



Technical University Eindhoven department of Electrical Engineering

Eindhoven University of Technology (TU/e) is a research university specializing in engineering science technology. Our education, research and knowledge valorization contribute to:

science for society: solving the major societal issues and boosting prosperity and welfare by focusing on the Strategic Areas of Energy, Health and Smart Mobility
science for industry: the development of technological innovation in cooperation with industry
science for science: progress in engineering sciences through excellence in key research cores and innovation in education
Eindhoven University of Technology is well known for its interaction with industry. It is the front end research center for the Brainport Region.

In short, the TU/e profiles itself as the university where innovation starts.

Prof.dr.ir. Ton Backx
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DIFFER (Dutch Institute for Fundamental Energy Research)

The Dutch Institute for Fundamental Energy Research (DIFFER) performs leading fundamental research in the fields of fusion energy and solar fuels. The institute works in close partnership with academia and industry and aims for a national coordinating role in fundamental energy research. DIFFER is actively participating in national and European networks representing the Dutch expertise on energy research in order to form excellent consortia, as a preparation for and to become an active player in Horizon2020 (and related) projects. The institute is currently positioned in the vicinity of Utrecht, but will relocate to a new laboratory on the TU/e campus in 2015.

Richard van de Sanden
Director

DIFFER has several research expertises:

- PLASMA SURFACE INTERACTION
- FUSION RESEARCH
- SOLAR FUELS

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ECN (Energy Research Center of the Netherlands)



Yvonne van Delft
Innovation Manager

ECN is the largest research institute in the Netherlands devoted to energy R&D. We develop tailored knowledge and technology for the energy industry, enabling a transition to a sustainable energy system. ECN has built up a strong international position over the last 60 years in the fields of biomass, solar and wind energy, industrial energy efficiency, environmental research and policy studies. With multiple branches in Europe and Asia and our state-of-the-art knowledge and expertise, we play a leading role in energy R&D.

ECN's energy-efficiency research program is focused on heating and process technology, with a particular emphasis on the following aspects:

- Re-use, transport and storage of residual heat
- Membrane separation for liquids and gases
- Sorption techniques for liquid and gas separation
- Treating and upgrading gases
- Intensifying bulk chemical production processes
- Using residual streams such as CO₂ and H₂ as feedstock for chemicals
- Chemicals & materials from renewable sources

To implement these solutions, ECN works closely with suppliers of raw materials, equipment manufacturers, contractors, engineering companies, machine manufacturers, installation contractors and a range of major end users. Technological innovations by ECN can help make a total industrial process more energy efficient, leading to a more sustainable process, reduced energy consumption and lower operating costs. ECN's methods for this include:

- More efficient use of raw materials
- Developing more efficient separation processes
- Reducing undesirable by-products
- Improving product yield and quality
- Switching to sustainable products
- Product synthesis of energy, chemical feedstocks and materials from biomass & waste

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HyET B.V.
Hydrogen Efficiency Technologies

HyET is a small company with international focus and a unique product. Our Electrochemical Hydrogen Compression (EHC) is capable of simultaneously purifying and compressing hydrogen gas up to pressure above 40 MPa in one single stage – silently – making it ideal for densely populated, residential areas.

Peter Bouwman (PhD)
Chief Technology Officer –
Managing Director

Client portfolio includes Japanese automotive companies, Hydrogen Refuelling Stations (HRS) manufacturers, Oil and Gas companies, Utility and Energy companies. HyET provides a solution for collecting any hydrogen from distributed, impure sources, and delivering pure, high-pressure gas to end-users.

Products and Services Offered:

- Contract Research in test laboratory
- Prototypes systems available for testing on-site
- System design and integration

Unique Selling Points of HyET:

- Leading EHC development worldwide (100 MPa record)
- Solving hydrogen infrastructure
- Enabling energy storage
- Expanding SMART Grid

Looking for partners and contact with companies dealing with hydrogen gas as product or energy carrier

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Institute for Sustainable
Process Technology



Tjeerd Jongsma
Director

ISTP

Institute for Sustainable Process Technology

ISPT connects stakeholders from different sectors and disciplines to process technologies whereby process innovation is strengthened and expedited and The Netherlands distinguishes itself in the International innovation landscape.

ISPT's mission is to realize and maintain an active and open innovation platform for sustainable process technology where all stakeholders can optimally work together within an inspirational and trusted environment thereby maximizing the contribution to (break through) innovations.

ISPT aims for Sustainability by Innovation in Processing

What makes ISPT successful?

- Cooperation in a trust based network with all stakeholders in process industry including SME
- A strong, active and world class knowledge infrastructure: a community of well trained professionals with sound scientific education and open innovation skills
- Cooperation through the entire value chain as well as cross sectoral
- Research program derived from long term business drivers and trends = up front need articulation
- Covers whole process from knowledge creation to implementation
- Partners from different disciplines (industry, institutes, universities) are actively involved in definition and execution of the program
- A research program educating a new generation of process technologists

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Shell Global Solutions International B.V.
Department Projects & Technology-Innovation



Joep Huijsmans
Technology Opportunity
Manager – GameChanger
PhD Geochemistry/Dr.

Troyal Dutch Shell was formed in 1907, although our history dates back to the early 19th century. Our headquarters are in The Hague, the Netherlands. Our strategy is to strengthen our position as a leader in the oil and gas industry, while helping to meet global energy demand in a responsible way. Safety and environmental and social responsibility are at the heart of our activities.

We believe that oil and gas will remain a vital part of the global energy mix for many decades to come. Our role is to ensure that we extract and deliver these energy resources profitably and in environmentally and socially responsible ways. We seek a high standard of performance, maintaining a strong and growing long-term position in the competitive environments in which we operate.

Shell has been preparing for the challenges of a lower-carbon future for some time through our scenarios planning. Our New Lens Scenarios describe plausible futures, where renewable energy sources like solar and wind could provide up to 40% of energy globally by 2060, and the sun could become the world's largest primary energy source a decade later. However, as the energy system evolves, hydrocarbons will continue to play a vital role in the coming decades, providing much-needed energy to fuel transport, in particular aviation, and make everyday products from plastics to steel.

We are using our know-how, technology and innovation to deliver more, cleaner energy to help meet the world's growing needs, and find ways to use energy more efficiently. Today, natural gas – the cleanest-burning fossil fuel – makes up more than half of our production. We believe natural gas will be vital to building a sustainable energy future, especially in power generation, where it produces around half the CO₂ and just one-tenth the air pollutants that coal does.

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TNO
Sustainable Chemical Industry

TNO (Nederlandse Organisatie voor toegepast-natuurwetenschappelijk Onderzoek TNO) is one of the major contract research organisations in Europe. With a staff of approximately 3500 and an annual turnover of 580 million Euros, TNO is carrying out research in order to achieve impact on the following Five themes: Healthy Living, Industry, Urbanization, Energy, and Defence, Safety and Security. TNO functions as an intermediary between basic research organisations and industry. By translating scientific knowledge into practical applications, TNO contributes to the innovation capacity of businesses and government. TNO is involved in many international projects (about 30% of the market turnover), including EU-funded collaborations.

Martijn de Graaff
Sr. Business Development
Manager
Shared Innovation
Program Voltachem

In the innovation area Sustainable Chemical Industry, we provide advice and engineering services to companies that are looking for new concepts for products or processes. Together with our partners, we design and build trials at the bench or pilot scale, based on contract research or proprietary technology. Furthermore, our clients profit from collaborations with knowledge institutes, businesses and government agencies via open innovation programmes, which means the development costs and risks are shared.

The open innovation program VoltaChem aims to initiate and facilitate collaborative development of technology and business models with relevant stakeholders to help move innovation in the field of electrification and decarbonization faster towards commercial implementation. The program addresses both the indirect and direct use of electricity within the chemical industry, power-2-heat, power-2-hydrogen and power-2-chemicals, and works from a systemic point of view.

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Netherlands Enterprise Agency

The Netherlands Office of Science and Technology (NOST)

The Netherlands Office of Science and Technology (NOST) in Japan fosters R&D&I cooperation between Japan and the Netherlands in the field of Innovation, Science and Technology. The philosophy behind our work is that joint international research and development helps to exploit the complementarities in our knowledge and market opportunities to mutual advantage. The office provides information and assistance to the private sector, research institutions, universities, and the government in both the Netherlands and in Japan and constantly monitors developments in innovation and science and technology.

Our goal is to create successful linkages between Japan and the Netherlands through strategic partnerships, collaboration projects and programs and matchmakings on government level, industry level, institution level and university level.

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Netherlands Enterprise Agency

**Netherlands Enterprise Agency
International Innovation department
(Rijksdienst voor Ondernemend Nederland,
RVO)**

Netherlands Enterprise Agency is the executive agency of the Dutch Ministry of Economic Affairs. The Agency promotes sustainable development and innovation, both within the Netherlands and abroad. The aim is to improve opportunities for Dutch entrepreneurs and research institutes and strengthen their position. One of the facilities we offer for that is international technology and innovation missions around the world.

Through the Netherlands Enterprise Agency national and foreign organisations gain access to a broad Dutch network of knowledge institutes, research centres, trade associations, companies and government officials. The agency participates in numerous international platforms and counselling groups. It helps with finding grants, business partners, know-how and compliance with laws and regulations.

Furthermore, you can contact us for information, advice, financing issues, networking and regulatory matters. Whether you are entrepreneur, representing a knowledge institute or a government body.

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Wouter Roelofs
Coordinator International
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