

# THE FRENCH GREEN HYDROGEN PLAN 2020-2030



SHAPING FRANCE AS ONE OF THE MOST COMPETITIVE,  
INNOVATIVE AND DECARBONIZED ECONOMIES



# A PIONEER COUNTRY IN THE FIELD OF CARBON-FREE HYDROGEN

## LAW ON ENERGY TRANSITION FOR GREEN GROWTH (2015)

UP TO **40%** OF RENEWABLE ENERGY IN THE PRODUCTION OF ELECTRICITY BY 2030,  
CONSUMPTION OF FOSSIL FUELS REDUCED BY **30%**  
DECARBONIZING 10% OF GAS

## STATE SUPPORT BETWEEN 2010 AND 2018

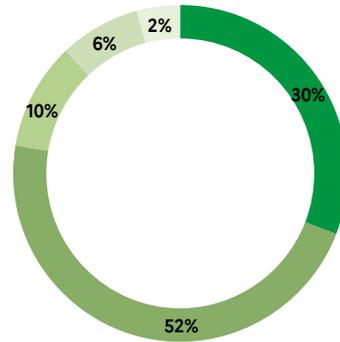
**€100M** FOR DEMONSTRATORS AND SHARES IN HIGH POTENTIAL COMPANIES (PIA)  
**€110M** IN R&D BY ANR  
START-UPS AND SMES FINANCIAL SUPPORT FROM BPIFRANCE  
**€80M** TO SUPPORT H2 MOBILITY FROM ADEME AND **€12M** FOR INDUSTRIAL PROJECTS (PIA)  
BANQUE DES TERRITOIRES (CDC GROUP) SUPPORTED REGIONAL PROJECTS

**A MAJOR SUCCESS OF THE FIRST NATIONWIDE CALL FOR EXPRESSIONS OF INTEREST (2020) :**  
**160 PROJECTS** FROM COMPANIES, LOCAL AUTHORITIES AND R&D CENTRES  
REPRESENTS A TOTAL INVESTMENT OF **€32.5BN**





# STRONG GROWTH PROSPECTS FOR CARBON-FREE H2 (WORLD)



- REFINERIES
- AMMONIA
- BASE CHEMICALS
- METALLURGY
- OTHERS

Worldwide H2 demand (2018)

ACCORDING TO THE HYDROGEN COUNCIL,  
CARBON-FREE HYDROGEN COULD MEET  
**20% OF OVERALL ENERGY DEMAND BY 2050**  
(+50%)

**400M CARS, 15M BUSES, 5M TRUCKS,**  
**20% OF TRAINS**  
**- 3,2GT OF CO2 EMISSIONS BY 2050**  
(HYDROGEN COUNCIL)

## INDUSTRIES

**DECARBONIZATION** (REFINERIES, AMMONIA,  
METHANOL)

**NEW USES** (ELECTRICITY PRODUCTION,  
INDUSTRIAL HEAT, ALTERNATIVES TO  
PETROLEUM FUELS,...)

**POWER TO GAS** (SHORT AND LONG TERM  
STORAGE SOLUTIONS, MORE FLEXIBILITY,  
FEWER INFRA INVESTMENTS)

## MOBILITY → FUEL CELLS

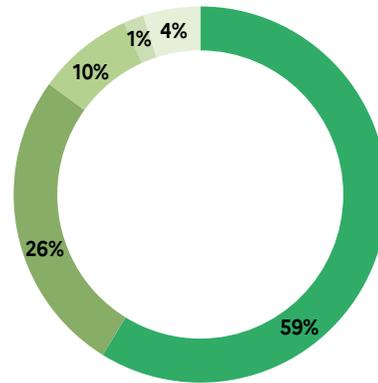
DECARBONIZATION OF LIGHT VEHICLES,  
BUSES, TRUCKS (BY 2025), HEAVY VEHICLES,  
TRAINS, PASSENGER BOATS (2030), PLANES &  
SHIPPING (2040)

ELECTRONIC DEVICES, MOBILE GENERATORS  
CHARGING STATIONS DEPLOYMENT





# STRONG GROWTH PROSPECTS FOR CARBON-FREE H2 (FRANCE)



- REFINERIES
- AMMONIA
- BASE CHEMICALS
- METALLURGY
- OTHERS

France H2 demand (2018)

BY 2050, CARBON-FREE HYDROGEN COULD MEET **20% OF OVERALL ENERGY DEMAND**  
REDUCE ANNUAL CO2 EMISSIONS BY AROUND **55MT**  
REPRESENT **12%** OF THE HEATING AND ELECTRICITY DEMAND FOR HOUSEHOLDS AND  
**10% FOR INDUSTRY** (MINISTRY OF ECOLOGICAL TRANSITION, AFHYPAC)

DEVELOPMENT OF AN CARBON-FREE H2 SECTOR AIMING  
AT ADDRESSING **20 TO 40%** OF NEW INDUSTRIAL USES BY  
2028  
(COMBINED WITH AN H2 TRACEABILITY SYSTEM)

MOBILITY : **20 TO 50K** LIGHT VEHICLES, UP TO **2K**  
HEAVY VEHICLES AND **1K** STORAGE STATIONS BY 2028  
(**18%** OF VEHICLE FLEET BY 2050)

DEPLOYMENT OF STORAGE CAPACITIES TO HELP  
LOCAL AUTHORITIES TO INTEGRATE POWER TO GAS  
SOLUTIONS





# A GROWING ECOSYSTEM FOCUSING ON NEW H2 MARKET OPPORTUNITIES

## LARGE GROUPS & ENERGY SUPPLIERS



2<sup>ND</sup> H2 PRODUCER IN THE WORLD



LAUNCHED ITS OWN H2 SUBSIDIARY IN 2018



SPECIALTY CHEMICALS & HIGH PERF MATERIALS. H2 TANKS



H2 TANKS AND FUEL CELLS WITH CEA

## START-UPS & SMES



CARBON-FREE H2 PRODUCTION



STATIONARY & MOBILE ENERGY STORAGE



H2 MOBILITY



POWER TO GAS SERVICES

## PUBLIC ACTORS (R&D, STRATEGY, LOCAL SUPPORT)



PUBLIC R&D CENTRES



NATIONAL AGENCIES



PROFESSIONAL ASSOCIATIONS & PLATFORMS



REGIONAL CLUSTERS





# A MASSIVE PLAN TO BECOME A LEADING PLAYER IN THE GREEN H2 FIELD WITH 3 MAIN OBJECTIVES :

**BY 2030**

TO ACHIEVE MASS-PRODUCTION OF H2 BY ELECTROLYSIS  
(CAPACITY OF **6.5 GW**) AND SAVE **6MT** CO2 BY 2030

TO PROMOTE CARBON-FREE H2 FUELED  
HEAVY MOBILITY

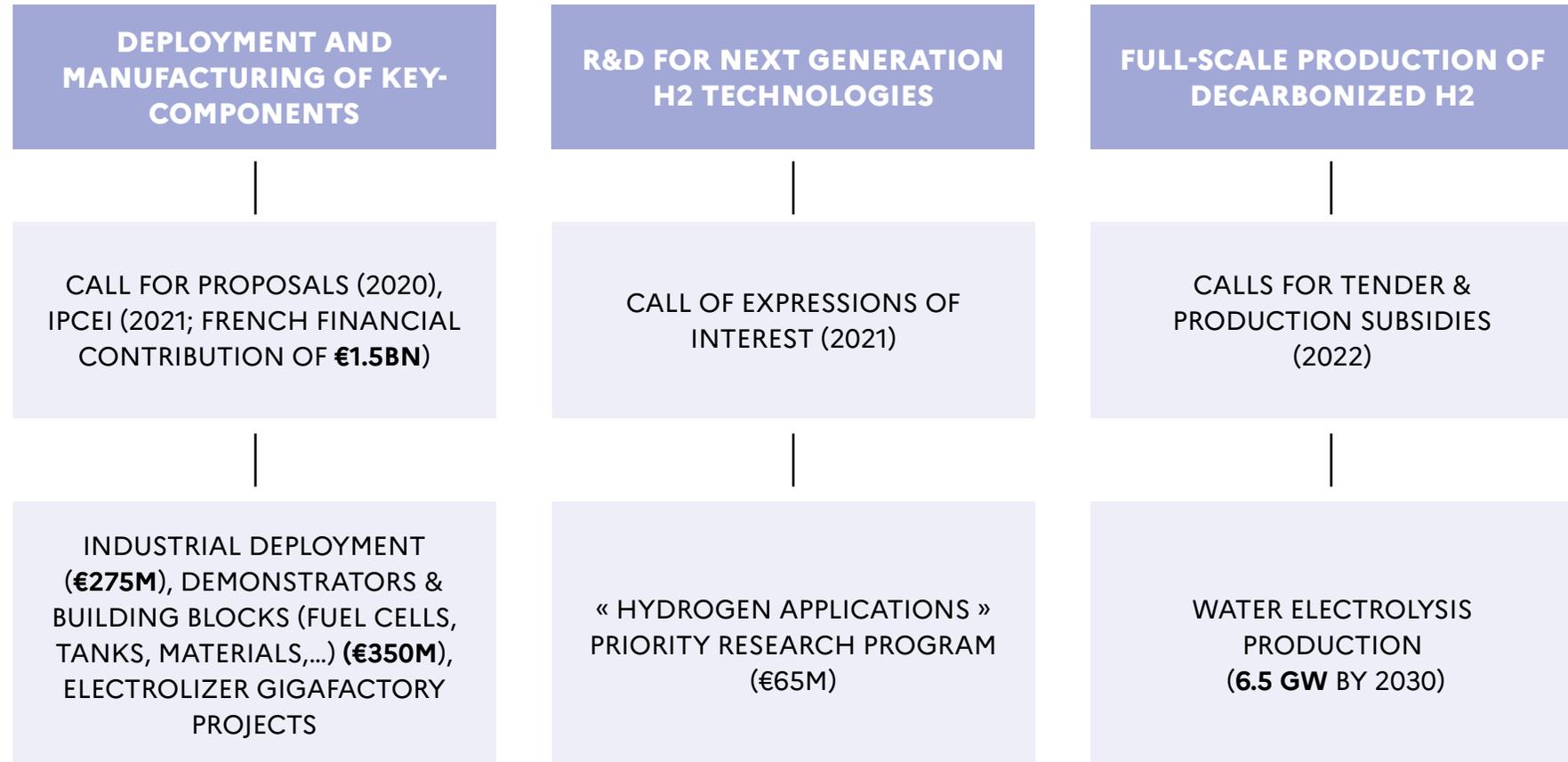
TO DEVELOP A FULLY INTEGRATED AND COMPETITIVE  
SECTOR WITH **50 TO 150K** JOBS

FRANCE IS WELCOMING ALL COMPANIES COMMITTED TO ADDRESSING ENVIRONMENTAL IMPACTS !





# 7BN€ DEDICATED TO SUPPORT ALL ACTORS INVOLVED IN THE GREEN H2 SECTOR IN FRANCE



POINTS OF CONTACT : ADEME, BPIFRANCE, NATIONAL RESEARCH CENTER





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