# PRESS RELEASE

Reference: 12326 STAC/10-1
Date: December 16, 2020
Version: Final

## INNOVATIVE TRANSFORMATION OF STEEL AND FERTILIZER INDUSTRY TO SUSTAINABLE UREA PRODUCTION

- a key milestone towards a carbon neutral and circular process industry -

A consortium, led by the Dutch Research Institution TNO, has received an exceptional grant of € 21 million from the European Commission under the Horizon 2020 Framework Program, called the INITIATE Project (Innovative Industrial Transformation of the steel and chemical industries of Europe), to investigate and develop the potential of industrial symbiosis to convert residual steel gas emissions into resources for urea production.

Stamicarbon B.V., MET Development S.p.A and NextChem S.p.A. – all subsidiaries of Maire Tecnimont Group – participate in this consortium of steel, chemical and energy transition companies, research institutions, universities and industrial partners active in both the steel and fertilizer industry.

The INITIATE project will demonstrate a novel symbiotic and circular process that transforms residual steel gases into resources for urea production. The core of this process is a modular carbon-capture utilization-and-storage (CCUS) technology, integrating the flexible conditioning of time dependent and carbon-rich steel gases with the synthesis of ammonia (Fig.1).

Throughout the project, these innovative technologies and their optimal integrated operations will be proven in real industrial settings at the facilities of Swerim in Luleå, Sweden, advancing to technology readiness level. The successful demonstration will enable to move forward with the construction of a First-of-a-kind plant at the scale of 150 t(Urea)/d, within a timeframe of 5 years.

The future implementation of the INITIATE process holds enormous potential to reduce primary energy, raw material and Green-House Gases (GHG) emission intensities, compared to current practice in both the steel and fertilizer industry. This potential will consequently translate in significant social, economic and environmental opportunities for society as a whole, as the combined steel and urea sectors are directly responsible for 30% of all industrial carbon emissions[1] and >4% of the global annual GDP. Therefore, by coupling these two energy intensive, but also valuable sectors, the INITIATE Project will be a key milestone towards the realization of a carbon neutral and circular process industry (Fig.2).

*1 Allwood, Julian M., et al. Sustainable Materials with Both Eyes Open. UIT Cambridge Ltd., 2012.*

Stamicarbon, the innovation and licensing company of Maire Tecnimont Group and world market leader in urea technology, is actively participating in the INITIATE project, as this fits perfectly in its innovation program to develop more sustainable technologies for fertilizer production. The project represents one of its key environmental targets to substantially reduce the carbon footprint of the urea fertilizer production by means of a symbiosis between the steel and fertilizer industry for re-using captured carbon dioxide and carbon-rich off-gasses from the steel industry.

Stamicarbon will be responsible for the commercial implementation plan. The main objective of the demonstration plant is to justify the viability and proof the capability to produce ammonia, while in the next phase the commercial implementation plan is focused to establish an industrial scale INITIATE plant reference for the production of urea.
Stamicarbon will lead the implementation plan with the support of its sister companies MET Development for the (commercial) development of the project and NextChem for the design and engineering thereof, together with the other consortium partners (Fig.3).

The objectives of this work package are to develop the plans for short-term deployment for the first-of- a kind modular INITIATE plant and to enable long-term roll out by maximizing the replication potential.
The short-term plan will be in the form of a site specific pre-FEED for the production of urea grade suitable for AdBlue® (Diesel Exhaust Fluid) and/or liquid fertilizers at a capacity of 150 t(Urea)/d.
The long-term plan will take an open view and identify how to scale up the design and also create an inventory of successful symbiotic relationships enabled by STEPWISE between the steel and fertilizer industry.

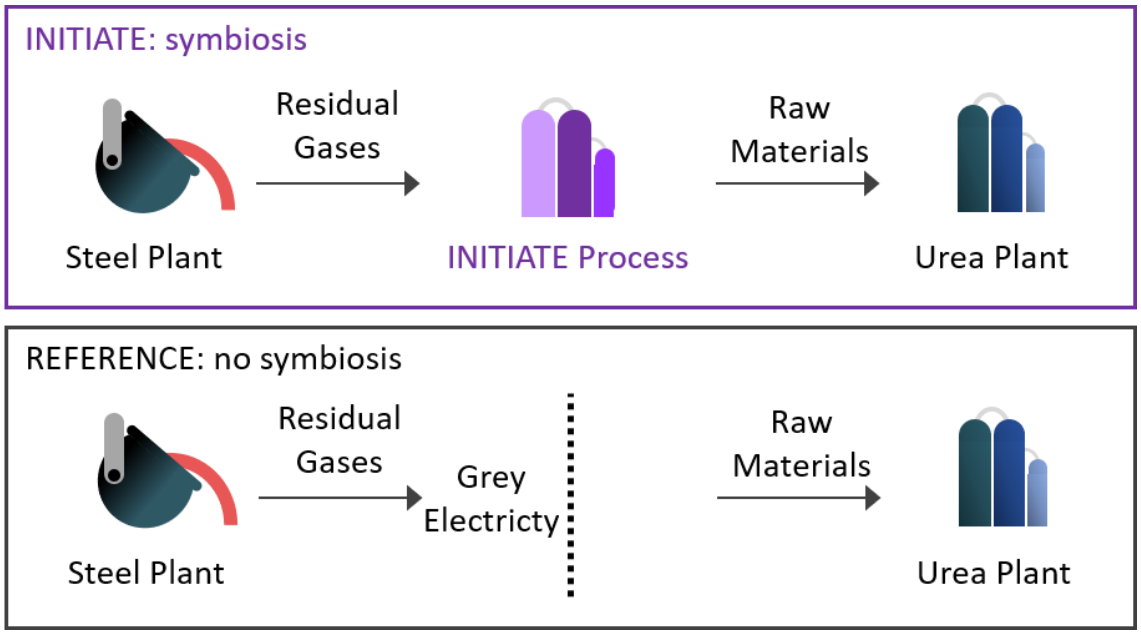


*Figure 1: the INITIATE symbiotic system and the respective reference system.*

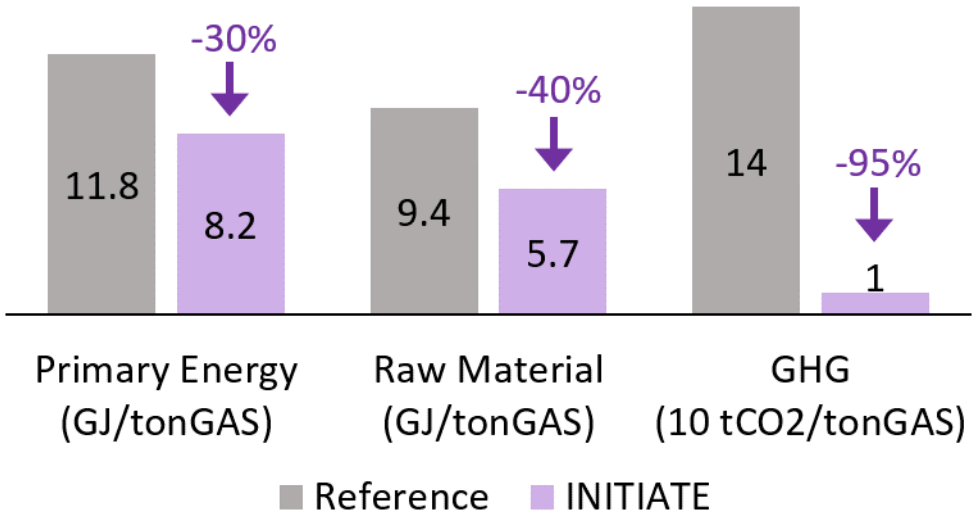


*Figure 2: Estimated impacts.*

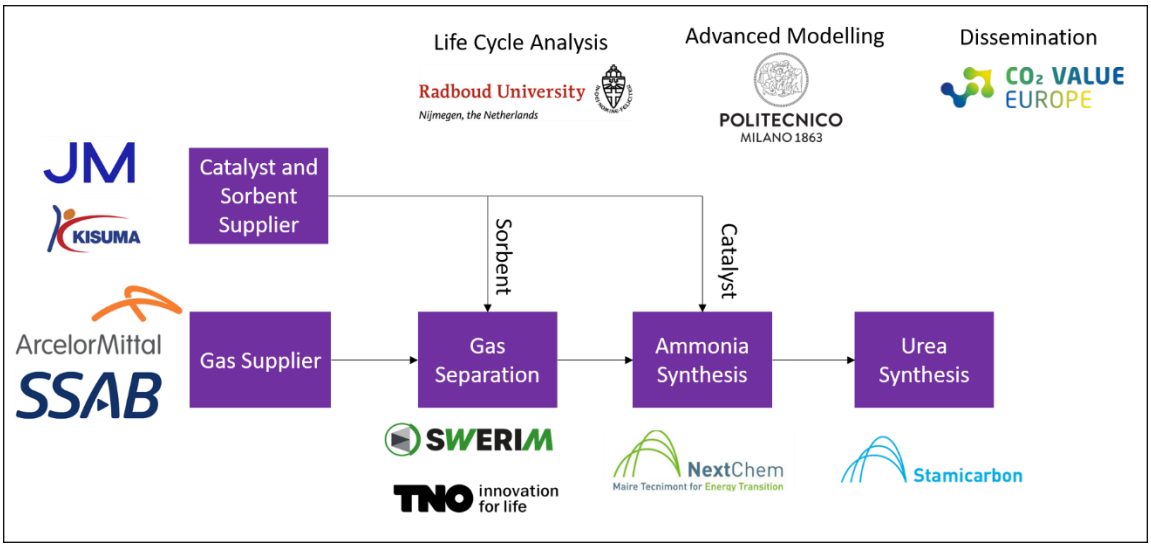


*Figure 3 – Position of the main partners in the value chain.*

**Stamicarbon BV**

Stamicarbon is the innovation and license company of the Maire Tecnimont Group. It is a pioneering company specialized in the fertilizer industry with a vision to help enable the world to feed itself and improve the quality of life. As a global leader in fertilizer technologies, they have licensed more than 250 urea plants and realized more than 100 revamping and optimization projects. This leading position is based on more than 70 years of experience in licensing and is maintained by its continuous innovations in technologies, products and materials. Stamicarbon's headquarters is in Sittard, The Netherlands with a sales office in the USA and representative offices in Russia and China.
For more information: www.stamicarbon.com.

**Stamicarbon BV**
Mrs. Mieke Beaujean
Communication Manager
M +31 6 30569878
E mieke.beaujean@stamicarbon.com

**Maire Tecnimont S.p.A.**

Maire Tecnimont S.p.A., listed on the Milan Stock Exchange, heads an industrial group which leads the global natural resource conversion market (downstream oil & gas plant engineering, with technological and executive expertise). Its subsidiary NextChem operates in the field of green chemicals and technologies in support of the energy transition. The Maire Tecnimont Group operates in approx. 45 countries, though approx. 50 operative companies and about 9,100 people. For further information: www.mairetecnimont.com.

**Media Relations, Image Building**
Carlo Nicolais, Tommaso Verani
Tel +39 02 6313 7603
mediarelations@mairetecnimont.it

**Investor Relations**
Riccardo Guglielmetti
Tel. +39 02 6319 7823
investor-relations@mairetecnimont.it