IFPEN: INNOVATION AND TRANSFER TO INDUSTRY

Didier Houssin
Chairman and CEO

5th European Energy Forum, CFE–WEC
Paris, 9th May 2016
WHO ARE WE?

A public-sector R&I body

A training center

An industrial group

An international scope in the fields of energy, transport and the environment
IDENTITY CARD

1,660 people
of whom

1,130 researchers

125 doctoral and post-doctoral researchers

2 sites:
Rueil (near Paris) and Solaize (near Lyon)

A very high-quality technical environment: testing resources, equipment, 110 teraflop supercomputer

More than 50 professions, from geological engineers to powertrain engineers
11,000 active patents

Award-winning research:
2014: Woman Scientist of the Year
2005: Nobel Prize in Chemistry

More than 200 articles/year published in international scientific journals
DEVELOPING INNOVATIONS

MOBILITY
High-efficiency IC powertrains, vehicle electrification and connectivity, emission reduction

NEW ENERGIES
Biofuels, bio-based chemistry, ocean energies and offshore wind power, energy storage, circular economy

OIL AND GAS
Optimization of production and recovery, produced water management, environmentally-friendly fuel and chemical intermediate processes

Fundamental research, the bedrock for the development of our innovations
CREATING WEALTH AND JOBS

> 50%

One of the few public research body to fund more than 50% of its budget using its own resources
More than 100 industrial partners around the world

Technological support for around twenty SMEs and intermediate-sized companies every year

THE GROUP

€1.2 billion turnover in 2015

4,500 people in 25 countries
## PORTFOLIO OF INDUSTRIAL STAKEHOLDINGS*

<table>
<thead>
<tr>
<th>Sector</th>
<th>Company</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refining and petrochemicals catalytic processes</td>
<td>Axens</td>
<td>100%</td>
</tr>
<tr>
<td>Process furnace engineering for refining, petrochemicals and hydrogen</td>
<td>EURECAT</td>
<td>50%</td>
</tr>
<tr>
<td>CO₂ storage engineering</td>
<td>green</td>
<td>36%</td>
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<tr>
<td>Powertrain engineering</td>
<td></td>
<td></td>
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<tr>
<td>Geoscience consulting and software</td>
<td>BeicipFranlab</td>
<td>100%</td>
</tr>
<tr>
<td>Training</td>
<td>IFP Training</td>
<td>62%</td>
</tr>
<tr>
<td>Investment funds energy and environment</td>
<td>Demeter / Demeter 2 / Demeter 3 Amorçage / Demeter 4 INFRA</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Rhône-Alpes Regional Fund</td>
<td></td>
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</table>

* At 15 March 2016  
** 100%-owned subsidiary
DEEPLINES WIND

Simulation software relating to the behavior of fixed-bottom and floating wind turbines, on a horizontal axis, with a view to optimizing their design and reducing costs

Marketed by Principia
Stratigraphic modeling software principally developed using consortium approach

Received the EAGE's Robert Mitchum award in **2014**

**6th** consortium underway on organic matters (*Dionisos Organic Matters JIP*)
THE EOR ALLIANCE™

Integrated Enhanced Oil Recovery (EOR) services, from formulation to roll-out and field monitoring

Created in 2010, the EOR Alliance brings together IFPEN, Beicip-Franlab and Solvay

More than 100 researchers mobilized within the Alliance
THE FUTUROL™ PROJECT

Lignocellulosic ethanol production process

2015: launch of the continuous pilot unit

Objective for 2017: launch to market of a complete production chain

Marketing of the technology by Axens
UNCOVERING GOLD NUGGETS

- From joint development... to stakeholdings
- Creating and coordinating an ecosystem
  Creating links between partner SMEs to help them work together, be more innovative... and create value
Example of application to an integrated product: ORC 100

Modular bricks
- Active components of the high-speed generator
- High-frequency power electronics

Assembled brick
Turbine + generator

Joint development of assembled bricks
Joint development of the integrated product

Assembled brick
Inverter
DARING TO TAKE A DIFFERENT VIEW

- Our fields of the future
  - New energy technologies
  - New markets
    - Circular economy
    - Energy storage
    - Big data

- Cultivating a new state of mind: example of IT
  - Change of methods
  - Change of practices
  - Change of patterns
Innovating for energy

Find us on:

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