

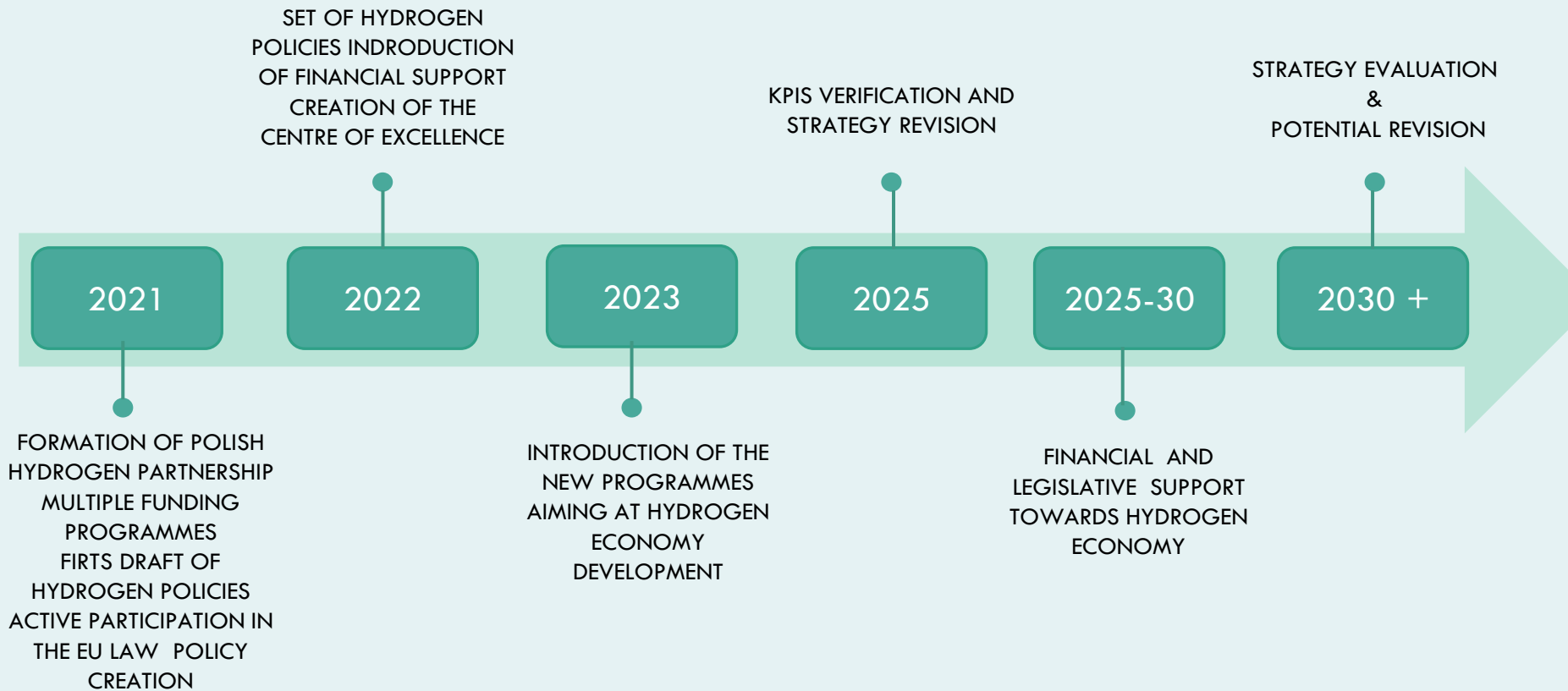
2030 POLISH HYDROGEN STRATEGY

WARSAW, MAY 2021

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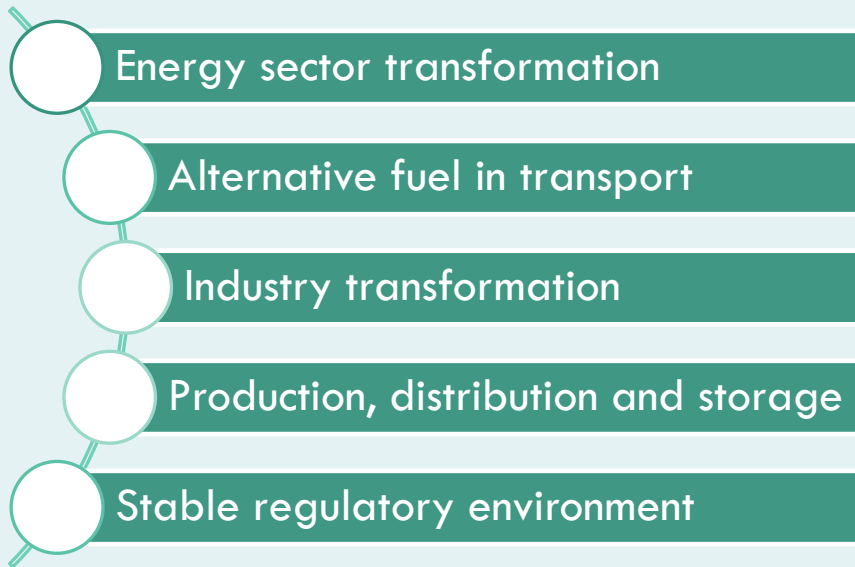
STRATEGY ROADMAP AND MILESTONES



Strategy sets the long-term vision for the industry and multiple stakeholders. Integrated policy approach is a key for its successful implementation.

STRATEGY OBJECTIVES

ULTIMATE GOAL IS TO CREATE THE POLISH BRANCH OF THE HYDROGEN ECONOMY THROUGH THE DEVELOPMENT OF STRONG NATIONAL AND LOCAL COMPETENCES IN THE PRODUCTION OF KEY COMPONENTS FROM THE HYDROGEN VALUE CHAIN AND THEIR APPLICATION IN ORDER TO ACHIEVE CLIMATE NEUTRALITY AND MAINTAIN THE COMPETITIVENESS OF THE POLISH ECONOMY.

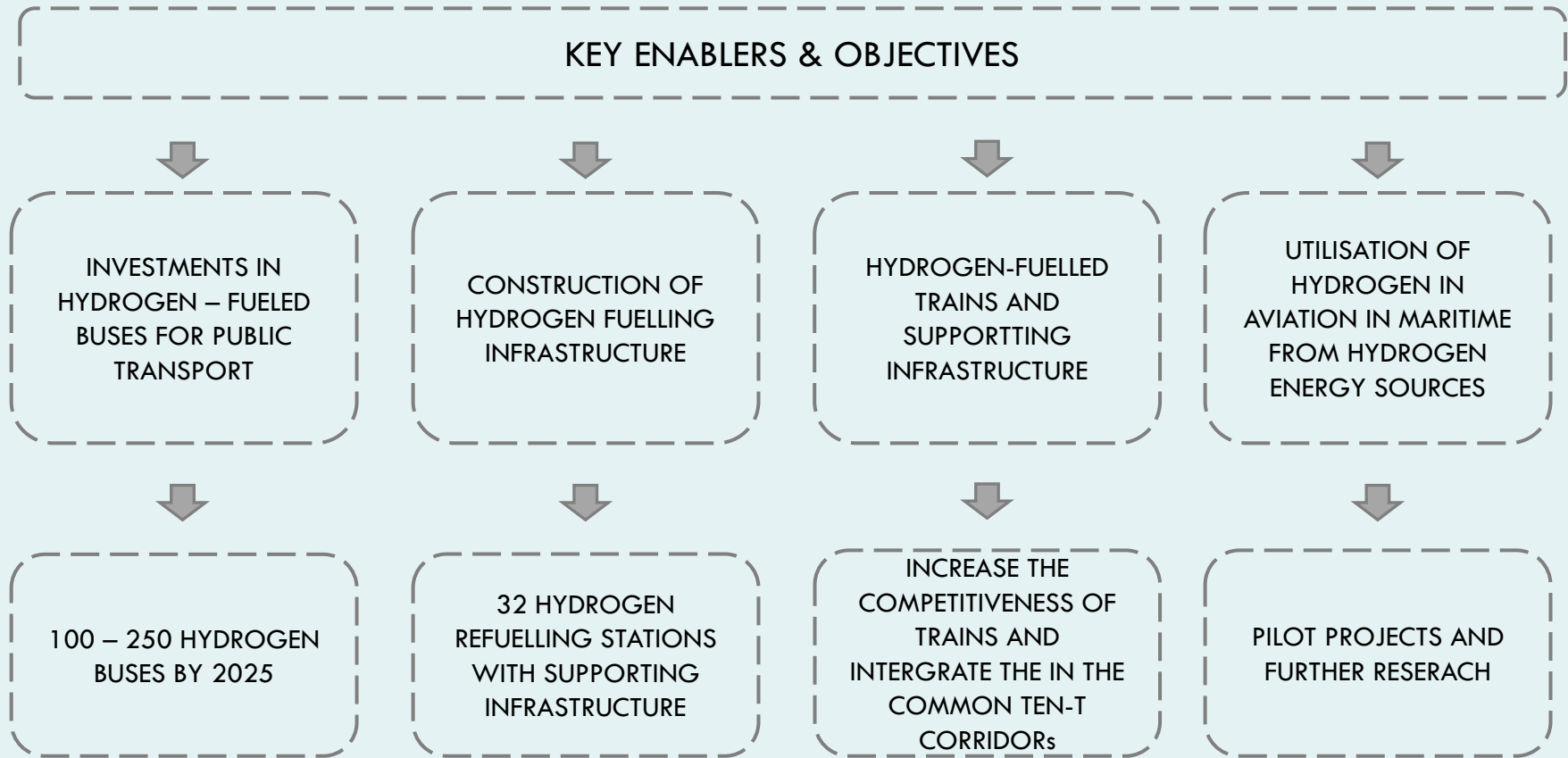


OBJECTIVE 1: HYDROGEN SOLUTIONS IN ENERGY AND HEATING SECTORS

- KEY OBJECTIVE IS THE USE OF LOW-CARBON HYDROGEN TECHNOLOGIES IS THE SECTOR TRANSFORMATION AND DIVERSIFICATION OF ENERGY SOURCES
- POLISH ENERGY POLICY 2040 AIMS TO INCREASE THE SHARE OF RES UP TO MIN. OF 32% OF THE ENERGY MIX WITH PARTICULAR FOCUS ON PV AND OFF-SHORE WIND
- HYDROGEN WILL INCREASE THE EFFICIENT USE OF RES DURING THE FULL-LOAD HOURS AND RELEASE ADDITIONAL ENERGY DURING LOW SUPPLY PERIODS
- FURTHER ELECTRIFICATION OF THE SECTORS WITH LOW-CARBON SOURCE OF ENERGY
- TRANSFORMATION OF DISTRICT HEATING BY INTEGRATION OF THE POLY-GENERATION SYSTEMS FOR AND INTRODUCTION OF FUEL-CELL HEATING SYSTEMS

50 MW and 2 GW of electrolyzers capacity is planned to be integrated in the energy value chain by 2030 and 2040 accordingly.

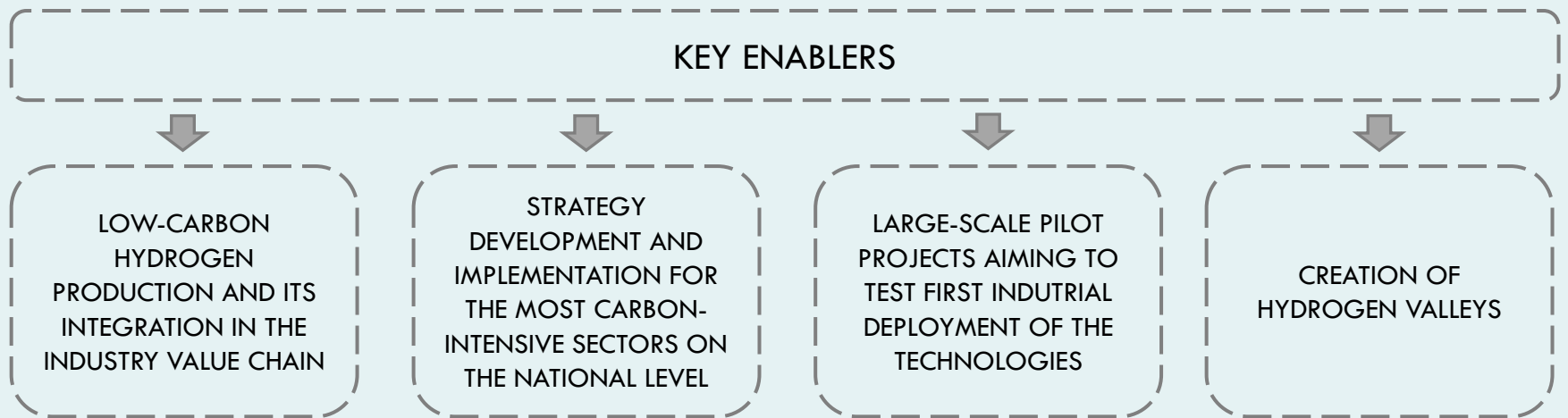
OBJECTIVE 2: HYDROGEN AS AN ALTERNATIVE FUEL IN TRANSPORT SECTOR



The goal is the construction of hydrogen-fuelled infrastructure with competitive public transport integrated in the common EU TEN-T corridors.

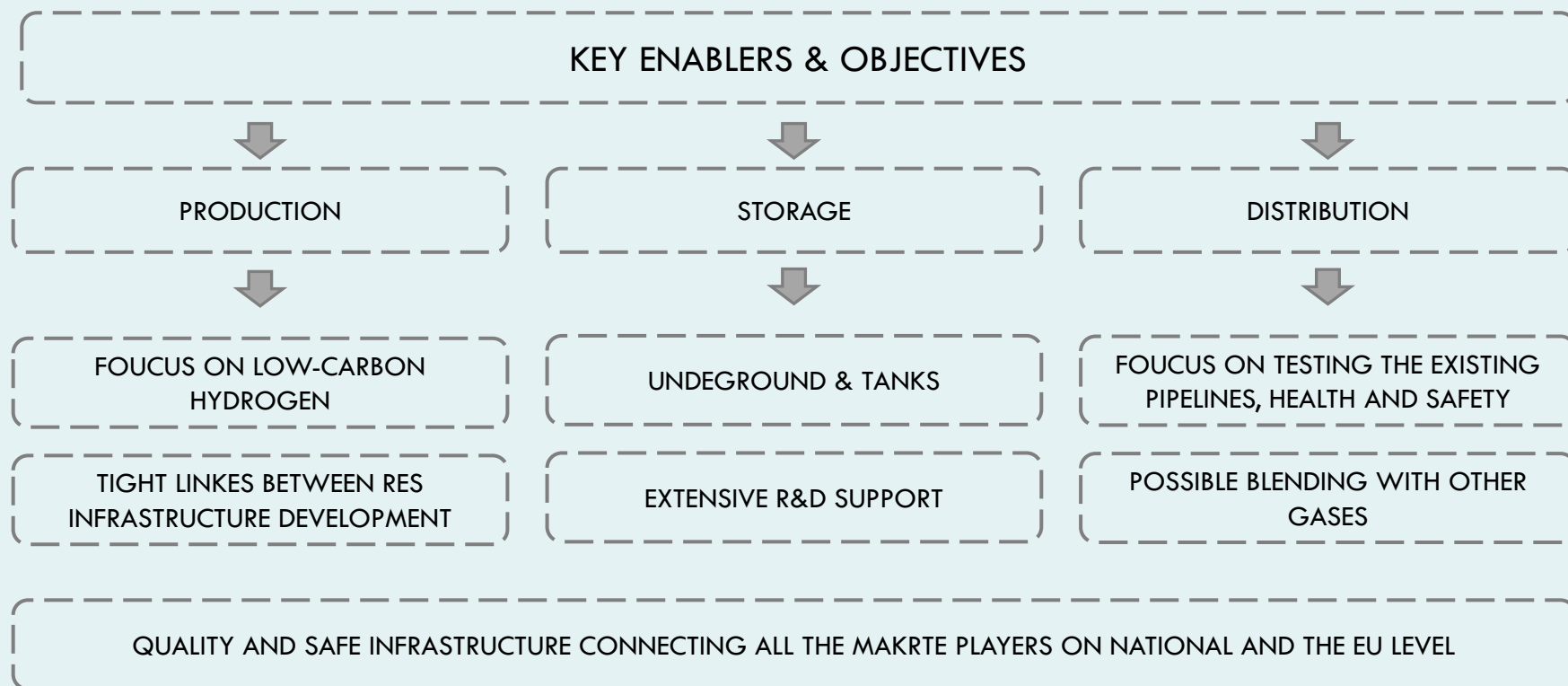
OBJECTIVE 3: INDUSTRY TRANSFORMATION

- INDUSTRY PRODUCES MORE THAN 1 MLN TON OF HYDROGEN ON YEARLY BASIS WHICH MAKES THE COUNTRY THE 3RD PRODUCER IN THE EU AFTER GERMANY AND THE NETHERLANDS
- MOST OF THE VOLUMES IS PRODUCED IN THE CARBON – INTENSIVE SMR PROCESS FOR THE NEEDS OF STEEL, AMMONIA, REFINERIES AND CHEMICAL PLANTS
- THE MAIN GOAL IS THE SWITCH TO LOW-CARBON HYDROGEN PRODUCTION FROM FOSSIL FUELS, FURTHER ELECTRIFICATION OF THE PROCESSES AND INTEGRATION OF HYDROGEN IN INDUSTRY VALUE CHAIN



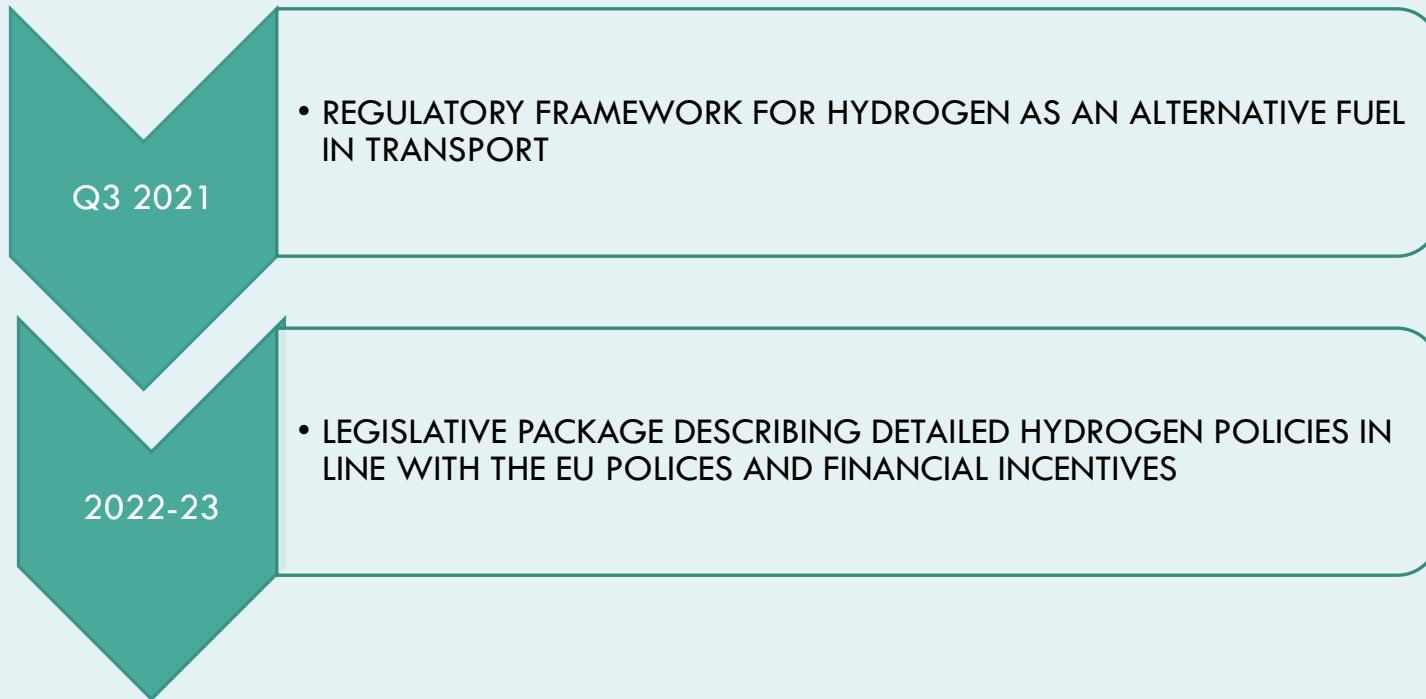
Energy-intensive industries present the greatest opportunity for the integration of the low-carbon hydrogen in their value chain due to the lack of other alternatives.

OBJECTIVE 4: PRODUCTION, STORAGE AND HYDROGEN TRANSPORT



Polish Energy Policy 2040 defines wind, mainly offshore, and solar as the main clean energy sources essential to meet the RES targets. In parallel, new hydrogen infrastructure will be built in close proximity to production and consumption sites, setting the backbones for fully integrated Polish and European hydrogen systems.

OBJECTIVE 5: STABLE REGULATORY ENVIRONMENT



INDICATORS AND MAIN ACTIONS

- 2 GW OF ELECTROLYSER & LOW-CARBON CAPACITY OPERATIONAL BY 2030
- 800-1000 HYDROGEN-FUELLED BUSES AND A NETWORK OF MIN. 32 REFUELLING STATIONS BY 2030
- MIN. 5 HYDROGEN VALLEYS DEVELOPPED BY 2030
- CONCLUSION OF A HYDROGEN SECTOR DEAL - 2021
- CREATION OF COMPREHENSIVE POLISH RESEARCH PROGRAMMES AND FINANCIAL SUPPORT FOR R&D AND INVESTMENT PROJECTS
- ESTABLISHMENT OF THE CENTRE FOR HYDROGEN TECHNOLOGIES BUILDING COMPETENCIES FOR THE HYDROGEN ECONOMY
- EUROPEAN AND INTERNATIONAL COOPERATION

KEY CHALLENGES

- COMPETITIVENESS
- MARKET REGULATIONS
- MEANS OF FINANCIAL INSTRUMENTS SUPPORTING MARKET DEVELOPMENT
- HARD-TO- ABATE INDUSTRIES
- QUALITY AND SAFE DISTRIBUTION SYSTEM INTEGRATED IN THE COMMON EUROPEAN INFRASTRUCTURE



THANK YOU FOR YOUR ATTENTION !

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