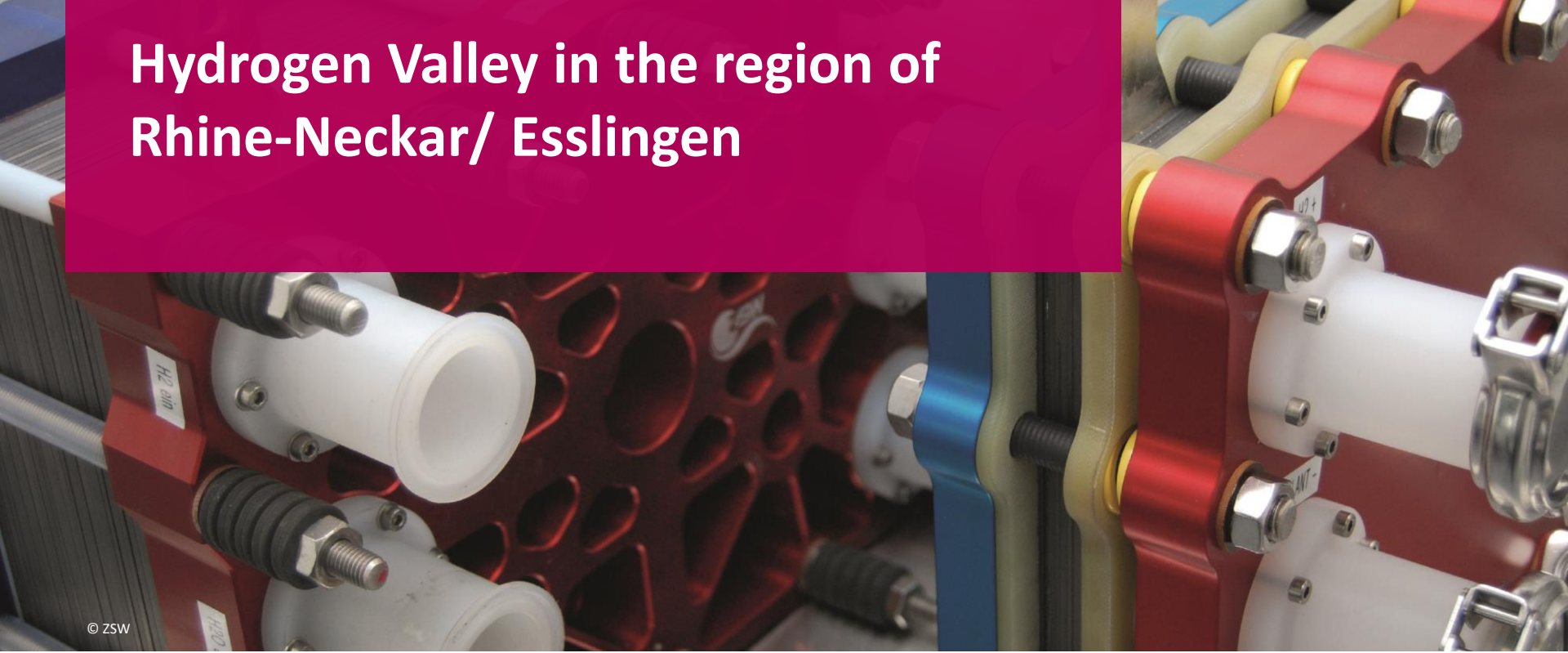
Hydrogen Valley in the region of Rhine-Neckar/ Esslingen



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competence in hydrogen and fuel cell solutions

Innovation Agency for New Mobility Solutions and Automotive Baden-Württemberg

e-mobil BW

State Agency for New Mobility Solutions and Automotive Baden-Württemberg

elektromobilität süd-west

livinglab BW^{e}mobil

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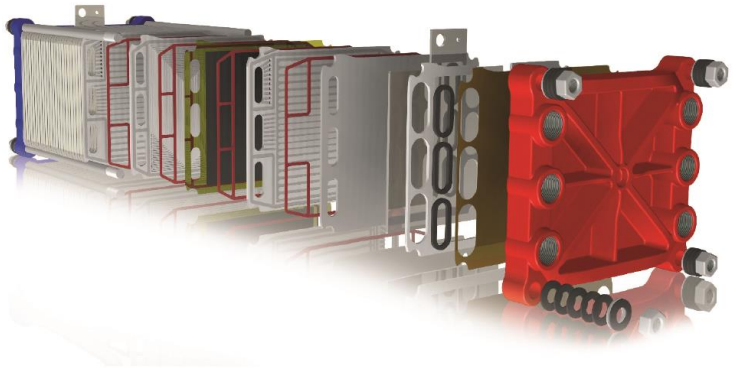
- Efficient clustermanagement
- Dissemination
- Publishing studies on different issues
- Integration of SME in the innovation process
- Collaboration with regional and federal stakeholders
- Creation of sufficient framework

83 partners. One vision.
One cluster.

The multiple activities and competences in hydrogen and fuel cell technology in Baden-Württemberg are pooled and structured in the Cluster Fuel Cell BW. This greatly enhances the collaboration of major players from industry, science, federations and politics in the federal state.



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Strong partners for the industrialisation of the fuel cell and hydrogen technology

83

Partners

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Strong partners for the industrialisation of the fuel cell and hydrogen technology

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September 2017

Innovation within four strategic topics

Generation

Transport

Energy

Production

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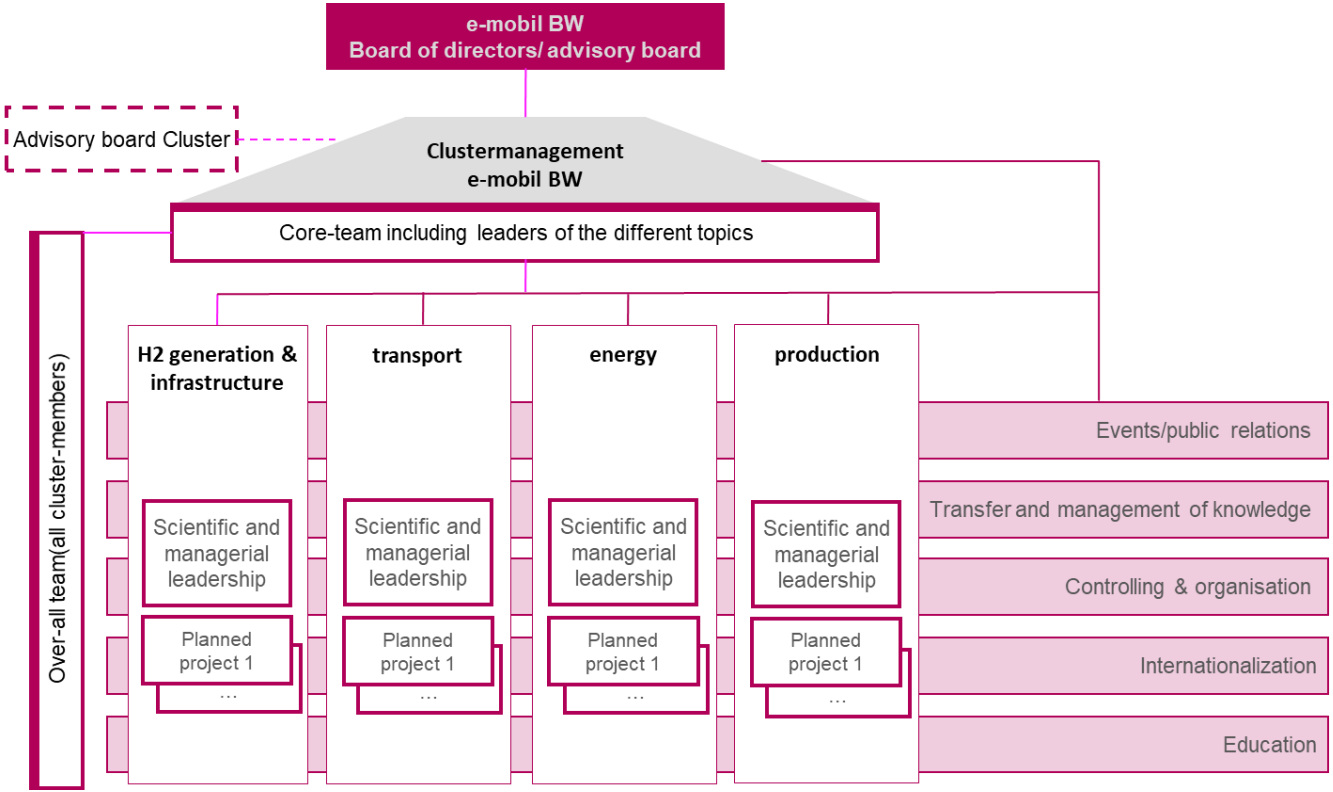
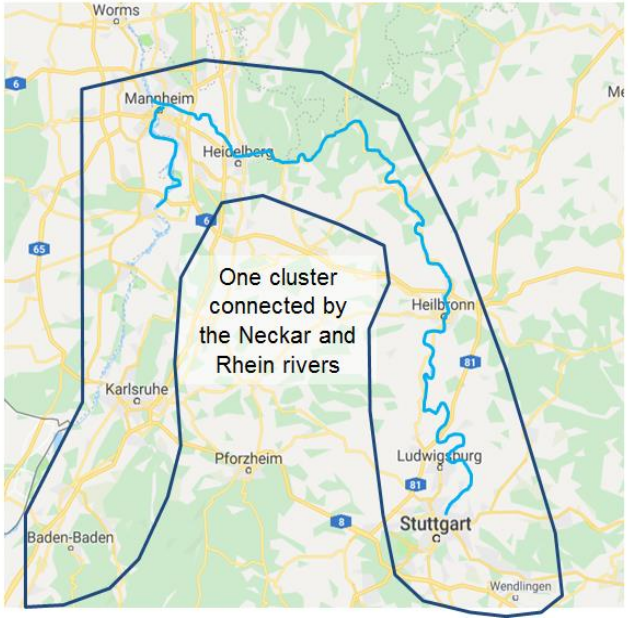
Structure of the cluster.



Key Characteristics of the Valley

Metropolregion Rhein Neckar (Mannheim / Heidelberg / Ludwigshafen)

Metropolregion Rhein-Neckar



Baden Württemberg, south-west Germany

Central Neckar Valley (Stuttgart / Esslingen / Heilbronn)

- **Located in the South-West of Germany with its centre along the rivers Rhine and Neckar**
- **Program of activities that will use a combination of funding sources**
- **Will deliver new hydrogen production, storage, transport and end use technologies across multiple sectors**

- **Main applications:**
  - expanded renewable hydrogen production capacity
  - scalable solutions for hydrogen transport from the points of production to demand centres
  - a range of stationary and transport-based fuel cell applications

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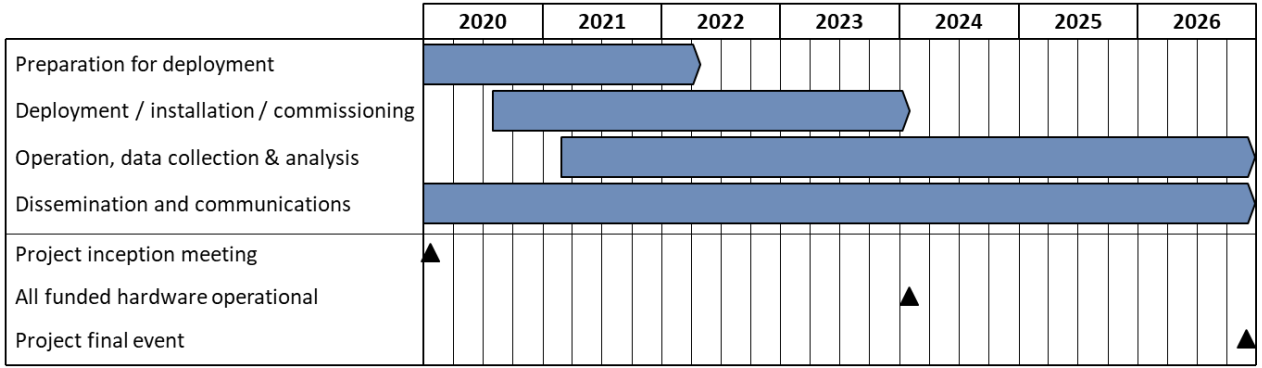
Status

- **Project builds on several planned demonstration activities**
- **Status as of Q1 2019: overall program of activities is being planned**
- **Includes:**
  - Assembly of an international consortium of suitably qualified organisations to develop the deployment projects
  - Securing of all necessary funding
- **Full Delivery phase is anticipated to begin in early 2020, expecting all necessary funding is in place until then**



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Main promoters and envisaged sources of Funding

Main promoters are the Cluster Fuel Cell BW, the e-mobil BW (State Agency of New Mobility Solutions and Automotive), the Metropolitan Region Rhine-Neckar, the University of Applied Sciences Esslingen, embedded in the Strategy Dialogue Baden-Württemberg, hosted by the Ministries and the prime minister of the State Baden-Württemberg.

The overall programme is expected to be funded by a combination of public funding from international, national, and regional / local sources, together with private sector investment.

Anticipated overall funding rate: 40 – 60 %

Key drivers for developing the project and hydrogen's unique added value in this context

- Baden-Württemberg is a leading region in technological innovations to drive a sustainable economic growth
- The state has a large number of companies already working on fuel cells in the field of Automotive, OEMs and suppliers
- Increasing the demand of hydrogen across a wide range of sectors
  - → deeper penetration of renewable energy generation in the region
  - → increase of the number of jobs by establishing hydrogen and fuel cell-based businesses
  - → closer integration of different sectors (integration of energy management/Sektorenkopplung)

Scalability and replicability of the project

- Scalability and replicability of this project are enhanced by the lack of reliance on any special or endemic geographic features
- All sub-projects could be easily deployed elsewhere with limited modification
- Large number of sub-projects with a roughly even demand of hydrogen means that this project provides a solid foundation for further development of the hydrogen economy vision
- The project is not dependant on a specific renewable energy source, because Baden-Württemberg has different types of renewable energies like PV, wind and hydro power, but no excess energy.

Main hurdles and how to overcome them

- Secure Co-Funding
- Reach a reasonable price for green hydrogen
- Implement 3 big projects, which “involve and consume at least 20% of the whole volumes or a minimum of 300 tons per year or 1 ton/day hydrogen”
- Funding volumes are not large enough for such a hugh project, therefore the projects must be selected

Main success factors

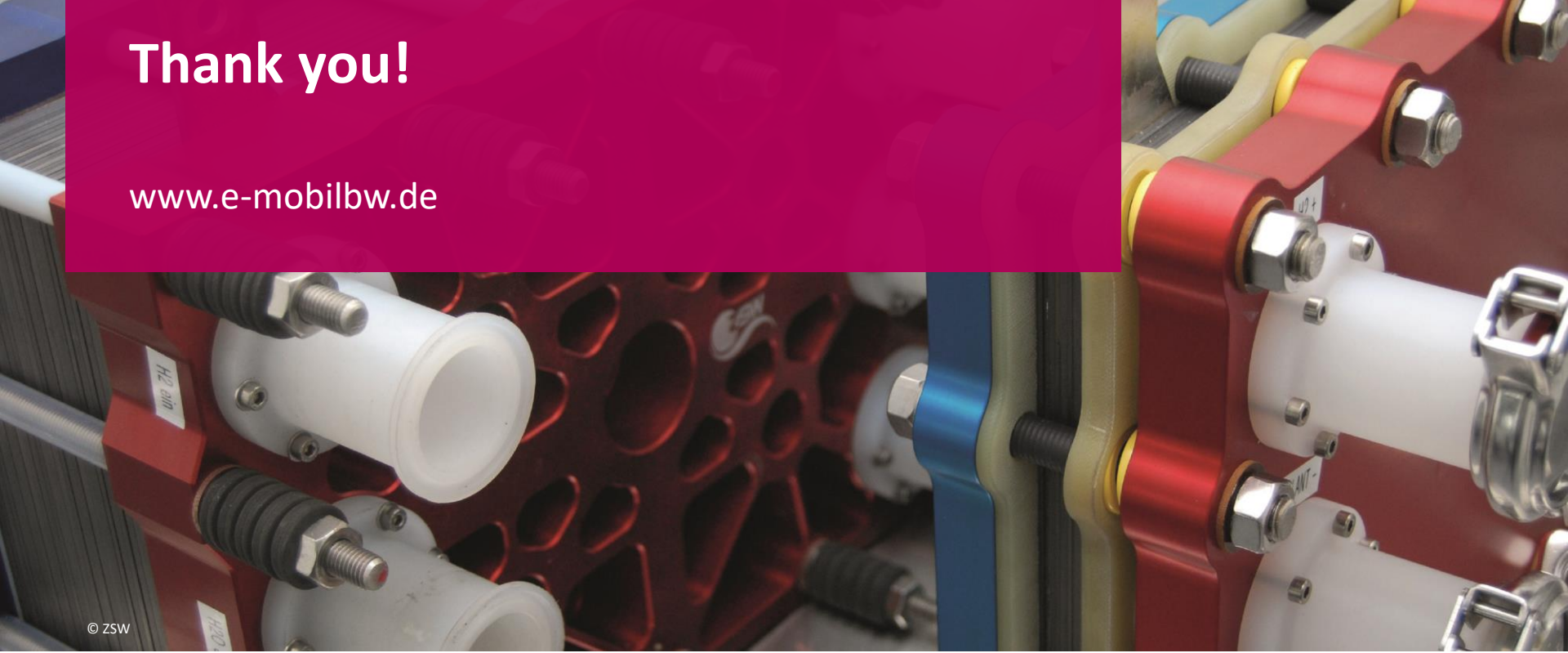
- Generate visibility
- Demonstration projects are implemented
- Strong economic power in the region
- Clear commitment by the region, local authorities and the federal government
- Political and industrial support
- Region will become a lighthouse for hydrogen technology in Europe

Where is collaboration between “Hydrogen Valley” projects needed? / What should the Mission Innovation Hydrogen Challenge information sharing platform focus on?

- Establish contacts to more regions, in addition to our partner regions
- Information about hydrogen economies and the hydrogen society from abroad (i.e. California, Japan)
- Dissemination of news ans learnings

Thank you!

www.e-mobilbw.de



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