

THE FRENCH GREEN HYDROGEN PLAN 2020-2030



**FRANCE IS SHAPING UP TO BECOME ONE OF THE MOST
COMPETITIVE, INNOVATIVE AND LOW-CARBON ECONOMIES
IN THE WORLD**



A GROWING ECOSYSTEM FOCUSING ON NEW H2 MARKET OPPORTUNITIES

MULTINATIONALS & ENERGY SUPPLIERS

START-UPS & SMES

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



2ND H2 PRODUCER IN THE WORLD



CARBON-FREE H2 PRODUCTION



PUBLIC R&D CENTRES



LAUNCHED ITS OWN H2 SUBSIDIARY IN 2018



STATIONARY & MOBILE ENERGY STORAGE



NATIONAL AGENCIES



SPECIALTY CHEMICALS & HIGH PERF MATERIALS. H2 TANKS



H2 MOBILITY



PROFESSIONAL ASSOCIATIONS & PLATFORMS



H2 TANKS AND FUEL CELLS WITH CEA



POWER TO GAS SERVICES



REGIONAL CLUSTERS





FRANCE, A PIONEER IN THE FIELD OF CARBON-FREE HYDROGEN

LAW ON ENERGY TRANSITION FOR GREEN GROWTH (2015)

UP TO **40 %** OF ELECTRICITY PRODUCTION FROM RENEWABLE ENERGY IN 2030
30% REDUCTION IN FOSSIL FUEL CONSUMPTION
10% DECARBONIZING OF GAS

GOVERNMENT SUPPORT BETWEEN 2010 AND 2018

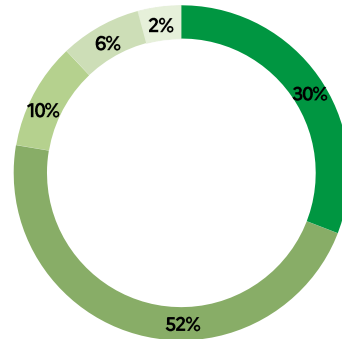
€100M TO IMPLEMENT DEMONSTRATORS AND INVEST IN HIGH POTENTIAL COMPANIES (PIA)
€110M FOR R&D FROM THE NATIONAL RESEARCH AGENCY (ANR)
FINANCIAL SUPPORT FROM BPIFRANCE FOR START-UPS AND SMES
€80M TO SUPPORT H2 MOBILITY FROM ADEME AND **€12M** FOR INDUSTRIAL PROJECTS (PIA)
FINANCIAL SUPPORT FROM BANQUE DES TERRITOIRES (CDC GROUP) FOR THE DEVELOPMENT OF REGIONAL PROJECTS

A VERY SUCCESSFUL FIRST NATIONWIDE CALL FOR EXPRESSIONS OF INTEREST (2020) : 160 PROJECTS
SUBMITTED BY COMPANIES, LOCAL AUTHORITIES AND R&D CENTERS
REPRESENTING 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

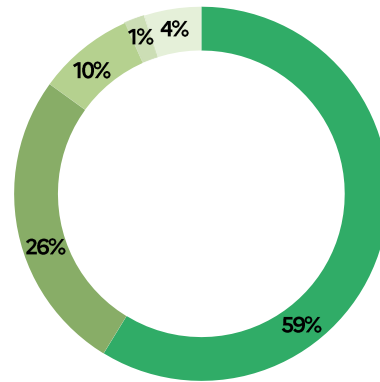
DECARBONIZATION OF LIGHT VEHICLES,
BUSES, TRUCKS (BY 2025), HEAVY VEHICLES,
TRAINS, PASSENGER BOATS (2030), PLANES &
SHIPPING (2040)

DEPLOYMENT OF ELECTRONIC DEVICES,
MOBILE GENERATORS AND CHARGING
STATIONS





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 OF HOUSEHOLDS AND
10% FOR INDUSTRY (MINISTRY OF ECOLOGICAL TRANSITION, AFHYPAC)

DEVELOPMENT OF A 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 INTEGRATE POWER TO GAS SOLUTIONS





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

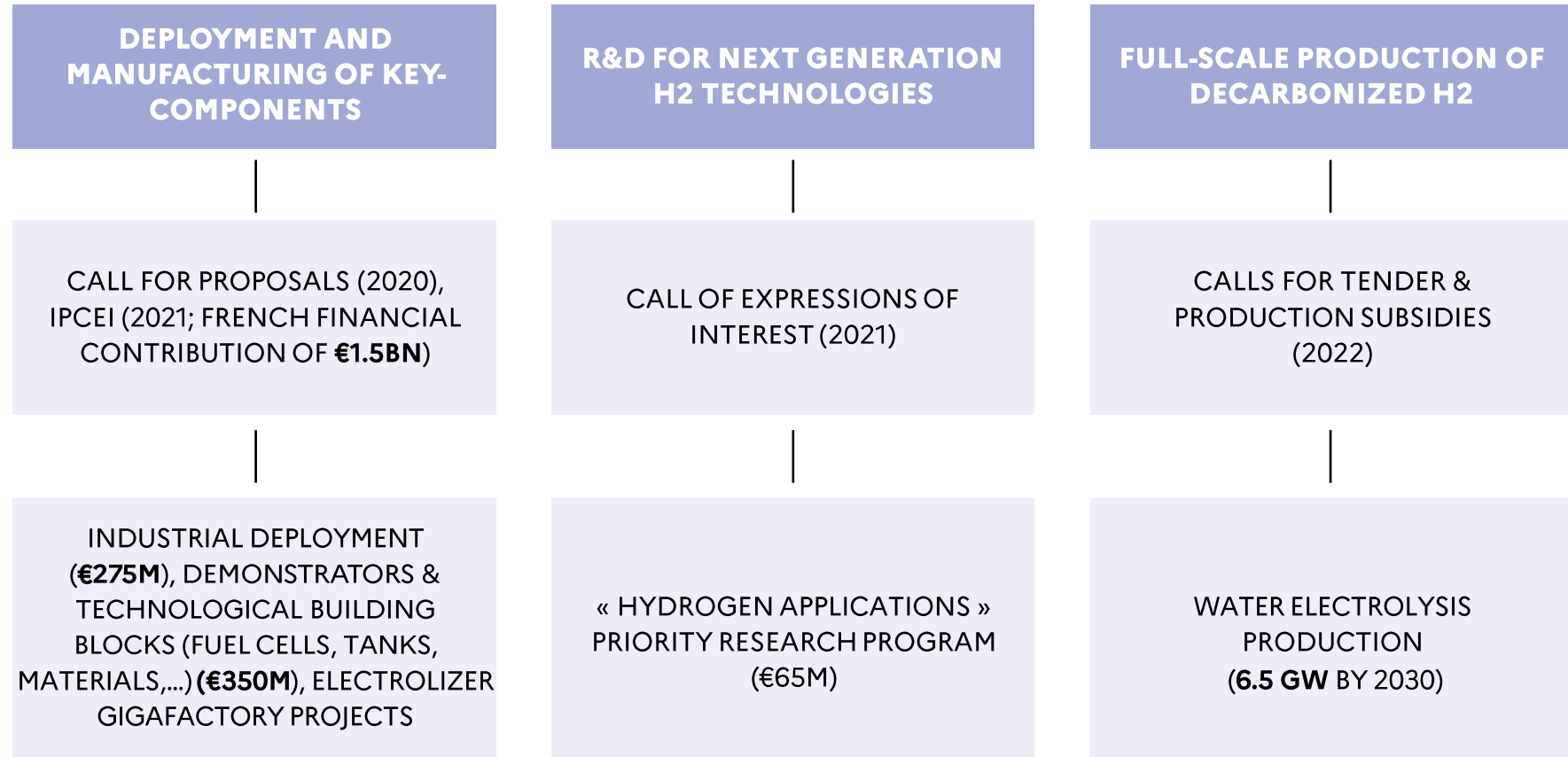
TO DEVELOP A FULLY INTEGRATED AND COMPETITIVE
SECTOR WITH **50 TO 150K** JOBS

FRANCE WELCOMES ALL COMPANIES INVOLVED IN THE FIGHT AGAINST ENVIRONMENTAL IMPACTS





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



POINTS OF CONTACT : ADEME, BPIFRANCE, NATIONAL RESEARCH CENTER





Choose
France™

WWW.CHOOSFRANCE.FR

**CONTACT:
INVEST@BUSINESSFRANCE.FR**



GOUVERNEMENT

*Liberté
Égalité
Fraternité*



BUSINESSFRANCE