



FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

Introduction to FCH 2 JU and call 2020

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European Green Deal

Improving the well-being of people by making Europe climate-neutral and protecting our natural habitat



“The European Green Deal is our new growth strategy. It will help us cut emissions while creating jobs.”

Ursula von der Leyen, President of the European Commission



“We propose a green and inclusive transition to help improve people’s well-being and secure a healthy planet for generations to come.”

Frans Timmermans, Executive Vice-President of the European Commission



European Green Deal

European Commission Communication and Roadmap (December 2019)



EU industry needs ‘climate and resource frontrunners’ to develop the first commercial applications of breakthrough technologies in key industrial sectors by 2030. Priority areas include clean hydrogen, fuel cells and other alternative fuels, energy storage.

Partnerships with industry & Member States will support research & innovation on transport, including batteries, clean hydrogen, low-carbon steel making, circular bio-based sectors and the built environment.

The regulatory framework for energy infrastructure should foster the deployment of innovative technologies and infrastructure, such as smart grids, hydrogen networks or carbon capture, storage and utilisation, energy storage, also enabling sectorial integration.



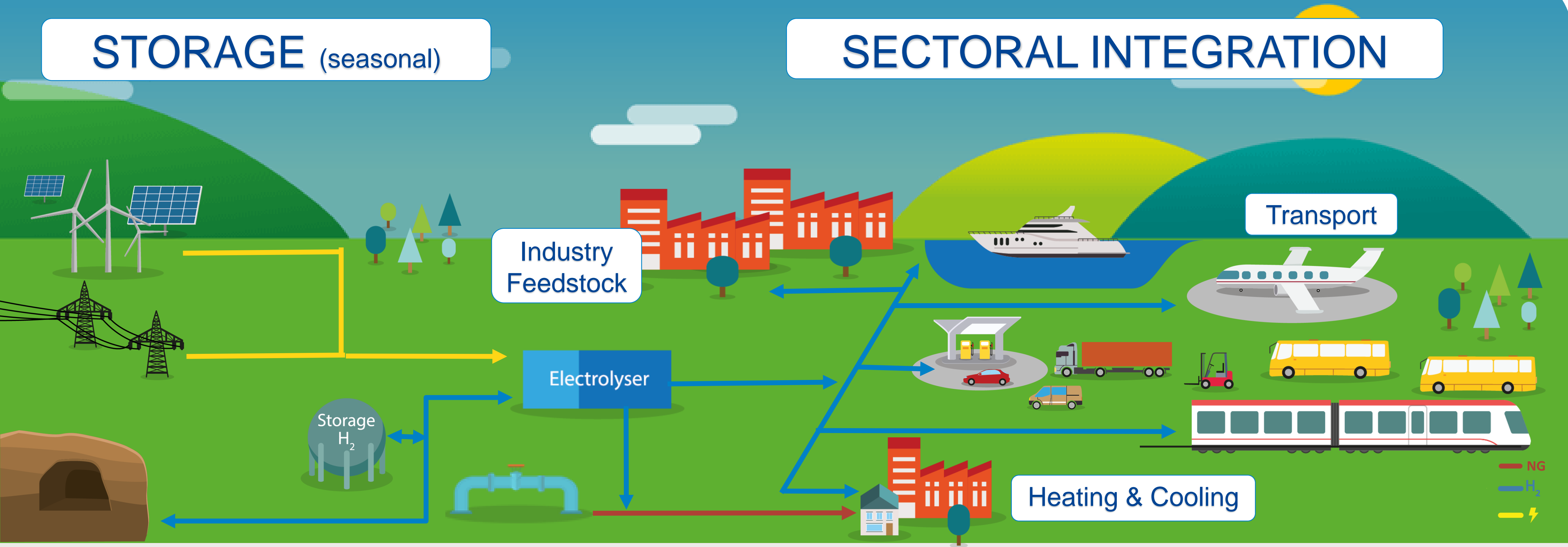
The role of hydrogen in our society & economy

Hydrogen allows more renewables in the energy system through storage and enables sectoral integration



STORAGE (seasonal)

SECTORAL INTEGRATION



Strong public-private partnership with a focused objective

EU Institutional Public-Private Partnership (IPPP)



Fuel Cells & Hydrogen Joint Undertaking (FCH 2 JU)



Industry grouping
More than 145 members
50% SME



European
Commission



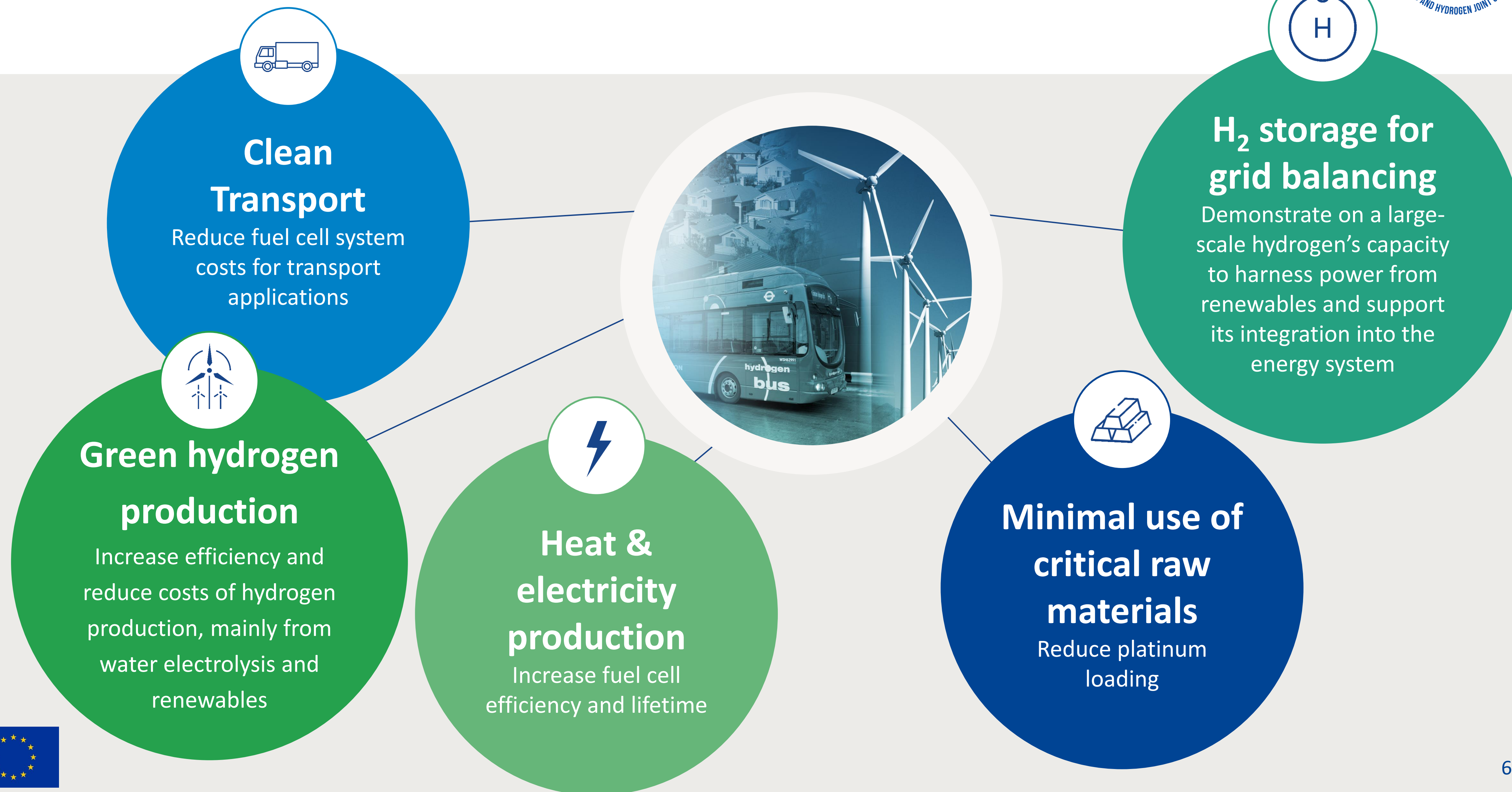
Research grouping
over 80 members

To implement an *optimal research and innovation programme* to bring FCH technologies to the point of market readiness by 2020

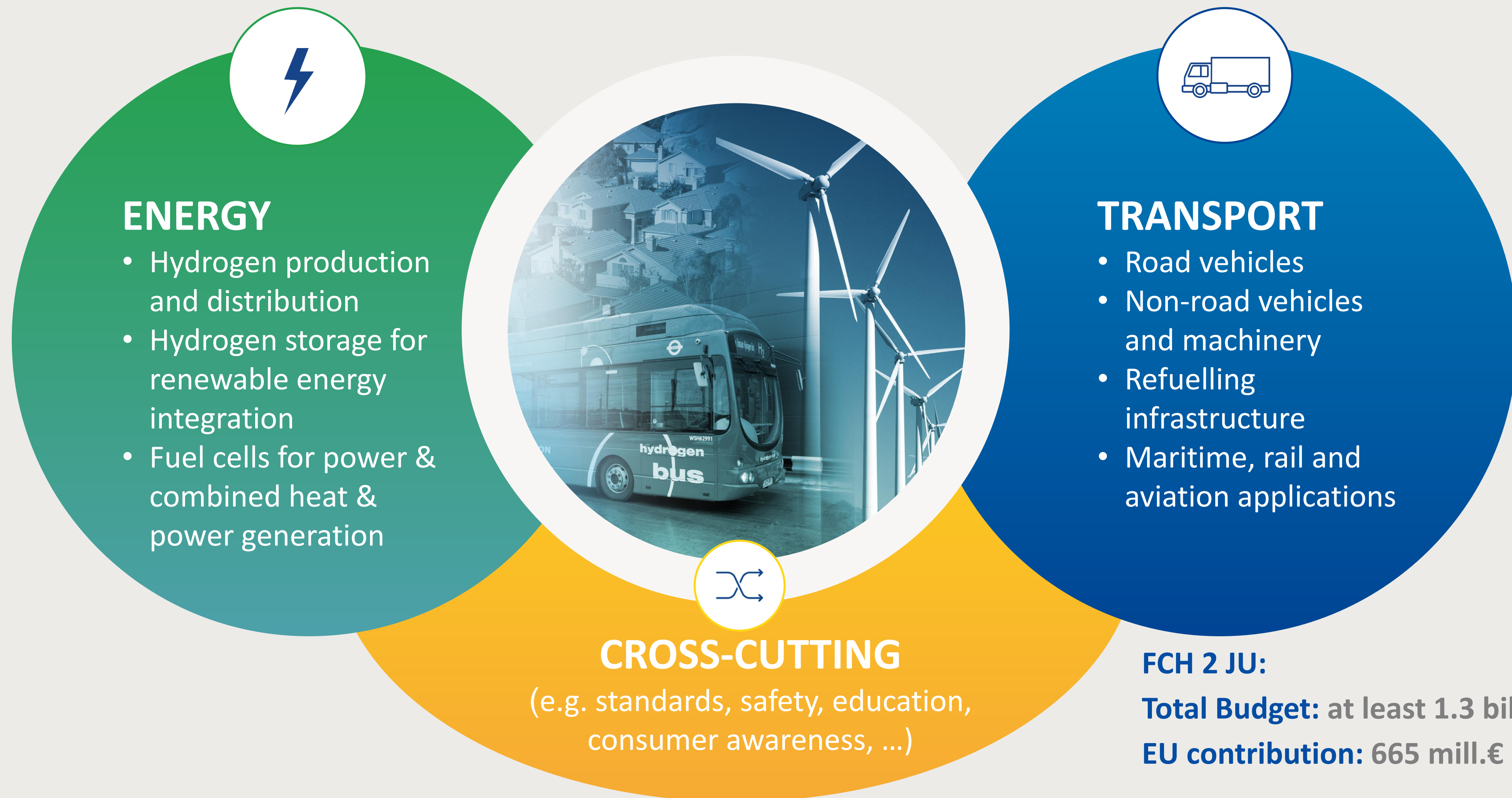


FCH 2 JU Objectives

Market readiness of a portfolio of clean, efficient and affordable solutions for our energy and transport systems



FCH 2 JU Programme structure



FCH JU programme implementation (2008-2019)



Energy

- Hydrogen production and distribution
- Hydrogen storage for renewable energy integration
- Fuel cells for power & combined heat & power generation



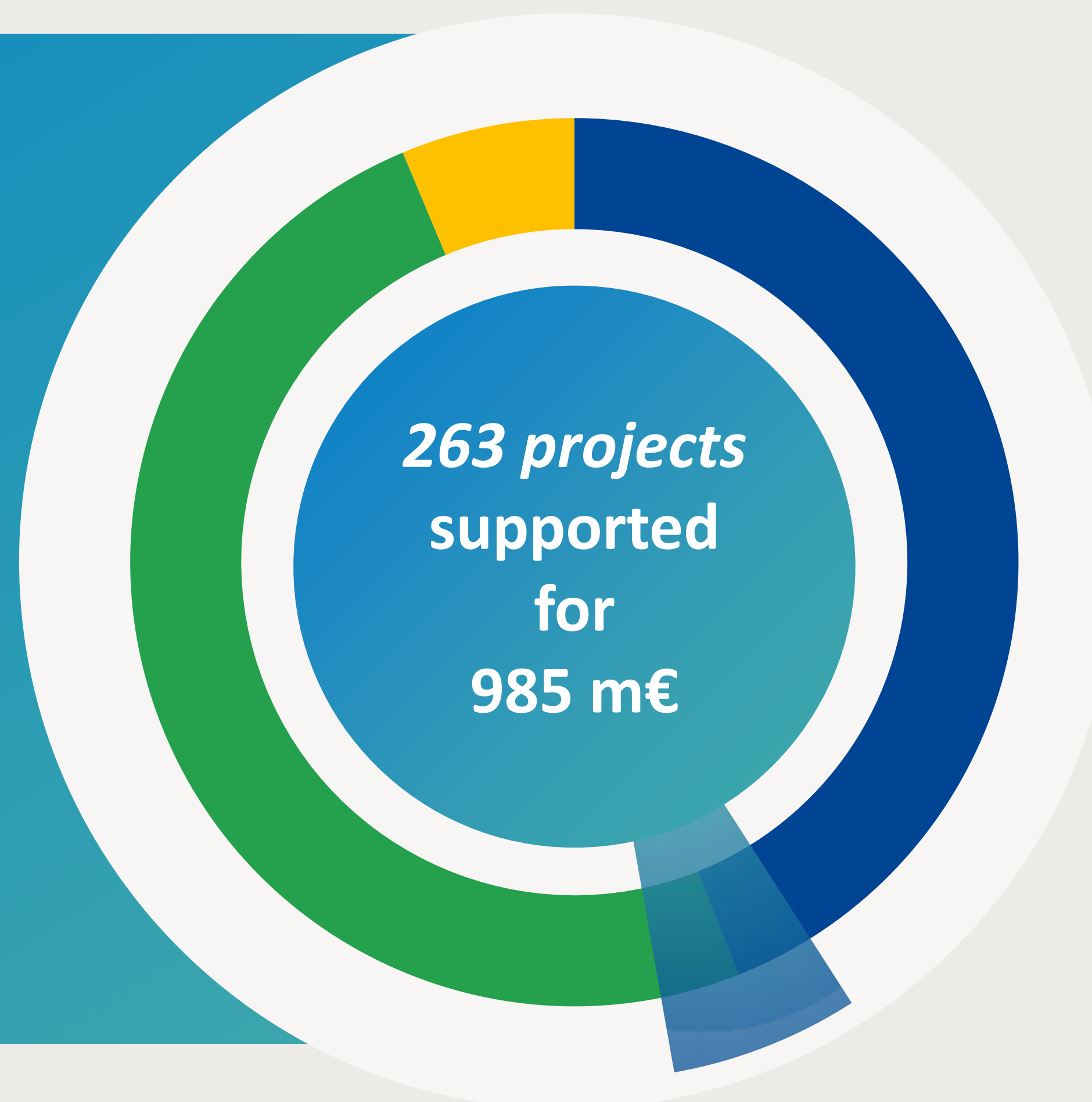
Transport

- Road vehicles
- Non-road vehicles and machinery
- Refuelling infrastructure
- Maritime rail and aviation applications



Cross-cutting

- E.g. standards, safety, education, consumer awareness ...



46 %



457 million euros

145 projects

41 %



404 million euros

70 projects

6 %



58 million euros

43 projects



7 %

66 million euros

5 projects

Similar leverage of other sources of funding: 1 b€



Call 2020 overview

Reflects the industry and research partners' assessment of the state of the technological maturity of the applications and their estimated importance to achieve critical objectives of the FCH 2 JU



Call identifier: H2020-JTI-FCH-2020-1

Total budget: EUR 93 million

Opening date: 14 of January 2020

Estimated deadline: 21 of April 2020

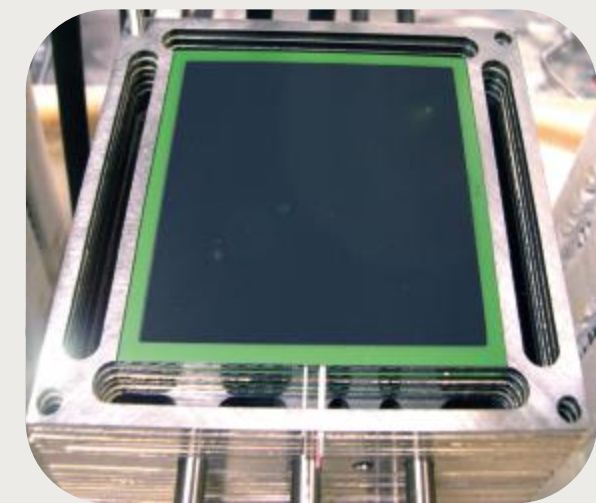
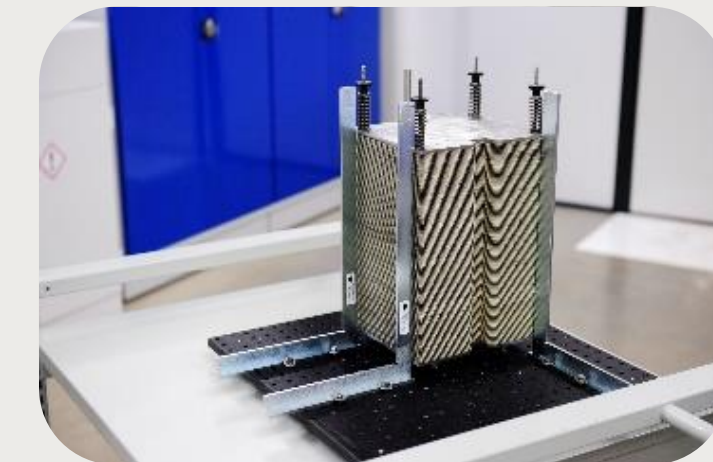
Content (24 topics in different sub-budget lists):

Transport activities: 5 IA and 3 RIA for EUR 41 million

Energy activities: 3 IA and 6 RIA for EUR 30 million

Overarching activities: 1 IA and 1 RIA for EUR 13 million

Cross-cutting activities: 4 RIA and 1 CSA for EUR 9 million



International cooperation

Renewable and Clean Hydrogen Challenge under Mission Innovation



H2020 is open to the world - All topics are opened to international cooperation

In particular **international cooperation is strongly encouraged** with Mission Innovation countries and for the 11 topics identified with icons



Mission Innovation

Mission Innovation

- Launched in May 2018
- 16 countries
- Objective: *"To accelerate the development of a global hydrogen market by identifying & overcoming key technology barriers to the production, distribution, storage, and use of hydrogen at GW scale"*
- Scope:
 - focused multinational research & large scale demonstration efforts
 - from both public & private sectors
 - industry-directed breakthroughs within the next 3 years
 - renewable & clean hydrogen
 - 4 activity streams: making, sharing, using hydrogen & cross-cutting issues
- Australia, EU & Germany as co-lead countries



CEM9/MI-3
COPENHAGEN  MALMÖ



Transport Pillar Overview

8 topics, 41M€



Main Focus

- Heavy-duty applications
 - Advance in the development and demonstration of new transport applications: coach buses, trains, ships
 - Improve on-board storage technologies
 - Focus on liquid hydrogen

What is new

- Coach buses
- Trains: new prototypes
- Advanced storage technologies



Transport Pillar

8 topics, 41M€



Topic	Type of Action	Ind. Budget (M€)
<i>FCH-1-1-2020: Development of hydrogen tanks for electric vehicle architectures</i>	<i>RIA</i>	<i>2**</i>
<i>FCH-1-2-2020: Durability-Lifetime of stacks for Heavy Duty trucks</i>	<i>RIA</i>	<i>3.5**</i>
<i>FCH-1-3-2020: Liquid Hydrogen on-board storage tanks</i>	<i>RIA</i>	<i>2</i>
<i>FCH-1-4-2020: Standard Sized FC module for Heavy Duty applications</i>	<i>IA</i>	<i>7.5*</i>

** Eligibility criterion: maximum funding; ** Included under leftover budget flexibility*



Transport Pillar

8 topics, 41M€



<i>Topic</i>	<i>Type of Action</i>	<i>Ind. Budget (M€)</i>
<i>FCH-1-5-2020: Demonstration of FC Coaches for regional passenger transport</i>	<i>IA</i>	<i>5*</i>
<i>FCH-1-6-2020: Demonstration of liquid hydrogen as a fuel for segments of the waterborne sector</i>	<i>IA</i>	<i>8*</i>
<i>FCH-1-7-2020: Extending the use cases for FC trains through innovative designs and streamlined administrative framework</i>	<i>IA</i>	<i>10*,**</i>
<i>FCH-1-8-2019: Scale-up and demonstration of innovative hydrogen compressor technology for full-scale hydrogen refuelling station</i>	<i>IA</i>	<i>3*</i>

** Eligibility criterion: maximum funding; ** Included under leftover budget flexibility*



Transport Pillar Overview

Research and Innovation Action



FCH-01-1-2020: Development of hydrogen tanks for electric vehicle architectures



New 70 MPa tank system in a conformable shape that can be integrated in cars with flat architectures



- Must fit into a design space of 1800 x 1300 x 140 mm³
- At least 10 prototypes to be built
- Exhaustive tank testing expected

Mission Innovation



FCH-01-2-2020: Durability-Lifetime of stacks for Heavy Duty trucks



Study degradation mechanisms and enable increased durability for heavy-duty stacks



- Characterize and rank most critical degradation mechanisms for HD use
- Can be done with aged samples (& corresponding ageing data from field tests or actual trucks) or by performing ageing tests in labs on short stacks following realistic load profiles
- Propose and validate more durable stacks based on re-designed MEAs

Mission Innovation




Transport Pillar Overview

RIA and IA



FCH-01-3-2020: Liquid Hydrogen on-board storage tanks

 Feasibility of liquid H₂ on-board storage for heavy-duty vehicles



- Evaluate feasibility through a design study and demonstration test bench
- Must be compatible with existing LH₂ refueling technology
- Target capacity: 40-100 kg LH₂; boil-off rates < 5%/day and compatibility with fuelling rates of up to 10 kg/min

FCH-01-4-2020: Standard Sized FC module for Heavy Duty applications



Develop and validate standard FC module for heavy-duty applications



- First 12 months: define standard module frame (size, connections, etc...); by min. 7 FC suppliers and 3 OEMs
- After 12 months, a minimum of 7 FC suppliers develop, build and commit their standard sized FC + BoP module
- FC module(s) to be tested on an independent reference test device (to be built during the project)



Transport Pillar Overview

Innovation Actions



FCH-01-5-2020: Demonstration of FC Coaches for regional passenger transport



Demonstrate FC-powered coach buses



- Design of coach buses, optimizing efficiency and space utilization
- Demonstration of at least 6 FC Coaches in two coach segments (inter-city and long-distance)
- To be operated for min. 2 years and 80,000 km per coach per year with a minimum daily travel distance of 100 km

FCH-01-6-2020: Demonstration of liquid hydrogen as a fuel for segments of the waterborne sector



Use of LH2 as on-board storage in ships



- Develop on-board storage of LH2; min 1.5tons capacity
- Must include integration into a ship (min 2MW power), bunkering and prove scalability up to 20MW
- Operational period ≥ 12 months (including both winter and summer season) & minimum 3,000 operational hours

Mission Innovation



FCH-01-7-2020: Extending the use cases for FC trains through innovative designs and streamlined administrative framework



Develop new FC-powered train designs



- Innovative prototype design to be tested (demonstrate TRL 7)
- Can address: regional trains, shunting or main line locomotives
- Propose a normative framework for the placement on the market of trains using FCH propulsion

FCH-01-8-2020: Scale-up and demonstration of innovative hydrogen compressor technology for full-scale hydrogen refuelling station



Scale up and demonstrate new compressor technology



- Upscale and integrate innovative compressor in HRS
- Demonstration in HRS $\geq 200\text{kg/d H}_2$; can be 100% with innovation or in combination with conventional technology
- Testing period of $>1\text{year}$ under real operation conditions with 700bar refuelling and meeting requirements (purity, etc...)

Energy Pillar Overview

Hydrogen storage and distribution; Electrolysers for off-shore H₂ production

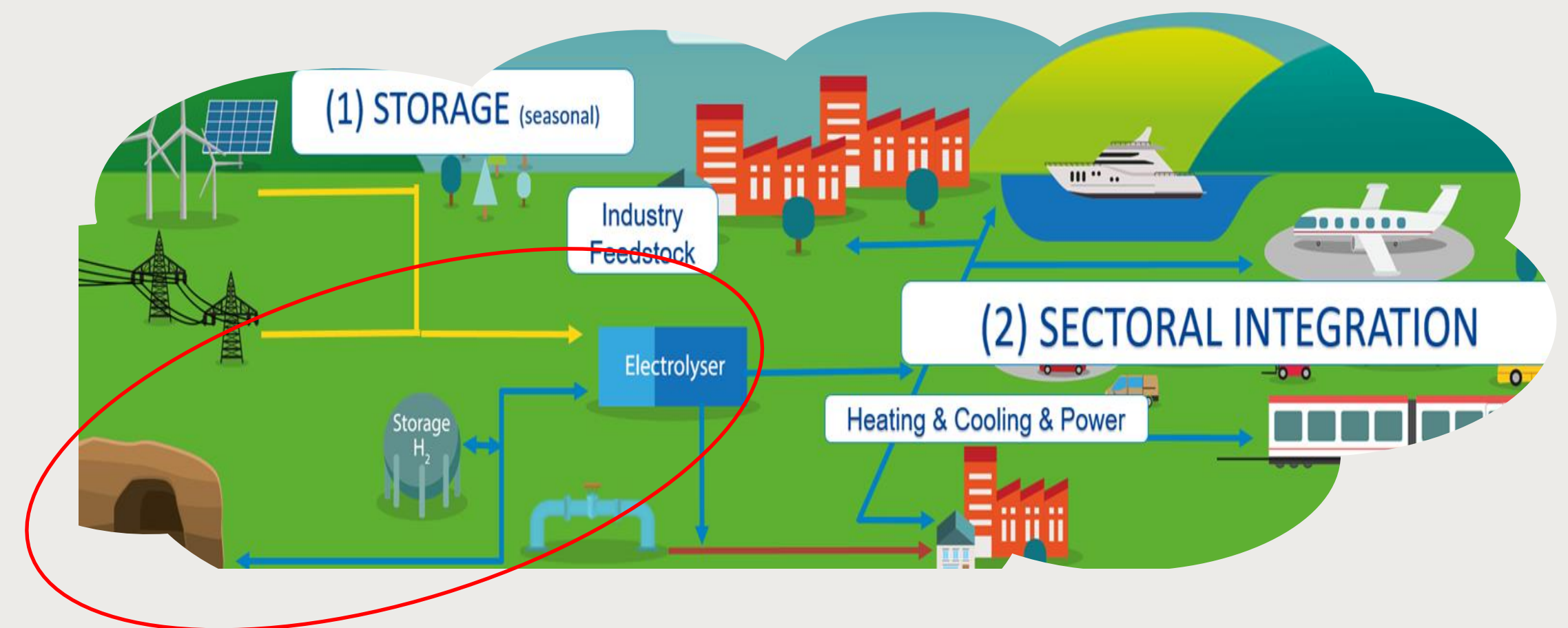


Main Focus

- Preparing for Bulk H₂ storage
- Preparing for off-shore H₂ production

What is new

- Underground storage of H₂ in salt caverns or depleted gas fields
- Electrolyser suitable for off-shore production



Energy Pillar

Hydrogen storage and distribution; Electrolysers for off-shore H₂ production



<i>Topic</i>	<i>Type of Action</i>	<i>Ind. Budget (M€)</i>
<i>FCH-02-1-2020: Catalyst development for improved economic viability of LOHC technology</i>	<i>RIA</i>	<i>2.5</i>
<i>FCH-02-5-2020: Underground storage of renewable hydrogen in depleted gas fields and other geological stores</i>	<i>RIA</i>	<i>2.5*,**</i>
<i>FCH-02-6-2020: Electrolyser module for offshore production of renewable hydrogen</i>	<i>RIA</i>	<i>5*,**</i>
<i>FCH-02-7-2020: Cyclic testing of renewable hydrogen storage in a small salt cavern</i>	<i>IA</i>	<i>5*</i>

** Eligibility criterion: maximum funding*

*** Included under leftover budget flexibility*



FCH-02-1-2020: Catalyst development for improved economic viability of LOHC technology



Reduce LOHC system costs through improved catalysts or novel catalytic system architecture



- Decrease PGM loading, increase catalytic selectivity & space-time yield
- Open to all LOHC concepts provided carrier addresses efficiency, regulatory, safety issues
- Capacity of rig @ dehydrogenator $>10 \text{ kW}_{\text{th}}$ & $< 6 \text{ kWh/kg H}_2$

Mission Innovation



FCH-02-5-2020: Underground storage of renewable hydrogen in depleted gas fields and other geological stores



Assess techno-economic feasibility of storing H_2 in depleted gas or oil fields



- Identification of stores – proximity to wind/solar plants & NG networks
- Geological, microbiological, engineering etc. tests and modelling
- Involve geologists

FCH-02-6-2020: Electrolyser module for offshore production of renewable hydrogen



Develop a >1MW electrolyser compatible with an offshore environment



- One module of multi-module design, certified for offshore operation
- Off-shore operation fully simulated – desalination, high salinity, direct connection to RES, transportation, maintenance
- Involve electrolyser OEM, off-shore energy sector, hydrogen safety competence centre

FCH-02-7-2020: Cyclic testing of renewable hydrogen storage in a small salt cavern



Understand cycling of salt caverns storing H₂



- Suitable cavern identified coupled to MW-scale electrolyser and H₂ demand that lead to daily cycling
- Establish technical (geological, geochemical, microbiological) and economic capabilities and limitations of salt caverns for H₂ buffering
- Address purity/composition issues after injection/extraction cycles
- Evaluate scalability for sector coupling with industry / mobility / NG grid injection

Energy Pillar Overview

H2 production: Pushing the State of the Art on Solid Oxide Electrolysis to maintain European leadership

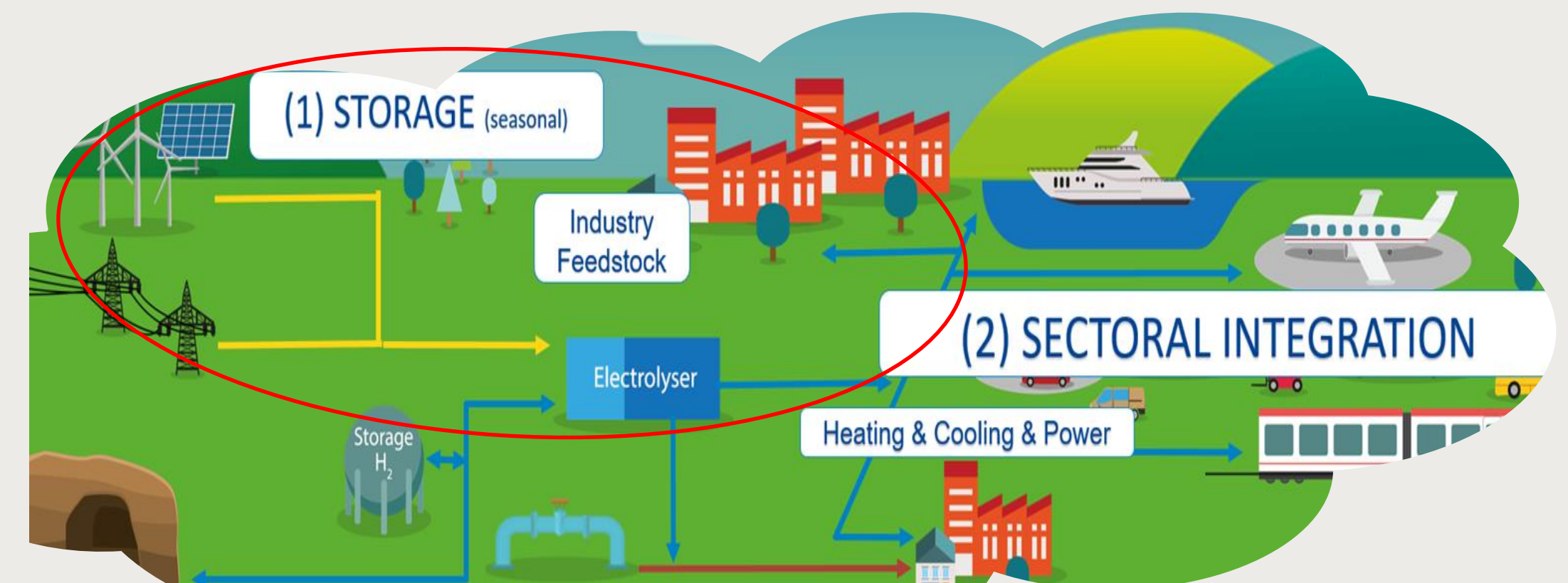


Main Focus

- Expanding the scope of SOE applications

What is new

- Improving SOE lifetime through diagnostics and control
- Coupling SOE to Renewable Energy Sources
- Co-electrolysis for industrial scale syngas production



Energy Pillar

H2 production: Pushing the State of the Art on Solid Oxide Electrolysis to maintain European leadership



<i>Topic</i>	<i>Type of Action</i>	<i>Ind. Budget (M€)</i>
<i>FCH-02-2-2020: Highly efficient hydrogen production using solid oxide electrolysis integrated with renewable heat and power</i>	<i>RIA</i>	<i>2.5</i>
<i>FCH-02-3-2020: Diagnostics and Control of SOE</i>	<i>RIA</i>	<i>2.5</i>
<i>FCH-02-8-2020: Demonstration of large-scale co-electrolysis for the Industrial Power-to-X market</i>	<i>IA</i>	<i>5*</i>

** Eligibility criterion: maximum funding*



FCH-02-2-2020: Highly efficient hydrogen production using solid oxide electrolysis integrated with renewable heat and power



Optimising the coupling of the SOE with two intermittent sources, renewable electricity and high temperature heat



- Demonstrate an SOE system of 20kW_{el} and operate > 1,000h with availability >98%
- Investigate the effect of heat and electricity variation on the SOE system under diurnal cycling
- Perform a concept design study for scaling up the SOE system to 100MW_{el} with renewable electricity and heat supply

FCH-02-3-2020: Diagnostics and Control of SOE



Develop and validate a physical product that can provide monitoring, diagnostic and control services for SOE, r-SOC, and co-SOE operation



- Enhance understanding of degradation mechanisms in SOE, rSOC and co-SOE in relevant operating conditions and switching
- Develop algorithms to perform diagnostics and control strategies to improve durability and availability of systems
- Validate the diagnostic and control strategy in a relevant environment
- Evaluate the TCO for this diagnostic and control product and focus on exploitation pathways

FCH-02-8-2020: Demonstration of large-scale co-electrolysis for the Industrial Power-to-X market



The specific challenge is to scale up to the MW range and advance it to a TRL that is relevant for industrial syngas consumers while getting the cost of green syngas close to the steam reformer level.



- System of 700kW_{el} that is capable of producing at least 80kg of syngas/h
- Fully equipped system incl. CO₂, steam and electricity supply as well as compression of the syngas as required by consumer
- Demonstration of the system for 2 years producing 500-900 tons of syngas at >95% availability
- A techno-economic analysis indicating the TCO and an LCA indicating GHG mitigation potential should be delivered

Energy Pillar Overview

Fuel cells for Energy

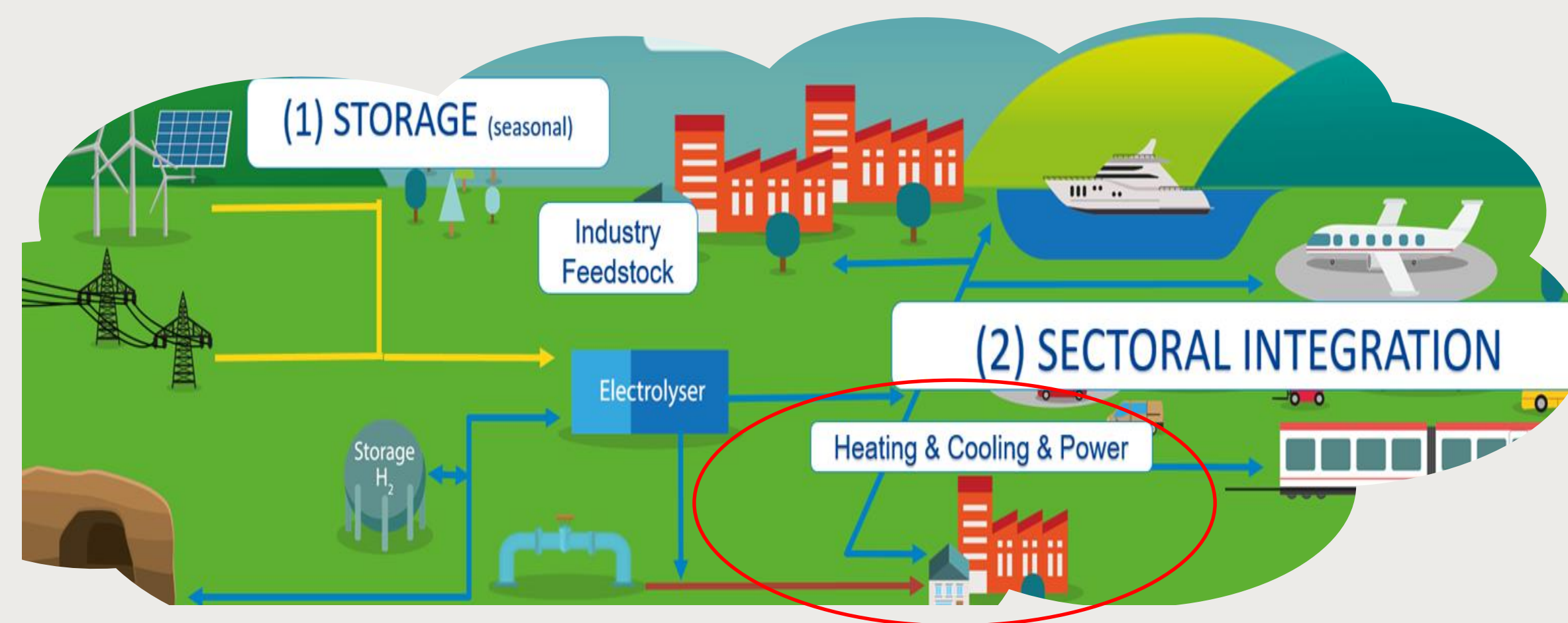


Main Focus

- Consolidating European leadership on SOFC
- Opening-up new markets
- Preparing next generation SOFC systems

What is new

- Next generation of SOFC running on a 0-100% H₂ mixture in gas grid
- Cost-competitive solutions for data centres



Energy Pillar

Fuel Cells for Energy



<i>Topic</i>	<i>Type of Action</i>	<i>Ind. Budget (M€)</i>
<i>FCH-02-4-2020: Flexi-fuel stationary SOFC</i>	<i>RIA</i>	<i>2.5</i>
<i>FCH-02-9-2020: Fuel cell for prime power in data-centres</i>	<i>IA</i>	<i>2.5*</i>

* Eligibility criteria: maximum funding



FCH-02-4-2020: Flexi-fuel stationary SOFC



Develop and demonstrate in a **relevant environment** a stationary SOFC system capable to operate over a **wide range of gas compositions** including **H2 mixture** in natural gas from zero to 100% and additions of **biogas** in the gas grid



- Focuses on **adaptation of existing SOFC systems**
- At least **2 SOFC system manufacturers** based in EU or H2020 Associated Country
- Bring the fuel cell system developed **as close** as possible **to certification**
- Demonstrate in the operation window from **0 to 100% H2**
 - 6000 h at **stack level** with degradation rate below 1%/1000h
 - >9 months at **system level**, electrical efficiency >48% LHV, availability >90%
- System **performance** and **CAPEX** as in **MAWP 2024 targets**
- Should **lead** to **SOFC systems** that are fully **hydrogen ready**

FCH-02-9-2020: Fuel cell for prime power in data-centres



Provision of highly reliable power supply to data-centres within urban areas and with air quality restrictions

Demonstration of **building integrated** solution using **fuel cells** adapted to **data centre** in urban areas

- **>50 Kwe** FC power supply, **modular** architecture, easily **scalable and** strong load **modulation**
- Provide a **99.999% availability**
- Demonstration in a **real data centre** for at least **8,000 hours**
- Address **service and maintenance** requirements
- Consider the **suitability of using the heat** generated from the fuel cell and data-centre
- Cost-effective and **high performance** solutions (specific KPIs in AWP)
- Foster **replication** and strengthen the **competitiveness** of EU industry
 - consortium composition: system **supplier based in the EU/H2020 AC** and **data-centre provider**
 - identify and/or develop **business models**



Overarching topics



Topic	Type of Action	Ind. Budget (M€)
FCH-03-1-2020: HT proton conducting ceramic materials for highly efficient and flexible operation	RIA	3**
FCH-03-2-2020: Decarbonising islands using renewable energies and hydrogen - H2 Islands.	IA	10*

* Eligibility criteria: maximum funding

** Included under leftover budget flexibility



FCH-03-1-2020: HT proton conducting ceramic materials for highly efficient and flexible operation



Unlock the potential of **proton conducting ceramic materials** as an alternative way to **compress and purify H₂**



- **Integrated approach** of material science, reactor design and multiscale modelling
- Targets **laboratory scale validation** and a PCC technology system operated in different conditions.
- Proposed materials and cells should be implemented in **short stacks and/or mini-reactors**
- **LCA** compared to conventional purification and compression technologies **needed**

Mission Innovation



FCH-03-2-2020: Decarbonising islands using renewable energies and hydrogen - H2 Islands



Showcasing the ability of **hydrogen** and its associated technologies to **decarbonize islands in EU**
Demonstrating how **H2** enables **sector coupling** and allows **large integration of renewable energy** on the selected island



- All **H2** produced from **RES** installed **on the island** (“**CertifHy Green H2**” should be used)
- At least **2 FCH applications** from energy and transport sectors
- At least **300 tons H2/year** should be produced and consumed on the island
- The **replicability and scalability** of the project is fundamental.
- Identify and **secure additional funding** -> include **financing scheme**
- Long-term vision (roadmap) on the **local/regional H2 economy plans** on the island towards 2050

Mission Innovation



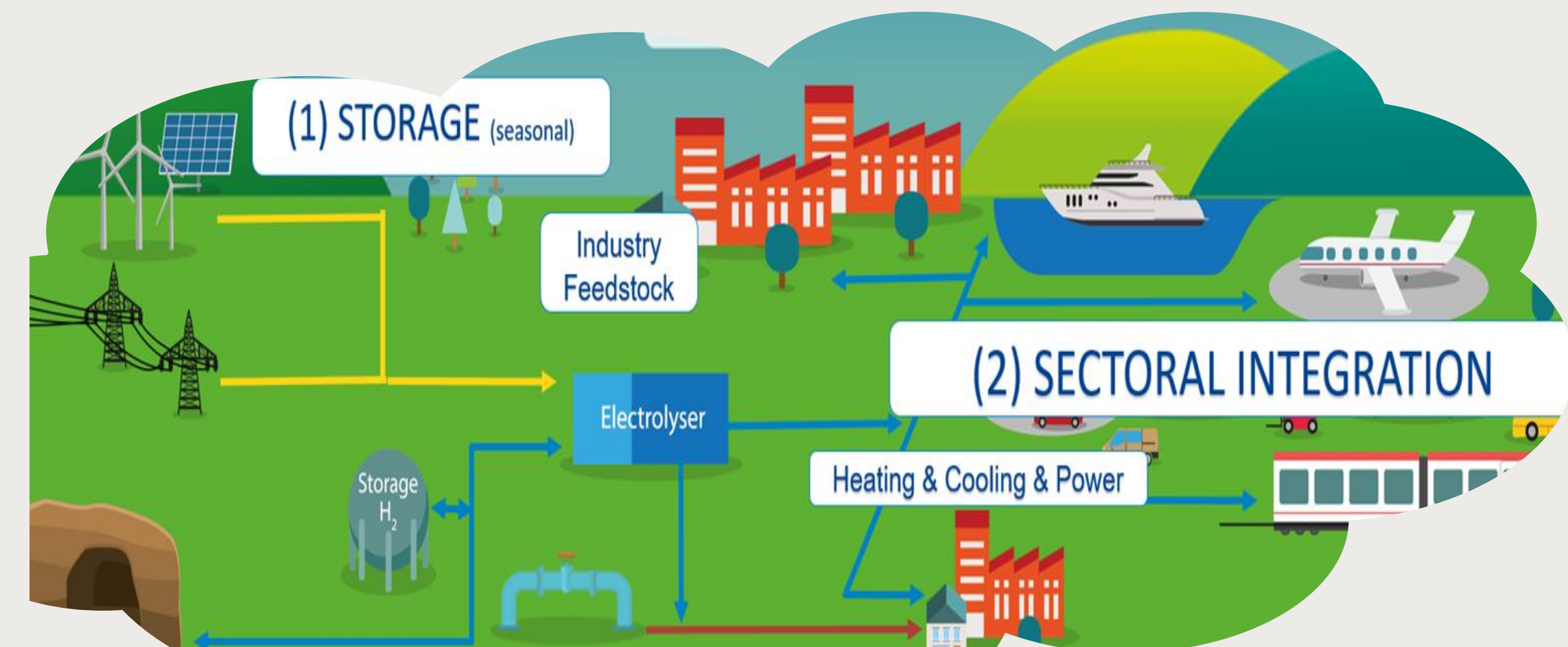
Cross-cutting Activity Area Overview

Activity Area facilitating the market uptake



Main Focus

- **Regulations, Codes and Standards (RCS)**, providing science-based information for a more suitable regulatory framework
 - Multi-fuel Refuelling Stations
 - Waterborne applications
- **Sustainability**
 - Life Cycle Sustainability Assessment (LCSA)
 - Eco-design guidelines
 - Recycling



What is new

- Focus on tech. & **administrative barriers**; PNR for ships
- **LCSA**: addressing also **economic and social dimensions**
- **Eco-design** -> Integration of the environmental dimension into the design phase
- Validate existing and develop novel **recycling technologies**



Cross-cutting Activity Area

5 Topics - 9 M€



<i>Topic</i>	<i>Type of Action</i>	<i>Ind. Budget (M€)</i>
<i>FCH-04-1-2020: Overcoming technical and administrative barriers to deployment of multi-fuel hydrogen refuelling stations (HRS)</i>	<i>RIA</i>	<i>2</i>
<i>FCH-04-2-2020: PNR on hydrogen-based fuels solutions for passenger ships</i>	<i>RIA</i>	<i>2.5</i>
<i>FCH-04-3-2020: Development of eco-design guidelines for FCH products</i>	<i>RIA</i>	<i>1</i>
<i>FCH-04-4-2020: Development and validation of existing and novel recycling technologies for key FCH products</i>	<i>RIA</i>	<i>1.5</i>
<i>FCH-04-5-2020: Guidelines for Life Cycle Sustainability Assessment (LCSA) of fuel cell and hydrogen systems</i>	<i>CSA</i>	<i>2</i>



Cross-cutting Activity Area Topics Overview

Research and Innovation Action – RIA



FCH-04-1-2020: Overcoming technical and administrative barriers to deployment of multi-fuel hydrogen refuelling stations (HRS)



To provide guidance to assist the deployment of H2 dispensing in a multi-fuel environment across EU



Work scope:

- Detailed investigation of current status in EU for light and heavy duty road vehicles
- Practical research/ Experimental campaign(s) to address gaps in current understanding
- Generate best practice guidance that can be applied throughout EU -> Common approach
- Engage with permitting authorities and Standards Developing Organisations (SDOs) -> knowledge sharing

Clear impact-focused topic -> greater degree of harmonisation of requirements for the permitting

Strong international dimension: EEA (EU + EFTA) countries...

Mission Innovation



Cross-cutting Activity Area Topics Overview

Research and Innovation Action – RIA



FCH-04-2-2020: PNR on hydrogen-based fuels solutions for passenger ships



Pre-Normative Research (PNR) to facilitate and speed up the development of a goal-based regulatory framework applicable to hydrogen-fuelled ships (GH2, LH2 and hydrogen-based alternative fuels) in the International Maritime Organization (IMO)



Work scope:

- To review of the current regulatory framework: needs, challenges, obstacles/ barriers...
- To generate technical knowledge for the development of a regulatory framework
- To provide a roadmap to add GH2, LH2 and H2-based alternative fuels into the IGF Code

Strong partnership with all stakeholders: shipbuilders & designers, tech. providers, R&D Centers, local authorities

Cooperation with IMO, SDOs, etc. -> dedicated chapter of the IGF Code dedicated to H2

Strong international dimension

Mission Innovation



Cross-cutting Activity Area Topics Overview

Research and Innovation Action – RIA



FCH-04-3-2020: Development of eco-design guidelines for FCH products



Eco-design guidelines including well-defined solutions for FCH products focused on the minimisation of the environmental impacts along their life cycle



Work scope:

- **At least two FCH products:** PEMFC, PEMWE, SOC, AWE...
- **Set of prioritised eco-design actions** in the product design methodology, **emphasis in design for recycling**, frameworks from more mature sectors
- **EU Taxonomy framework**, methodology of **eco-efficiency assessment** -> solutions' **impact assessment**, **benefits for actors** in the products' lifecycle (including EoL recovery and recycling)

Cross-collaboration with FCH-04-5-2020 on Life Cycle Sustainability Assessment (LCSA)

Strong international dimension

Mission Innovation



Cross-cutting Activity Area Topics Overview

Research and Innovation Action – RIA



FCH-04-4-2020: Development and validation of existing and novel recycling technologies for key FCH products



Materials recovery and recycling technologies for key FCH products



Work scope:

- **Physical, chemical and thermal processes** for materials recovery should be identified, assessed and ranked
- **Adaptation & validation** for FCH products of **existing processes in conventional recycling/ recovery centres**
- **At least two** (existing) **recycling processes for two different FCH products' materials**
- **At least two novel recycling techniques**, particular focus on precious metals
- **Validation of the suitability of the materials recovered** for their reuse (open/close-loop recycling)
- Environmental-economic analysis of the EoL strategy

Multidisciplinary partnership: OEMS, recovery and recycling companies, experts in life-cycle assessment...

Strong international dimension

Mission Innovation



Cross-cutting Activity Area Topics Overview

Coordination and Support Action – CSA



FCH-04-5-2020: Guidelines for Life Cycle Sustainability Assessment (LCSA) of fuel cell and hydrogen systems



Methodological framework and guidance for the LCSA of FCH systems



Work scope:

- **Identification of development needs** concerning the FC-HyGuide guidance document
- **Update FC-HyGuide guidance documents**
- Widen the assessment framework to **include social and economic indicators**
- Collect **life cycle inventory data** for FCH systems and competing solutions - > **publicly available!**
- At least one **test application case** for FCs and one for H2 production systems

Strong international dimension

Mission Innovation



Additional requirements across the entire call



Technology monitoring and progress against State-of-the-Art

- Obligation to provide every year technical information in the online data collection platform (TRUST)



Safety reporting - Incidents, accidents and near-misses

- Any safety-related event shall be reported to JRC which manages the HIAD 2.0 and the HELLEN database



EU-wide harmonisation and validation activities

- Testing activities should adopt the already published FCH 2 JU harmonized testing protocols



CertifHy Green H2 guarantees of origin

- “CertifHy Green H2” guarantees of origin should be used through the CertifHy platform



Safety planning - Innovation actions (IA) only

- A ‘draft safety plan’ should be proposed at the proposal level, to be further developed at the project level





FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

What Evaluators Want



Tip 1: Understand the topic text



Does my proposal fully address the topic ?

Will Europe benefit from my proposal?

Does my proposal clearly lead to innovation?

Can my proposal bring European players together?

Tip 2: Leave no doubt on SoA and TRLs



**Make sure that you have
carefully mapped the SoA**

TRL NOW



TRL AT PROJECT END

“Objectives are general and not quantifiable”

“Insufficient evidence that the adopted approach takes into account the state of the art”

“Clarity and relevance of the proposal are weak”



Tip 3: Impact is essential

Substantiate the impacts – Be realistic

Dissemination & Exploitation Plan

Exploitation and Dissemination and Communication is often neglected

- Detailed Exploitation Plan
- Patents planned
- IPR issues
- Publications planned
- Communication Plan



New market opportunities?



Competitiveness/
Growth



Climate Change -
environment

Tip 4: Sound plan/budget construction



Reasonable duration

Justified Budget

Risks Mitigated

Balanced Consortium



Tip 5: Simple to digest



Simple Language – Non-native speakers

Make information easy to find

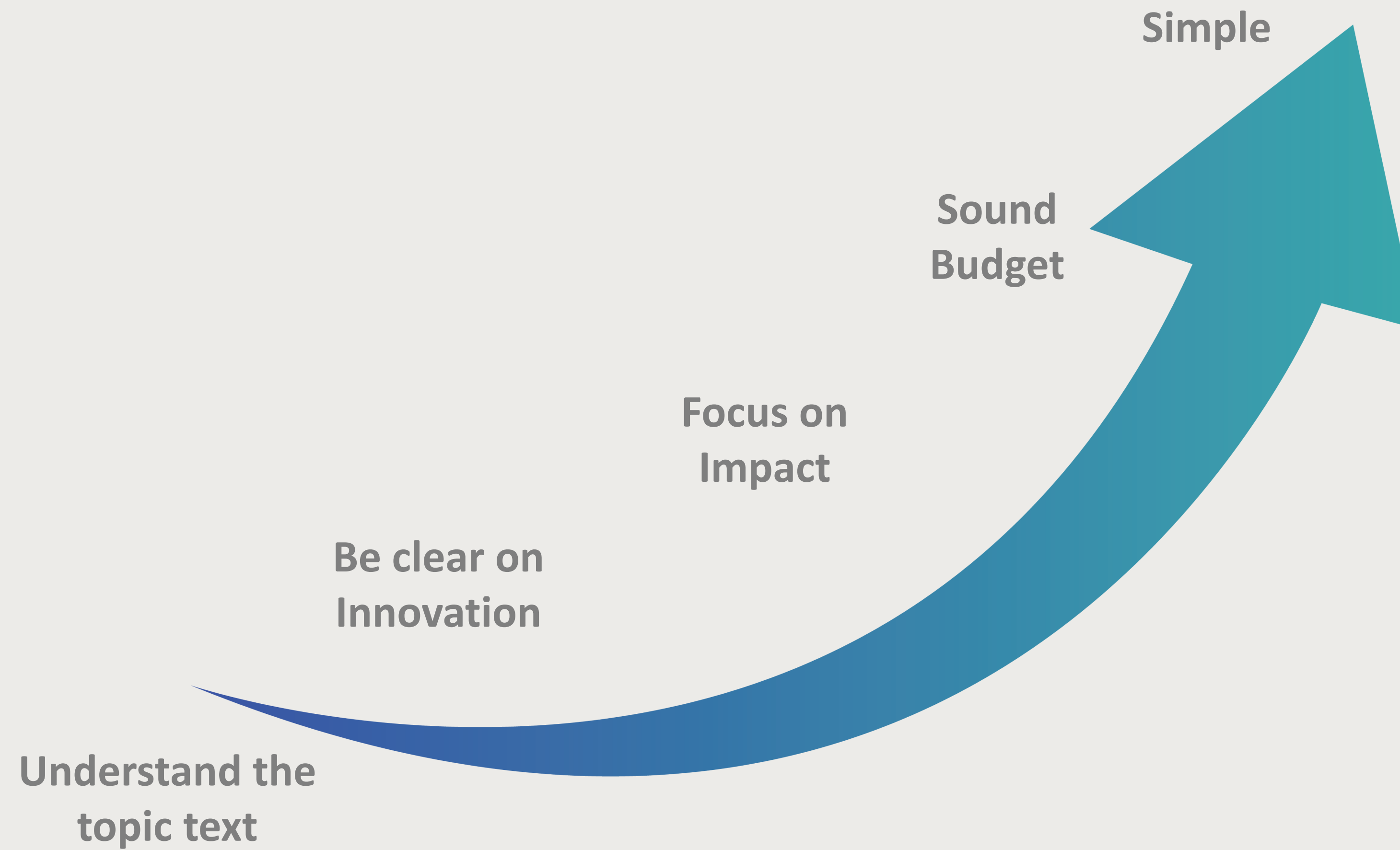
Easy to follow

Avoid this size of fonts

Respect Page limit

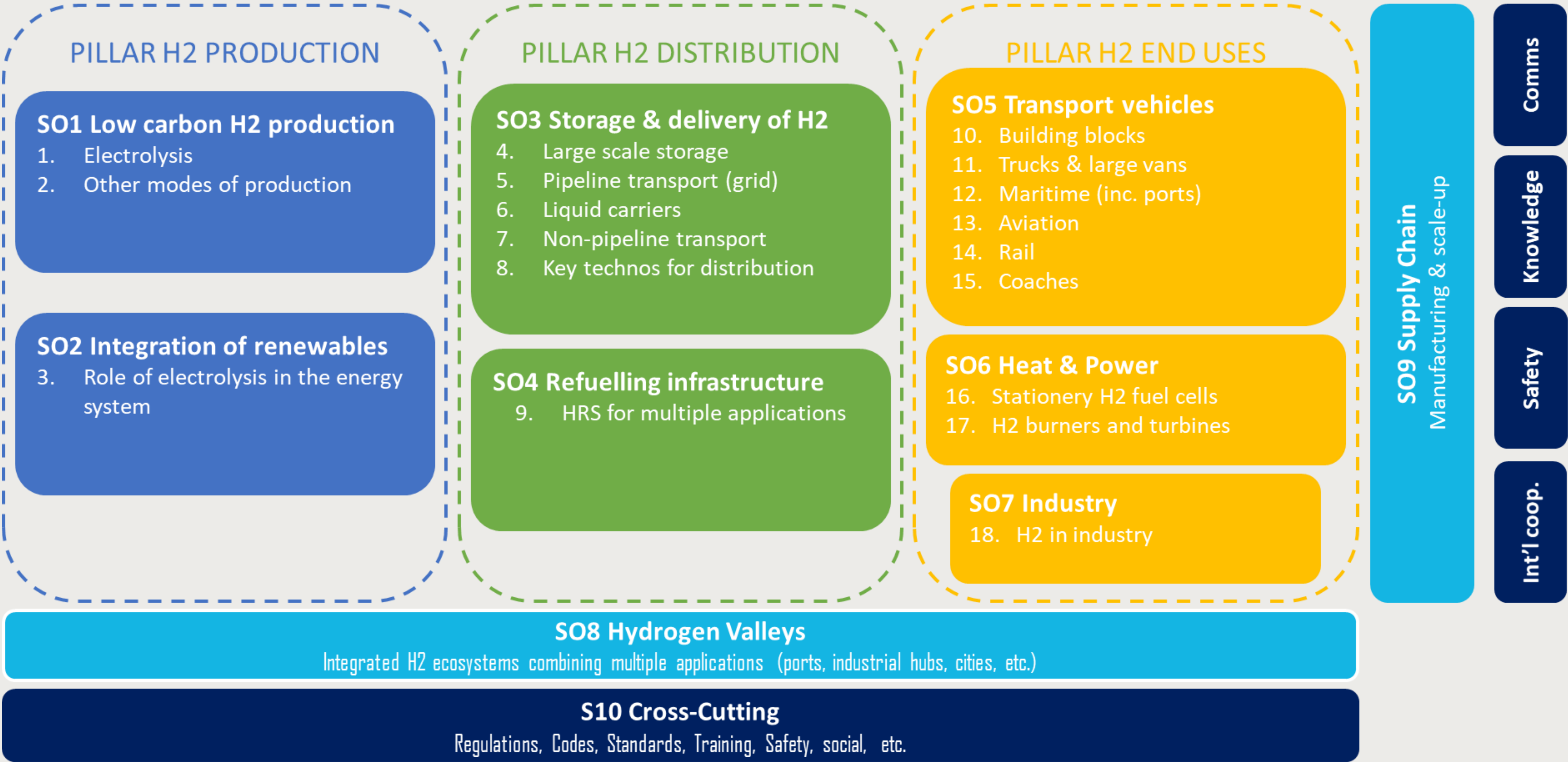


5 steps to success



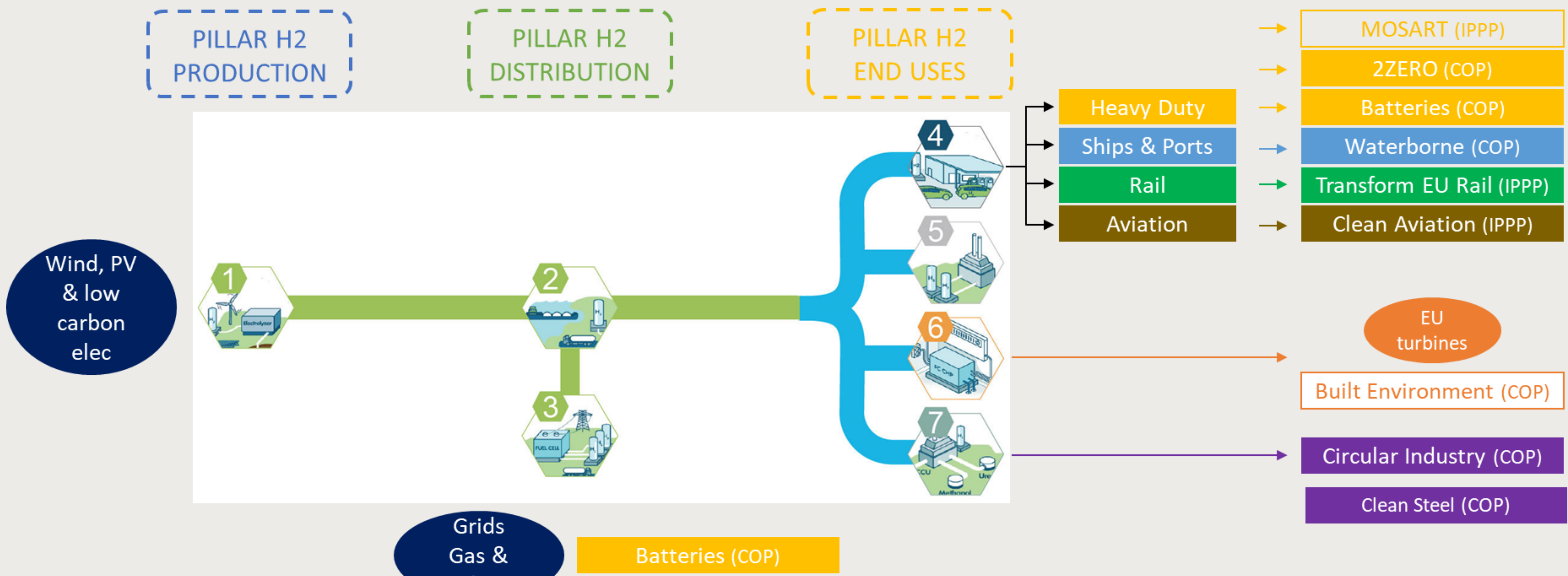
Proposed objectives for Clean Hydrogen Partnership

3 main pillars: H₂ production, distribution and end-uses next to supply chain, ecosystems and cross-cutting.



Consultation with other sectors

Looking to complementarities and cooperation with other partnerships



Clean Energy Transition (COF)
EIT Climate
EIT Raw material

- Legend**
- Complementarity + wish of active coordination
 - Complementarity + exchange of information
 - No PPP but wish of active coordination





FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

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