Government support for hydrogen – perspective from Hungary

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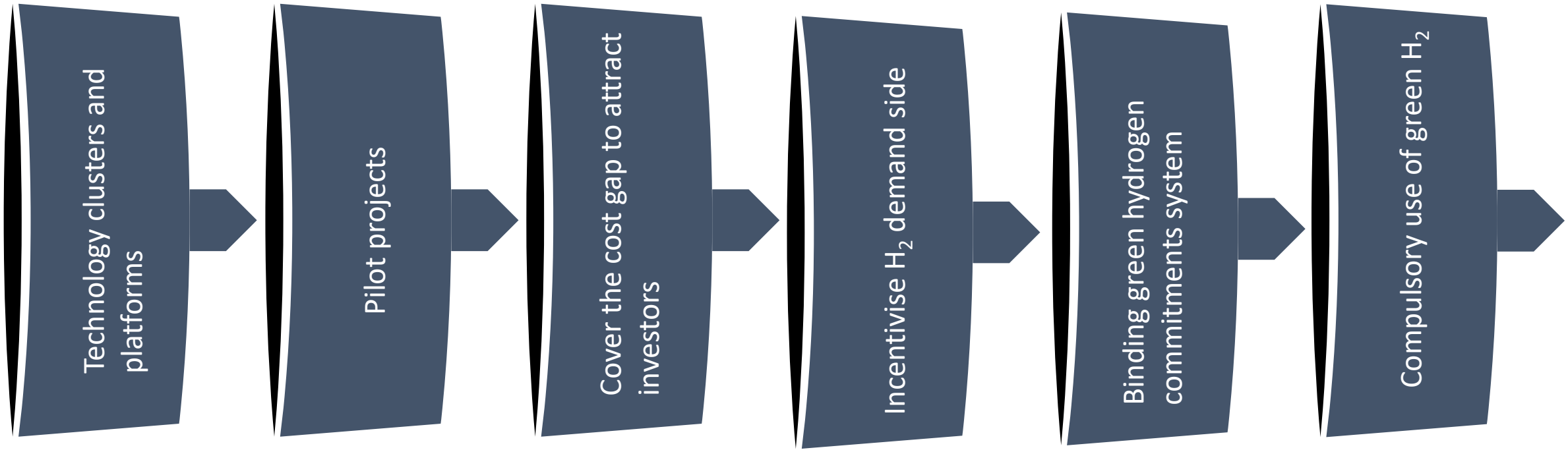
Hydrogen support policies

A step-by-step policy approach is needed.

EU 2050 roadmap: 460 billion EUR investment by 2050

Value chain development → **Policy development** → **Infrastructure development**



Support policies are underway.

EUROPEAN UNION

HUNGARY

LEGISLATION & STRATEGY

Energy Sector Integration Strategy
framework for the green energy transition that keeps a link between sectors

Hydrogen Strategy
large-scale deployment of clean hydrogen at a fast pace

National Energy Strategy 2030
aims for clean, smart and affordable energy supply

Hungary's national energy and climate Plan
plans to strengthen the energy independence and safety

ASSOCIATIONS

European Clean Hydrogen Alliance (ECH2A)
brings together industry, national and local public authorities, civil society and other stakeholders

Hydrogen Europe
representing the interest of the hydrogen and fuel cell industry and its stakeholders

Industry

Fuel Cells and Hydrogen Joint Undertaking
supports research, technological development and demonstration

HFC Hungary
supports the progress of increasing hydrogen fuel cell use, monitors the legislation, the innovations and informs the industry

Since 2008

National Hydrogen Technology Platform
connects stakeholders within the industry, manages projects, tracks the EU legislation changes and actively searches for financial sources, aims to create the induytrs's „white paper"
Since 2020

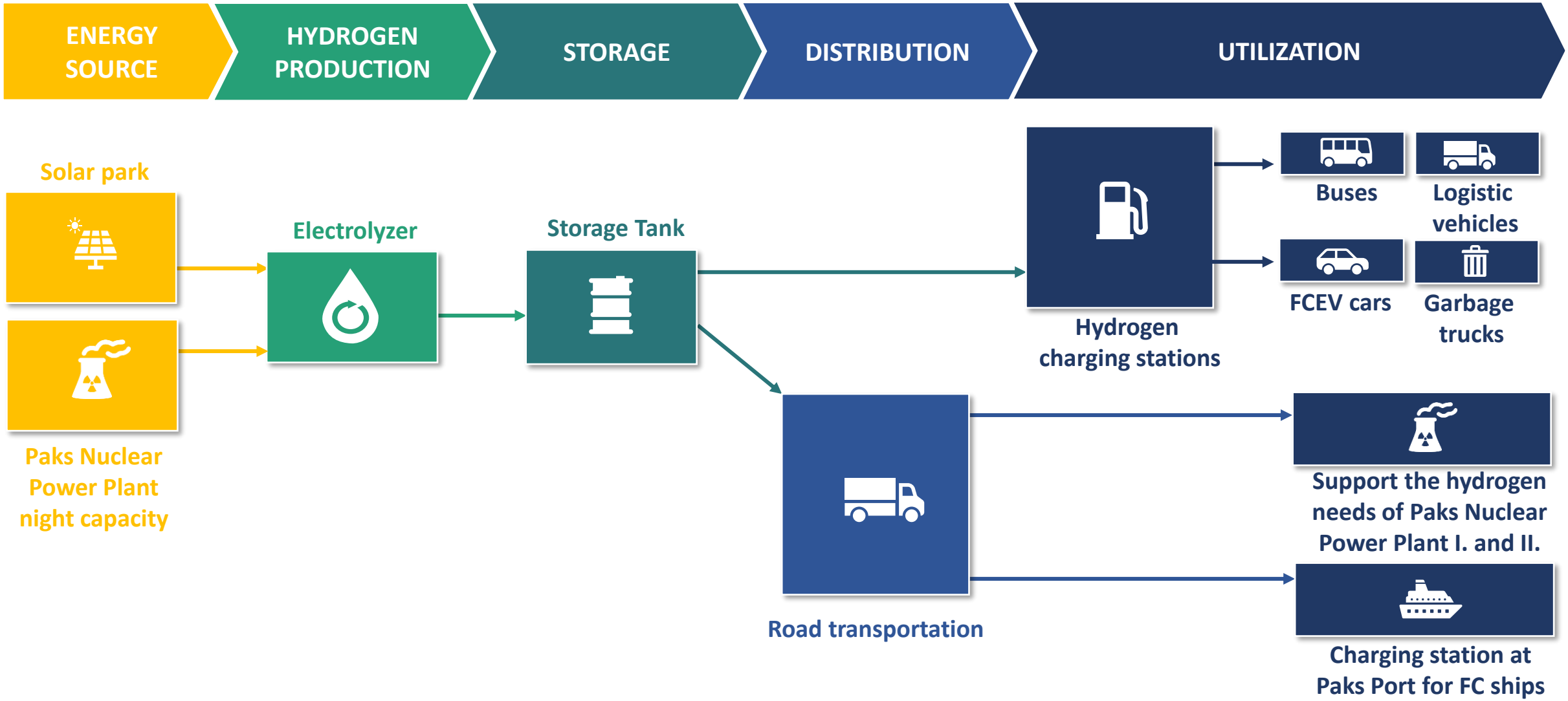
FINANCING OPTIONS

CEF- Energy, CEF Transport (if identified as an Important Project of Common European Interest)
Recovery and Resilience Facility
REACT-EU
ETS Innovation Fund

Operational Programmes accepted by the European Commission

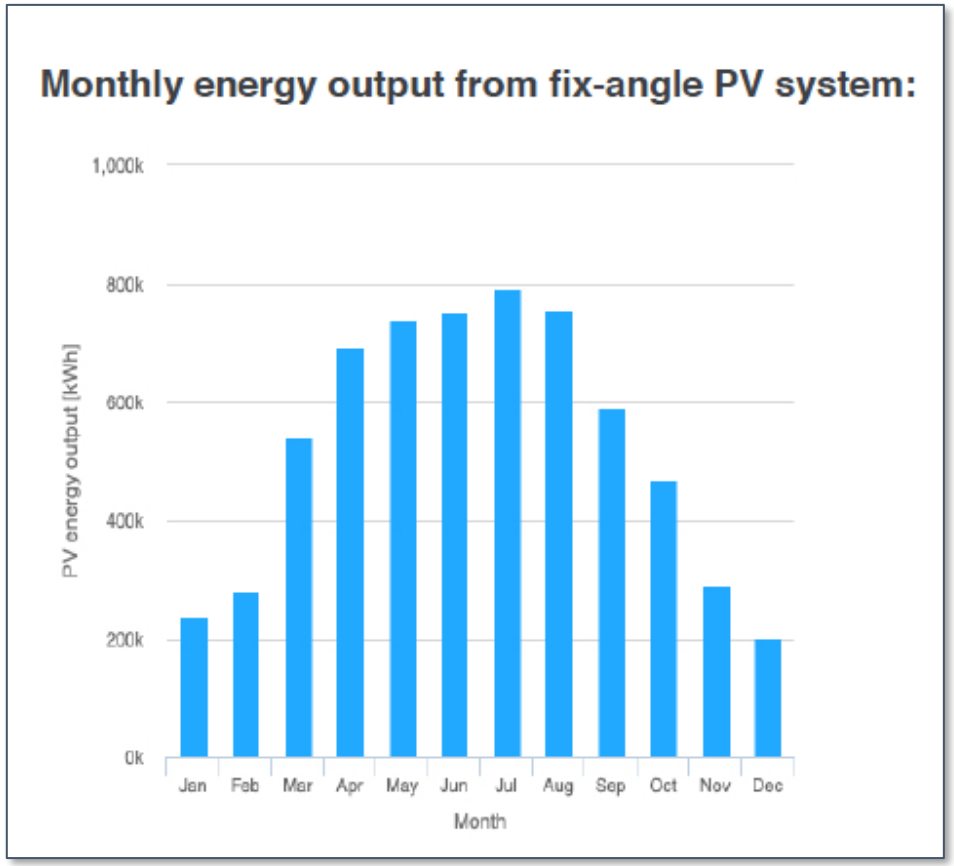
Value chain of the pilot project in Central Hungary

Central-Danube Region: A comprehensive hydrogen pilot project.



High level calculation of nuclear-only and mixed (nuclear+ solar) scenarios

Nuclear Power Plant – product diversification.



Assumptions:

- 5 MWh electrolyzer on full capacity
- 5 MWh PV – 6,3 GWh/year
- Prices:
  - Nuclear power: 33.3 EUR/MWh
  - PV: 86.1 EUR/MWh

No network access fees if target cable is applied.

Scenarios	Avg. price/MWh
Scenario 1 (nuclear only)	33.3 EUR/MWh
Scenario 2 (mixed: nuclear + solar)	41 EUR/MWh

335 120 EUR difference/year

Conclusions

We need strong government policies to achieve the 2050 targets.

Nuclear Power Plant – a viable option towards emission-free hydrogen production.

Electrolyer – cheap, emission-free electricity supply.

Nuclear Power Plant – produt diversification (baseload+electricity-to-hydrogen)

Step-by-step government hydrogen support is needed.

Government support until scaling-up.

Introduction of the CDPR Region

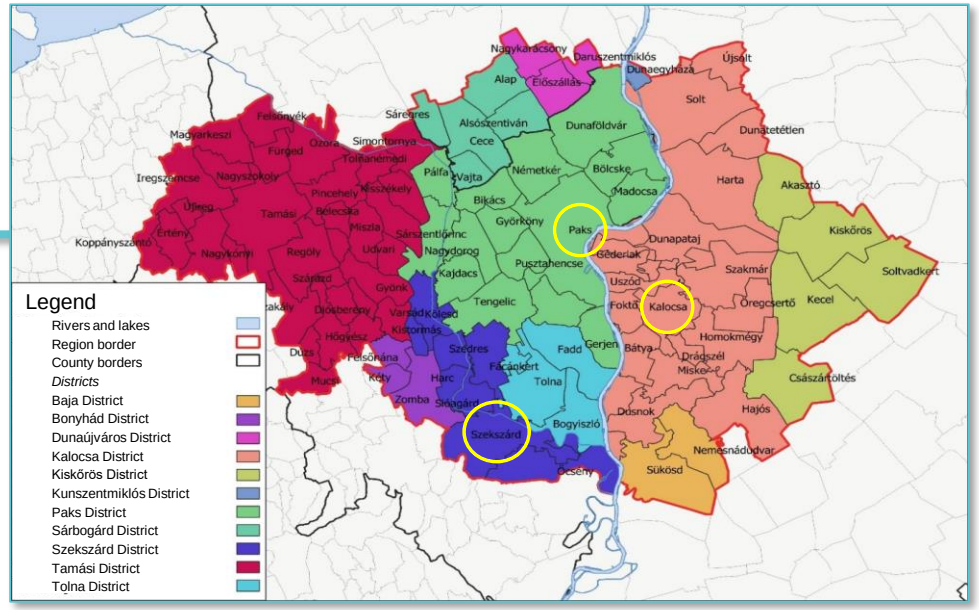
A new regional setup with new perspectives

Set up of the CDPR Region

The Central-Danube Prioritized Region was set up by a decree effected since the 5th of May 2020. The Region includes three counties (Tolna, Bács- Kiskun, Fejér) with 98 settlements. It's located in the middle of the Carpathian Basin, divided by the River Danube.

Administration in the CDPR Region

The central cities of the Region are **Szekszárd** (which also has county rights), **Paks** and **Kalocsa**.
With the intend to enhance and maximalize the regional cooperation, the Central- Danubian Development Council was established on the 4th of August 2020.



CDPR's goals

Hydrogen-based economy regional pilot project

Local power generation and energy distribution with innovative solutions, active involvement of the DSO to reach the communal goals

Emission-free public transportation with electric buses, innovative e-mobility services to businesses and to the inhabitants (car sharing, taxi)

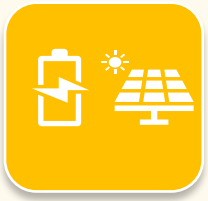
Set up Energy Community- in a consortial agreement with Paks Industrial Park ltd.

Deployment of Paks-Green City strategy, emission-free energy supply of the buildings belonging to the Municipality

Providing engineering services to the energy programs of the CDPR

Emission-free energy and mobility program in the CDPR

From city to region scale-up

	Delivered	Planned			
	Public transportation: 10 e-bus	E-taxi service for Paks 2	70 e-bus 10 FC bus	**Assets:** • Vehicles • Buildings (workshops, garages) • Transportational infrastructure (traffic control)	3 electric garbage trucks	**Assets:** • Vehicles • Buildings (workshops, garages)
		Paks Transportation Ltd. – 100 % owned by Holding			Paks Green Cycle– Holding shareholder	
	Complex energy modernization 100 kW PV 5 DC charger	4 MW PV BI 10 MW/ 20 MWh energy storage 37 DC + 12 AC charger	1.5 MW PEM Electrlyser	**Current innovation projects** Energy Community Hydrogen-based mobility Transactive microgrid (H2020) Regional aggregator		