

# Carbon dioxide to UREa

## Publieke samenvatting / Public summary

### Aanleiding

The transition from fossil based energy system to one that is dominated by renewable electricity generation creates major challenges. Still, the steel industry will continue to emit CO<sub>2</sub> due to fundamental constraints. Financial interesting options for the use of CO<sub>2</sub> are required.

### Doelstelling

In CURE, an exploration into the business case of the conversion of hydrogen from renewable electricity with CO<sub>2</sub> from the steel industry is performed. The potential of this approach towards both the flexibility of the energy system and to the reduction of fossil fuel and concomitant CO<sub>2</sub> footprint will be assessed.

### Korte omschrijving

Within CURE, conventional routes for the generation of synthesis gas, based on fossil fuels will be compared to alternative routes that can be designed for the two main gaseous side streams in the steel industry, namely blast furnace gas and basic oxygen furnace gas. Those gases are distinct in composition especially in CO to CO<sub>2</sub> ratio. As result, variable quantities of renewably produced hydrogen can be accommodated by using a continuous readjustment of the ratio between those two gases. A reactive pressure swing adsorption process called sorption enhanced water gas shift is likely to be able to accommodate the concomitant fluctuations, to convert the CO into H<sub>2</sub>, and to perform the required gas separations.

### Resultaat

#### Projectinformatie / Project information

##### Projectnummer / Project number

TES1216120

##### Subsidiebedrag / Grant amount

€ 40.034,00

#### Algemene informatie / General information

##### Penvoerder / Secretariat

Stichting Energieonderzoek Centrum Nederland

#### Publicaties en materialen / Publications and attachments

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Eindrapport TES1216120

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The CURE project will result in an assessment of: • a first high level cost comparison for promising value added chemicals • the flexibility of the SEWGS process towards changing gas compositions.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

Voor meer informatie over de Topsector Energie, ga naar [www.topsectorenergie.nl](http://www.topsectorenergie.nl).

Voor meer informatie over de TSE / Energie-Innovatie regelingen die RVO aanbiedt, ga naar [www.rvo.nl/tse](http://www.rvo.nl/tse).