

# INEOS

## SUSTAINABLE RENEWAL OF THE FLEMISH CHEMISTRY IN ECONOMICALLY CRUCIAL PERIOD

How PROJECT ONE contributes  
to the renewal of the petrochemical  
cluster in Antwerp

INEOS, September 2020

Project ONE is an investment of INEOS in the Antwerp chemical sector for the construction of an **ethane cracker and PDH installation**. The €5 billion investment makes it the most important investment in European chemistry in more than 20 years.

The installations will produce the gases ethylene and propylene. These are the building blocks for essential chemicals which are necessary for products that all of us rely on every day, in the **automotive, construction, energy, food hygiene, and medical sectors**. Think for example of pipes for the transport of drinking water and gas, insulation materials, textiles, solar panels, lubricants and wind turbine blades, lightweight parts for cars but also sterile and recyclable packaging for more food safety and less food waste.

INEOS already employs 2,500 people in Belgium at nine different sites. With Project ONE **450 jobs are added directly, and five times that number indirectly**.

## INTERNATIONAL POSITION OF ANTWERP CHEMISTRY UNDER PRESSURE

### Counter the impending recession

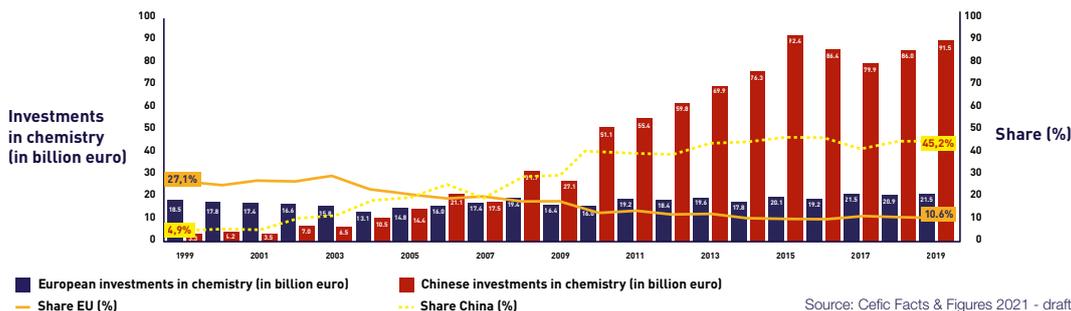
**Investment in the European chemical sector is lagging behind the rest of the world.**

The chemical sector is the **cornerstone of prosperity in Flanders**. One third of the added value of the entire processing industry in Flanders is realized by our chemistry, plastics and life sciences<sup>1</sup>. 209,000 people in Flanders owe their jobs to the chemical sector<sup>2</sup>.

**The European chemical sector, including the Antwerp chemical cluster, is currently at an important pivotal point.**

Unlike Europe, the United States has invested a great deal in its chemical activities in recent years. Moreover, the main chemical markets are now located in Asia, where not only very cheap labour but also cheap raw materials are available. **Increasing competition from China, the US and also the Middle East is putting European industry under increasing pressure** at a time when investments in the European chemical sector are lagging behind.

#### EUROPE LOSES MORE THAN 60% OF ITS MARKET SHARE IN 20 YEARS' TIME CHINA, ABSOLUTE FRONTRUNNER IN INVESTMENTS



Now that we are experiencing the biggest economic crisis since the Second World War, **this gap threatens to deepen**. Not only will we miss out on the wealth generated by the investments, but these projects will also have to meet much lower environmental and climate standards. More than ever, we need the products that the chemicals sector produces for our health and well being, for food security and for reduction in green house gas emissions.

If we want to safeguard the future of European chemistry, it is therefore important not only to preserve what we have through ongoing re-investment into existing facilities. It is also key **to strengthen and renew this sector in a sustainable way** including significant step change investment into new state-of-the-art processes and technology, such as Project ONE. Bringing in and 'reshoring' investments<sup>3</sup> is more important than ever for its impact on prosperity (economy) but also to take concrete steps towards sustainable chemistry (environment and climate).

<sup>1</sup> Nationale Bank van België, 2018 and 2019, compiled by essenscia, <https://www.essenscia.be/wp-content/uploads/2020/06/chiffres2019-vlaanderen.pdf>

<sup>2</sup> RSZ, forecast for 2019 based on decentralised statistics, compiled by essenscia, <https://www.essenscia.be/wp-content/uploads/2020/06/chiffres2019-vlaanderen.pdf>

<sup>3</sup> With Project ONE INEOS will produce otherwise purchased ethylene and propylene (with a substantially higher environmental footprint) at a much lower footprint applying the best available production technologies and using local transport through pipelines.

## RENEWING THE SECTOR BY RAISING THE BAR

### Project ONE as a step towards sustainable chemistry

INEOS **understands the concerns** about the environmental and climate impact of the chemical sector. Sustainability and petrochemical industry are not antagonistic, on the contrary sustainability is fundamental to how we do business. It is a key driver of innovation. Today the chemical industry is already providing essential building blocks for the development of sustainable technologies such as renewable energy.

That said, strengthening our chemical cluster and at the same time realizing the climate ambitions is a huge challenge. In addition to the necessary investments in research and development, concrete investments are also needed in which the best available techniques, with the lowest energy consumption and the lowest emissions, are

**Project One will raise the bar for other installations in Europe.**

applied. A typical example is that Project ONE's cracker energy requirements are almost entirely fulfilled with the hydrogen rich heating gas generated as by-product of the cracking process which is used as carbon-free fuel. This will **raise the bar for other, more polluting installations**. This is a real impact of building a new installation that will be the best of its kind.

By using state-of-the-art techniques, Project ONE will emit **less than half of the CO<sub>2</sub> emissions from the existing best-performing European installations (steam crackers)**. These emissions will lower further to less than one third of the existing crackers when renewable energy becomes available. **The impact of this on the other installations will be channelled through the European emission trading system.** The emissions of the Project ONE ethane cracker are 0.3 ton CO<sub>2</sub>-eq per produced ton of high-value chemicals (HVC). This is far below the current EU-ETS norm (0.7 ton CO<sub>2</sub>-eq/ton HVC) for steam-cracking.

The raw material of the ethane cracker is ethane, a by-product of natural gas extracted from shale formations and needed for energy and power generation. If ethane is not captured and used as a raw material for ethane crackers, it will be burned at the source (flared) and will end up in the atmosphere. Moreover, its footprint is smaller than that of other possible sources of steam cracking such as petroleum (naphtha) or coal. **In this way, we can meet the growing worldwide demand for ethylene and propylene, with much lower emissions than if we depended on oil.**

Finally, we are also preparing for a future in which **CO<sub>2</sub> is captured and stored or processed**. Project ONE's installations and plans are designed to integrate this technology as soon as it is mature for use on an industrial scale. The combination with the presence of hydrogen on the site also opens up significant possibilities. In 2022 INEOS business INOVYN aims to start the production of methanol, derived from wind power, hydrogen and captured CO<sub>2</sub>.

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## RESPONSIBLE DEVELOPMENT IN LINE WITH POLICY

### Step towards achieving climate ambitions

INEOS works completely according to the regulatory requirements and the environmental and climate ambitions of the Flemish, federal and European authorities. The role of Project ONE within the "European long-term strategic vision for a thriving, modern, competitive and climate-neutral economy" (EU) and within the Flemish Climate Strategy 2050 has been investigated in the Environmental Impact Report (EIA) of Project ONE on several levels:

- **Energy efficiency and other efficiency improvements:** the ethane and PDH installation are designed for highly selective and efficient production. As a result, 86 percent of the carbon can be converted into the end products. The use of the best available techniques and energy and product integrations results in high energy and production efficiency.
- **Circular economy:** INEOS invests in the design of products that are more recyclable and has been able to develop a range of polymers that already contain more than 50% recycled plastics and retain the same high specification as virgin polymers.
- **Renewable energy sources:** the PDH installation is almost fully electrified, so it is possible to switch to completely green electricity. INEOS has signed a long-term deal with ENGIE for 84 Mw of renewable energy from the offshore Norther wind farm in the Belgian North Sea. The agreement will avoid the emission of 1.15 million tonnes of CO<sub>2</sub> over a period of 10 years. It is expected to extend the import of green energy further with additional such deals.
- **Capture and reuse of CO<sub>2</sub> / development of industrial clusters:** see above-mentioned initiatives on CO<sub>2</sub> capture and processing.

**In an uncertain economic climate, anchoring the chemical sector in Flanders is essential. With Project ONE, the latest techniques (both in terms of energy efficiency and CO<sub>2</sub> emissions) come on the market to meet the global demand for chemical products.**

**By realizing Project ONE within the Flemish and European policy framework, the bar will be raised for the entire sector. In this way, Project ONE meets the ambition of our governments both to strengthen the economy and to make the chemical sector more sustainable.**