the Valley together: to strive for energy independency as fast as possible and economically responsible.
- Renewable energy (RE) generation and storage will be the key to Estonian energy independency. As the country has an enormous RE potential, by far exceeding the country’s (primary) energy consumption, energy may well become an export factor of interest for the country.
- As RE is produced intermittently and the Estonian electricity grid will never be able to accommodate both the volumes and intermittency of RE, storing RE in the form of hydrogen will become a major challenge (next to battery storage for short term).
- Given the fact that hydrogen as an energy carrier will become available in large quantities, Hydrogen Valley partners want to learn how to use and how to scale up the use of hydrogen and – in the long run – the export of hydrogen.

- In the short term there are at least five sites planned for large scale onshore solar energy production where partly converting energy to hydrogen will make sense, as delivering the amounts of energy to the grid will be either very costly or not doable at all. In the long term, at least part of the (7GW) offshore potential will be converted to hydrogen from 2029 onwards.
- This brings the opportunity to gain experience in the period 2023-2029 how, where and under what conditions to produce, transport, store and use hydrogen as an energy carrier in an economic and efficient way, to be able to adapt to large scale situations from 2029 onwards.
- Local governments, regions and private partners are already planning or investigating use cases in transport (shipping, aviation, rail, public transport, heavy duty, long range) and fuelling opportunities. In industry, hydrogen as a component for future-proof fuels is on the radar. In the energy system, hydrogen as a means for short term and long-term storage, grid stability and heating are in scope and ambitions on import (short term) and export (long term) are being investigated.
- The main challenge for the Hydrogen Valley partners will be to learn how to solve the chicken and egg (production and use) challenge and to jointly build up
the links in the value chain in the coming years, even if these links would not be financially feasible in the short term.

- In essence, the Hydrogen Valley strategy is thereby to facilitate the hydrogen learning curve from 2023 to 2029 to profit maximally from 2029 onwards in an economically responsible way.

- The projects in scope cover most of the economic clusters in Estonia, including energy generation and conversion and the use of hydrogen. The interconnectivity of the projects and the Hydrogen Valley partners positions Estonia as the first nationwide Hydrogen Valley on the planet.

- Estonian partners want to maximize cooperation with other countries to optimize the learning curve and broaden the market.

- Estonian partners want to optimally respond to European programs facilitating the hydrogen learning curve: Fit For 55 (laying the groundwork), RePowerEU (accelerating energy independency), tHrive (facilitating and accelerating new hydrogen economy), Hydrogen Valleys (accelerating Valley learning curve), TEN-T (investing in hydrogen-driven transport corridors), Hydrogen Backbone (including Elering) and others.
4. Regarding governance

The initiating partners are developing their governance parallel to the scope and the strategy of the Valley. Hydrogen Valley Estonia’s (HVE) main objectives in establishing the governance are the following:

- HVE aims to be a neutral body where roles and responsibilities of the partners are clearly defined;
- We want to base our governance on our shared ambitions and our aim to collaborate with each other and third parties;
- We aim to bring the right mindset on hydrogen to Estonia. A mindset based on working together on a strategic level and thereby finding synergies, both between partners and between links in the value chain;
- We want to facilitate in providing Estonia with a long-term framework, built up by real projects developing over time;
- HVE aims to function as a forum for knowledge on hydrogen that will enable parties to better understand each other and the hydrogen value chain.

Based on these ground rules, HVE further aims to provide national government with a clear representation of regions and companies on hydrogen. As such, HVE aims to be the primary hydrogen engagement partner for national government on policy development and the development of policy instruments.

Furthermore, with such a strong representation of regions and companies, HVE aims to become the go-to organization for cross-border cooperation on hydrogen. From that perspective, HVE is investigating EU recognition and cross border partnerships.
5. Further information

Hydrogen Valley Estonia is under construction. The initiating partners invite all to add value to the Scope, the Strategy, and the governance of the Valley as we regard the development of the Valley as a project with strong societal relevance and benefits. Contacts can be established either via the partners in the Valley or by contacting the Steering Group’s secretary by email: petrus@nflux.nl.