

## SMART GREEN CHEMISTRY & ENERGY HUB DEVENTER

### Scope

Are you interested to assist in making the green energy and chemistry transition to become true? This is your chance in contributing to a unique project in Deventer, The Netherlands, where Witteveen+Bos and partners want to make a Smart Green Chemistry & Energy Hub become reality.

In Deventer like any other city in the Netherlands and elsewhere in the world lots of ideas exist to realize a sustainable world without the need to burn fossil fuels for heating and electricity and apply fossil base chemicals for production of all the equipment we use in our daily life.

We try to bring all these initiatives together and realize synergy between the initiatives (see Figure 1). We are lucky to have a location (S-Park) where high reactive chemistry can be facilitated without extensive permitting procedures.

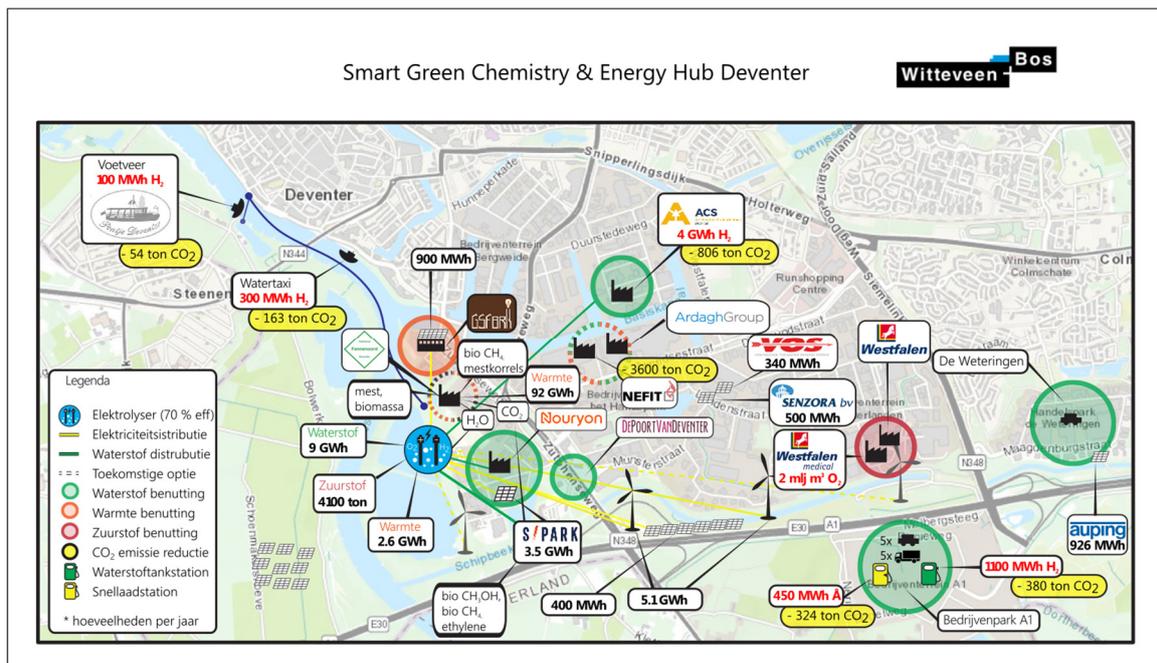
In Deventer we want to make green hydrogen and oxygen and heat from solar, hydro and wind power. And we are going to produce carbon dioxide, methane and ammonia from manure. All these components we can use either directly (H<sub>2</sub> for an Asphalt factory, O<sub>2</sub> for medical purposes) or convert into green chemicals like ethylene, methanol etc.

In this project we closely want to cooperate with knowledge institutes like TU Twente, TU Delft and Saxion and with Industry (Nouryon, BAM, Heijmans, Pure Energie, Westfalen Medical etc.). And Deventer is the home base of Witteveen+Bos and some other consultancy and engineering firms with lots of young and smart brains!

Research questions are:

- What are sustainable business cases and what are the bottlenecks from a technical view point?
- How to deal / manage differences in planning and reliability criteria from different stakeholders?
- Who is going to finance the development of such an integrated approach of the energy transition and green chemistry development?
- How to keep the process going and not lose stakeholders because of too slow progress and too complex development on one hand and on the other hand not to lose sight of the ultimate goal and optimal solution because of running too fast with blinkers?
- Can a transition approach be derived which can be applied to other industrial area's worldwide?

Figure 1: Schematic representation of smart green chemistry & energy hub Deventer



### What we ask?

- Motivated students who want to contribute to the transition needed;
- Critical thinking, complex problem solving, innovative mind, ability to challenge conventional approaches
- Depending on the research question to be studied we look for students with the following background:
  - Energy engineering ((bio)Chemical, Process, Mechanical, Electricity)
  - Smart systems engineering (ICT)
  - Governance and management studies
  - Financial Engineering

### What we offer

We offer you cooperation with a highly motivated and enthusiastic team of engineers and consultants and supervision by one or more colleagues from Witteveen+Bos. You will be able to work from our offices in Deventer or The Hague. We can offer either an internship of 4-6 month or a thesis study for a period of 6-9 month.

### Who are we?

Witteveen+Bos is an international consultancy and engineering firm offering solutions to complex engineering and social issues in the fields of water, infrastructure, the environment and construction. We aim to work on a high-end, international engineering level. Our staff of more than 1100 employees work in multidisciplinary project teams on fascinating projects all over the world. Our work requires high level expertise and an eye for quality. We therefore consider personal and professional development essential to the success of our company and we facilitate this development. We also offer abundant room for personal initiative and entrepreneurship

### Interested to join?

Are you interested to become part of the Smart Green Chemistry & Energy Hub, please contact [Raphaël.van.der.velde@witteveenbos.com](mailto:Raphaël.van.der.velde@witteveenbos.com) (+31 (0)6 13 53 24 28)