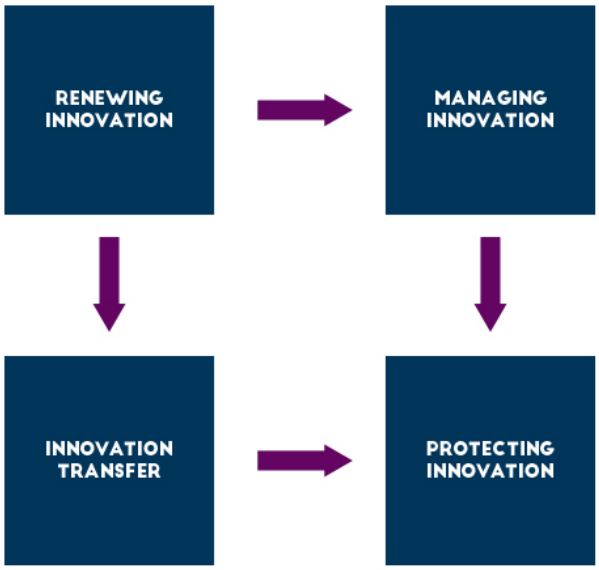
To stay ahead of the curve and remain at the forefront of energy innovation, IFPEN has put in place an approach and tools to innovate and develop new products and services, both to improve existing technologies and to prepare for the future.



RENEWING INNOVATION

IFPEN anticipates R&I needs through **ongoing forward thinking**. This way of thinking is being conducted as part of its participation in Ancre alliance. It also benefits from the contribution of IFPEN's scientific board and industrial committees, and is enriched by the partnerships established, both academic and industrial. Attentive to the industry's needs, IFPEN nurtures and enjoys a continuous dialogue with economic stakeholders

In parallel, IFPEN detects new opportunities through an internal incubation structure, participatory innovation challenges and, more broadly, through an open innovation approach.

The internal incubation initiative aims to boost IFPEN's diversification into new markets for energy transition and the environment. It makes it possible to identify and assess innovation opportunities, and to support projects in their initial phases. The initiative pools expertise in the fields of innovation marketing and business model development. Its product portfolio is currently structured around five areas: **the circular economy, industrial efficiency, stationary energy storage, CO_2 recovery and air quality**.

6 to 8 projects incubated at IFPEN each year.

In order to bolster and renew its activities in the field of new energy technologies, IFPEN launched in 2017 an in-house **participative innovation challenge**. It has been renewed in 2019. Objective : quickly identify and qualify new opportunities. More than 200 proposals emerged during each edition, The five or six winning projects cover topics as diverse as biofuels, biogas, air pollution abatement, soil pollution and electrification of mobility.

MANAGING INNOVATION

R&I projects are subject to rigorous and dynamic management, from the appraisal phase to the development phase. IFPEN uses marketing and strategic analysis tools for this purpose.

In addition, in order to ensure, on the one hand, that the technologies it targets are in line with market needs and, on the other hand, to have a commercialization vehicle for its innovations, IFPEN is working with manufacturers as early as possible in the projects.

PROTECTING INNOVATION

Patent filing is a key element of IFPEN's innovation approach. Industrial property issues are taken into account from the time a project is launched, not only to protect the results of R&I, but also to allow their use by industry. With a portfolio of more than 11,000 active patents worldwide, IFPEN is one of the **top 15 patent filers in France**, alongside major groups. IFPEN's presence among the leading R&I players illustrates its determination to support the industrial sectors of today and the future through innovation.

Key figures 2021
149 first patent applications filed
13th ranked patent filer in France (source: Inpi)

INNOVATION TRANSFER

With licensing out, bilateral research contracts, creation of companies and more, the marketing of IFPEN's products and services takes various forms.

Identifying new products and services stemming from R&I that can be marketed through its **creation of start-ups** is one of IFPEN's ambitions. The objective is to develop greater agility in order to be able to meet the needs of customers more quickly in rapidly evolving markets. IFPEN thus supports the creation of businesses and fosters their development by providing a significant share of the start-up capital required. Example of this business creation policy are DriveQuant, a start-up launched by IFPEN in 2017 in the field of connected mobility and TecHKare, launched in 2021 in the field of electric mobility to make it easier to move heavy loads.

OPEN INNOVATION, AT THE HEART OF OUR CORPORATE CULTURE

In a constantly changing environment, IFPEN conducts open research, i.e. connected to its partners and customers, at all stages of the innovation cycle. In particular, IFPEN aims to enrich its thinking and breathe new life into its ideas externally, but also to identify opportunities earlier and share them more quickly in order to boost innovation.

IIFPEN is constantly working to strengthen its **integration into the innovation ecosystem in France and Europe**. This approach is reflected in numerous and regular exchanges with academics, research centers, SMEs, start-ups, major groups and actors involved in supporting R&I.

The co-development of innovative technologies with SMEs and start-ups is part of this open innovation rationale. It also makes sense through IFPEN's involvement in collaborative research projects and structures focused on technological research and innovation. IFPEN is indeed a stakeholder:

- in **6 competitiveness clusters**. IFPEN is a founding member of the Axelera (chemicals and environment), Cara (urban transport) and NextMove (automotive and mobility) clusters. It also participates in the Avenia (geosciences and subsurface energy sectors) and Industries and Agro-Resources (bio-economy) clusters;
- institutes for energy transition Vedecom (mobility), Pivert (plant-based chemistry)and Capenergies (renewable energies)
- and is a Carnot institute for its transport activities and its energy resources activities.

Innovation approach

Link to the web page :