"If we want things to stay as they are, things will have to change."

Dr. Ir. Jan-jaap Aué
Dean Centre of Expertise Energy
Professor Energy Transition

share your talent. move the world.
Who?

• https://twitter.com/janjaapaue
• https://www.linkedin.com/pub/jan-jaap-au%C3%A9/0/43b/102
• Applied Physics
• PhD Materials Sciences
• KPN Research, New (internet) services
• TNO ICT
• Hanze University of Applied Sciences
  – Life Sciences, Engineering, Centre of Expertise Energy
Hanze University of Applied Sciences

• Established in **1798**
• Professionally oriented higher education
  - 29,995 students
  - 3300 employees
• **55+** bachelor programs, **18** master programs
  – 22 studies with an energy route
  – 3 energy master programs *(one under development)*
  – 8 professorships with topic energy
  – Energy testing ground EnTranCe

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Why?
Versterken regionale economie en werkgelegenheid en onderwijs. Veilig en gezond.

How?
Laagdrempelig
dynamisch
open
multidisciplinair
micro – macro = meso
kracht van digitalisering
verbonden met de samenleving
een broedplaats waar veel kan en mag

What?
duurzame energiehuishouding
duitse economie
ditaal leven
veilig wonen
voedsel veiligheid
duurzame mobiliteit
Alumni Hanzehogeschool richten meeste bedrijven op

Studenten zijn ondernemend, blijkt uit jaarlijkse ranglijst van het hoger onderwijs. Maar het onderzoek op universiteiten levert nog relatief weinig bedrijven op.

GRONINGEN De Campus Groningen is de snelst groeiende campus van Nederland. Sinds 2014 nam het aantal bedrijven dat er is gevestigd toe van 114 naar 198. Het aantal banen groeide van ruim 2000 naar ruim 3200.
Speeding up Innovation

At the Centre of Expertise Energy, we speed up innovations needed for the transition towards a sustainable energy society. We contribute by applied research and education.

HOW?

• An interdisciplinary and multilevel approach
• The establishment of co-ownership from Society
• Involving young people
• Showing options and their impact
• In dialogue with stakeholders
Roadmap 2022

• Blueprints for at least 5 sustainable & regional villages
• Researching and testing of hybrid energy systems
• 1500 energy students
• 25 energy startups per year
• Research capacity: € 10 million per year
• € 25 million regional investments
• 20,000 visitors to EnTranCe
Prioritizing Research Themes

CoE Energy is investing
CoE Energy is co-investing
CoE Energy is expecting investments from others
CoE Energy is paid (contract research)
Applied Research on EnTranCe

At the Centre of Expertise Energy we focus on **FIVE** main topics

1. Hybrid energy system design & management  
2. Alternative gasses & hybrid fuels  
3. Energy interventions & behaviour, public support & communication  
4. New economic realities, labour market, governance & legal aspects in the energy sector  
5. Sustainable communities & local initiatives
Educational programs

- Energy Routes in 22 schools leading to EAE certification
- Learning Community \((\text{Energy Transition Community EnTranCe})\)
- Master (MSc) portfolio
  - European Master Renewable Energy
  - Master Sustainable Energy System Management
  - Master Energy 4 Society
  - Master International Communication (specialisation Energy)
3/12/19 Centre of Expertise Energy
ENVITRON

MONITOR YOUR ENERGY

To gain insight into your energy, the first step is becoming aware of what is happening on your grid. Do you know how much energy you are using today? And what impact does it have on the environment?

The first step to doing this is to monitor your own energy production, consumption, and storage on the grid. This way, you can make more informed energy decisions. Some of the features that Envitron offers are:

- **Monitor**:
  - Energy consumption
  - Energy production
  - Energy storage

- **Control**:
  - Adjust energy settings

- **Share**:
  - Sell or buy energy

When you are producing energy and not using it, why not sell it directly to your neighbor? When you are not producing energy, why not buy it directly from your neighbor? You set the price.

For which you want to buy and sell your local energy. Envitron develops the first ever, decentralized platform system to do just that: buy and sell energy directly from your local environment.

This system is in line with the existing infrastructure to ensure you are never out of power.

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THE ENERGY IS YOURS

MONITOR | CONTROL | SHARE

CONTROL YOUR ENERGY SYSTEM

Dig deeper in your energy system and balance your own energy production, consumption, and storage. Envitron is currently developing technology to let several of your appliances 'talk' to each other. This way, you can use all of your energy as efficiently as possible.

- **Check it out**

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share your talent. move the world.
For you

- Extensive network
- Access to knowledge and experience
- Support local communities
- Experimental facilities
- Office- and workspace
- Collective Intelligence
- Energy related events
- Access to launching costumers
- Awareness creation
- Students
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