Eindhoven Region

- / Masteropleiding Sustainable Energy Technology

Industrial Heart: Brainport

- High tech systems and materials
- Innovation & design

- High Tech Campus:
- One of the 17% largest science parks worldwide

- Main seat of companies like:
- Philips, ASML,
- NXP Semiconductors
- Océ, DAF Trucks, DSM

Where innovation starts

TU/e Technische Universiteit **Eindhoven** University of Technology

Strategic Areas

- Focus on 3 key societal issues:
  Energy*, *Health*, *Smart Mobility
- Working together with universities, knowledge institutions and industry
- Strengthening our international research position
- **TU Eindhoven ranked number 1 by Times Higher Education Ranking for collaboration with industry**

University of Technology Eindhoven, Research Area Energy

Future Fuels

Built Environment

Fusion

Energy Conversion

Innovation in Energy Systems

- SELECT students at TU/e will receive the MSc degree ‘Sustainable Energy Technology’ (SET)

Course program:

- IPoY 7 ECTS
- Courses for specialization 8-10 ECTS
- Graduation project 45 ECTS

Focus on graduation project

SET Promo (with SET students)

- https://www.youtube.com/watch?v=iwUhHNXsRWQ

Innovation in Energy Systems

Study the transition of energy systems

- Dynamics of complex systems like electricity supply
- System & component performance
- Study the (technical and social) factors that influence the breakthrough of a sustainable technology

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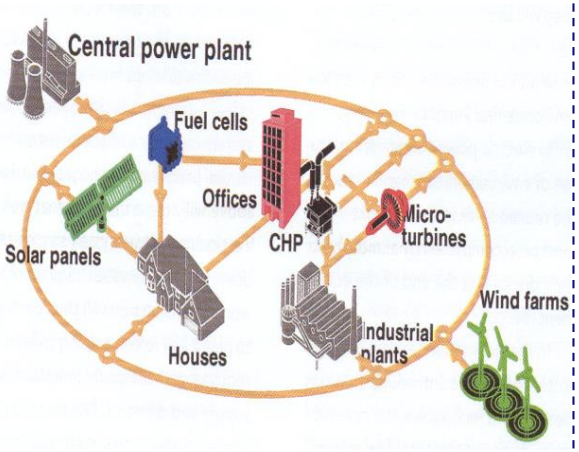
Departments involved

- Mechanical Engineering
- Electrical Engineering
- Applied Physics
- Built Environment
- Industrial Engineering and Innovation Sciences

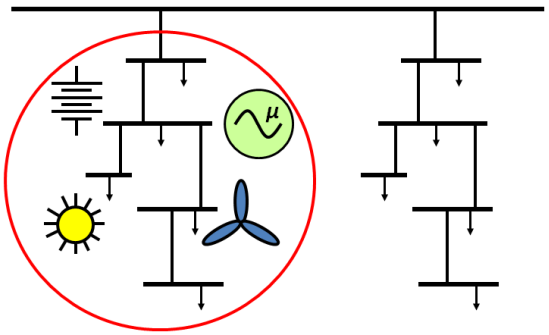
Innovation in Energy Systems Electrical Power systems

Transition towards New Electrical Infrastructures



Handling Power Quality Issues

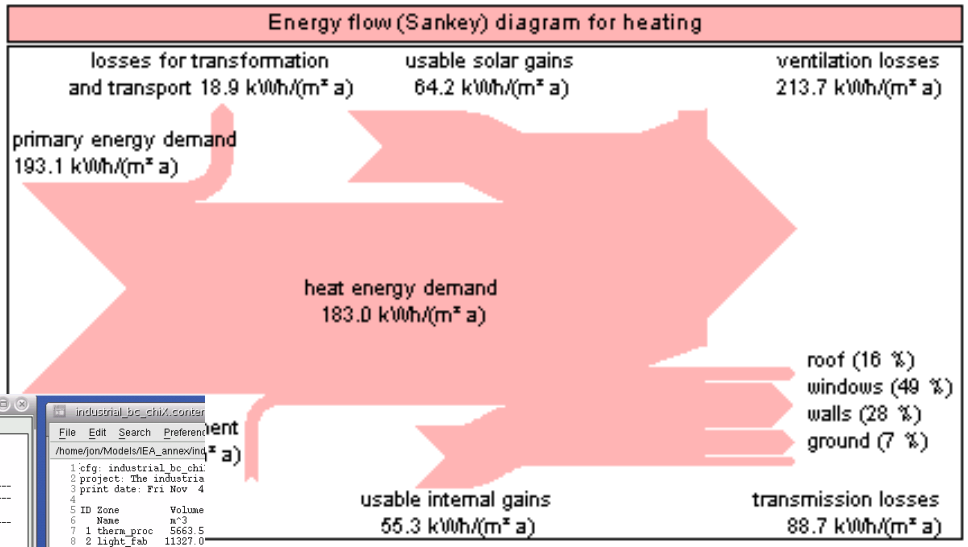
Control and Protection of Distribution Networks

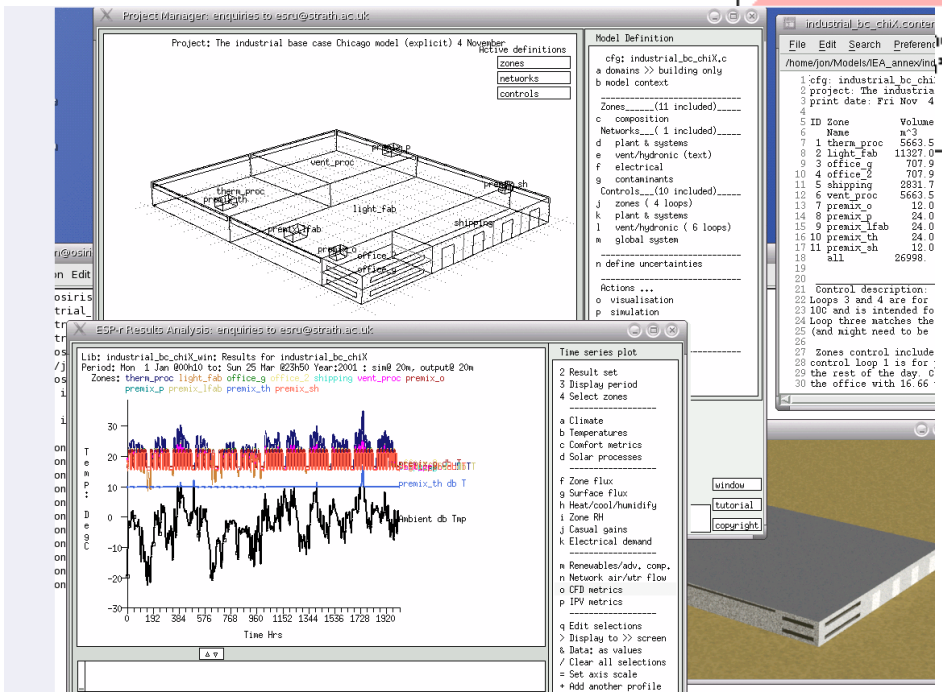


Projects in national programs, international FP6/7 programs and collaboration with industry

Innovation in energy systems
Building performance

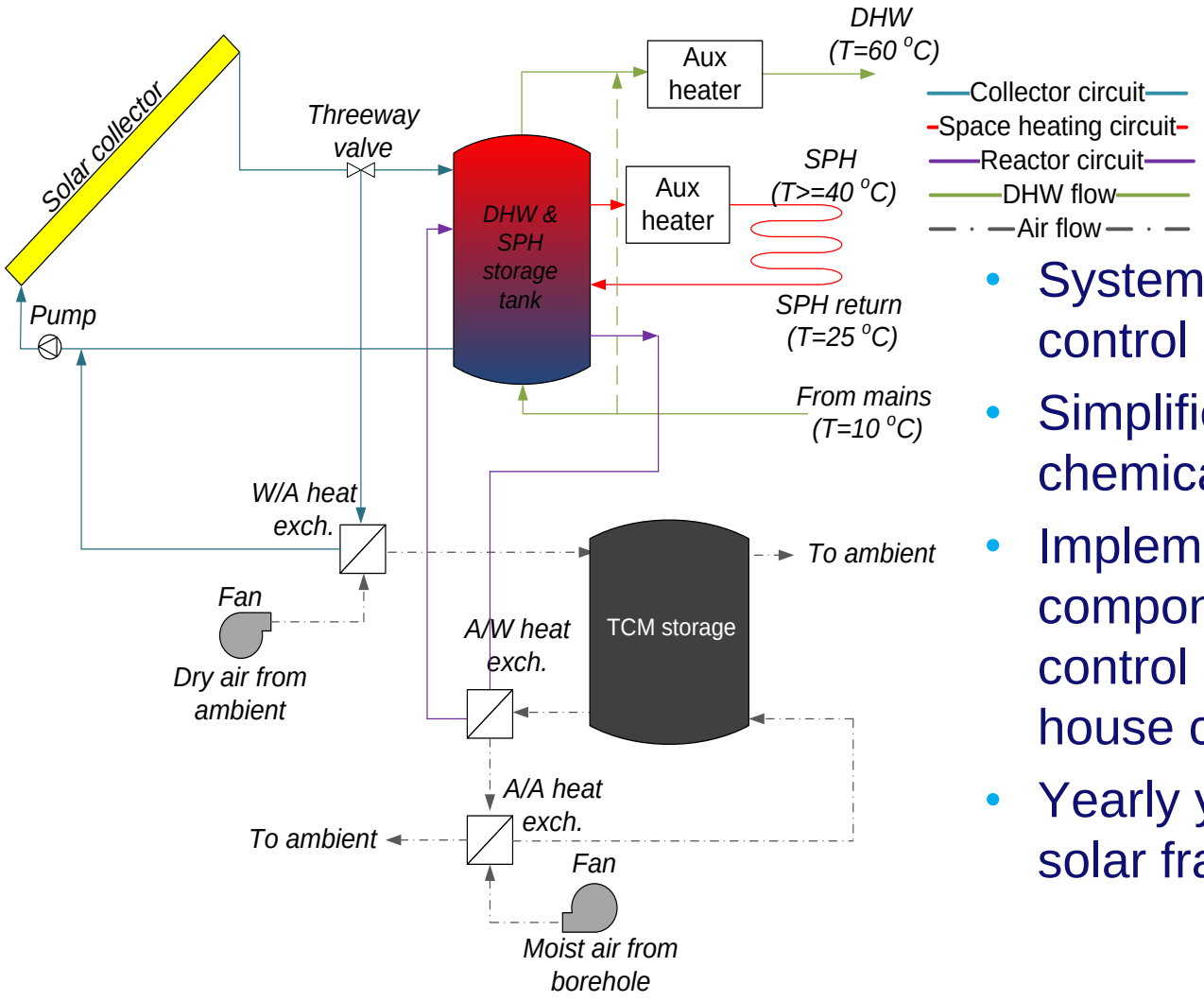
Optimization of energy flows





Sustainable energy in the built environment

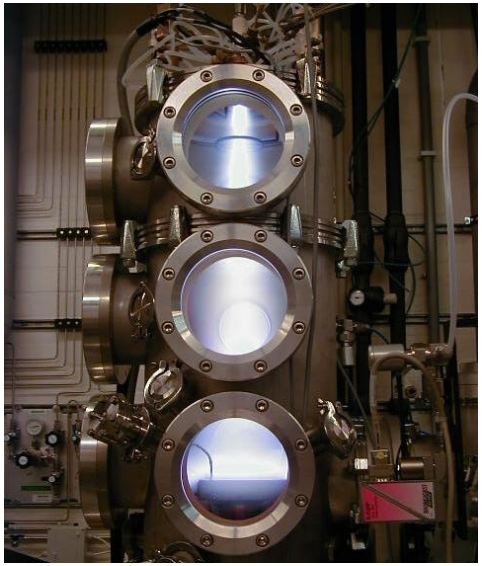
Innovation in energy systems
Heat storage



- System design including control strategy
- Simplified model for the chemical heat storage
- Implementation of the component models and control strategy into an in-house code
- Yearly yield calculations for solar fractions

Innovation in energy systems

PV projects



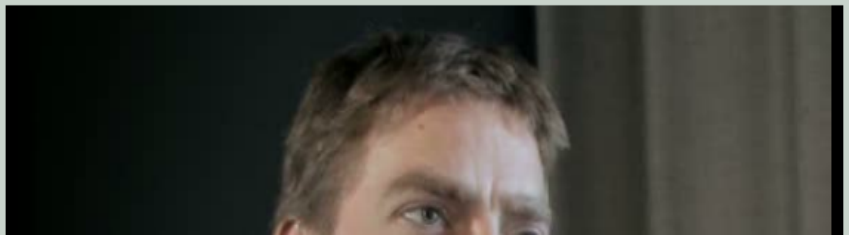
- Development of cost effective high efficient production of thin layer solar cells
- in cooperation with:OTB Roth & Rau, TNO Science, ECN
- experimental work can be included (deposition of thin layers by plasma enhanced deposition)

Innovation in energy systems
Social context:actors

Energy and Society

No predictions, future is inherently uncertain

- Multiple scenario's, descriptions of possible and consistent futures, 'myths from the future'
- Hype-disappointment → cycles: waves of interest and support



Food
Energy
Health
Automobility

Master Sustainable Energy Technology SELECT

- **Jonathan Rodriguez Polit**

- **Exploration of the User-Value of Rural Electrification through Solar Home Systems in Southwestern Uganda: A Case Study**

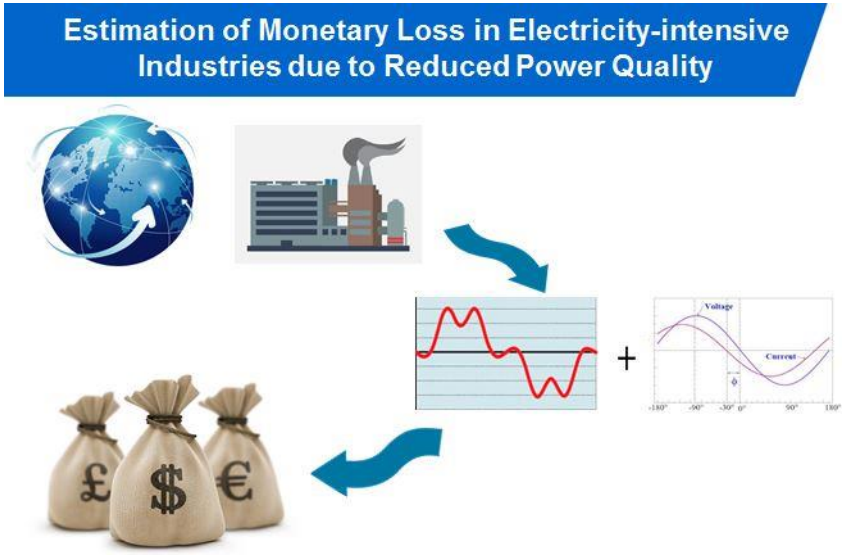
Supervisor: dr. H.A. Romijn

Department: Industrial Engineering & Innovation Sciences

Master Sustainable Energy Technology SELECT

- **Maruf Ahmed**

- **Estimation of monetary loss in the electricity-intensive industries due to reduced power quality**



Supervisor: prof.dr.ir. J.F.G. Cobben

Department: Electrical Engineering

Master Sustainable Energy Technology SELECT

- **Tom Huizer**
- **The heat battery concept**

Supervisor: dr.ir. C.C.M. Rindt

Department: Mechanical Engineering

Challenge: Metal Fuels

- **Metal powder burns like gas**
- **Can be clean without CO_2**

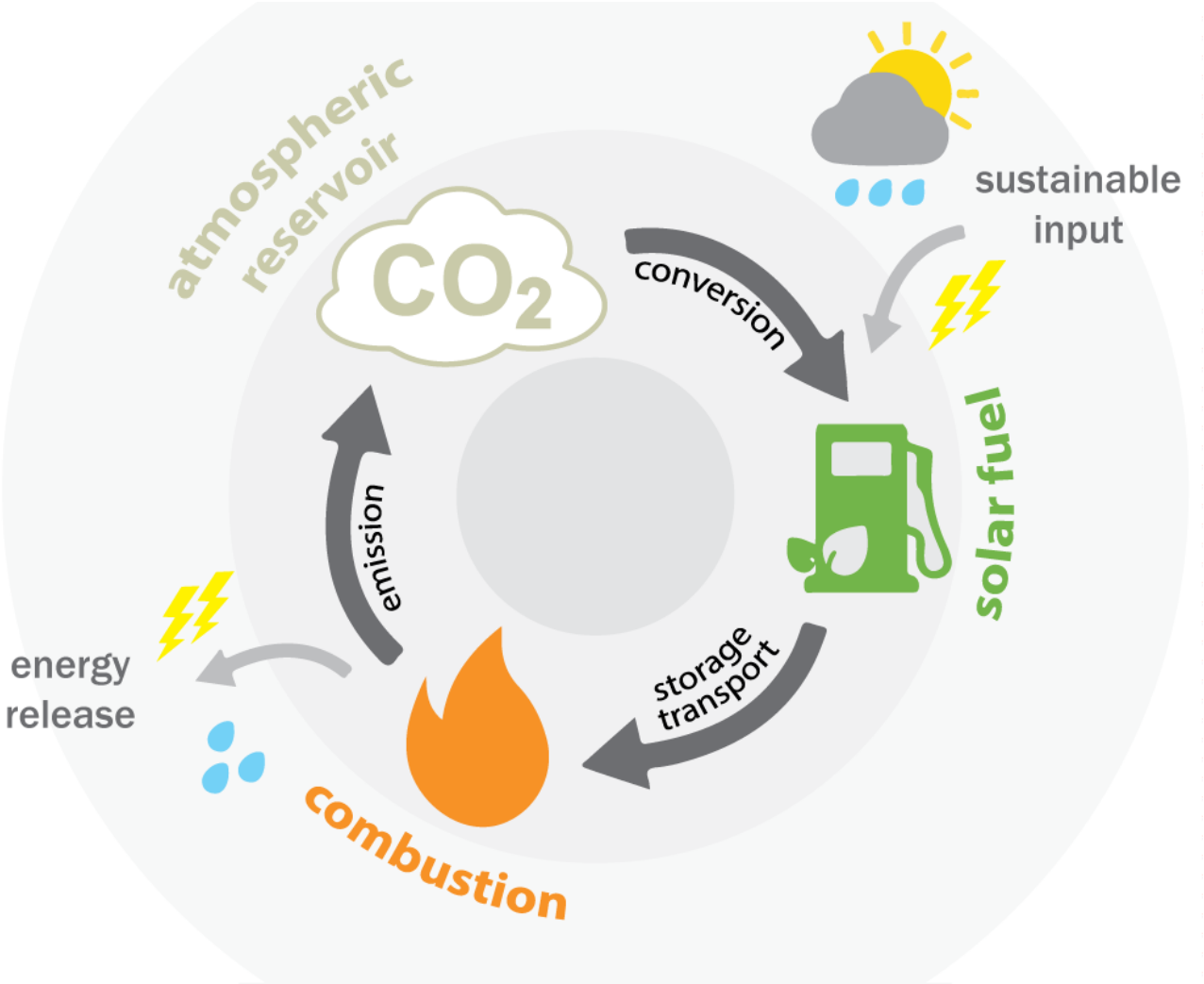
Methane Iron Aluminium Aluminium Boron Zirconium

Supervisor: prof. Dr. L.P.H. de Goey
Department: Mechanical Engineering

TU/e Technische Universiteit Eindhoven University of Technology

Bergthorson et al., Alternative Fuels Lab, McGill University

TU/e: Solar Fuels



Professors and departments involved

- Dr. Ir. Camilo Rindt – Mechanical Engineering
- Dr. Adriana Creatore – Applied Physics
- Prof. Dr. Guus Pemen – Electrical Engineering
- Prof. Jan Hensen – Built Environment
- Dr. Henny Romijn – Industrial Engineering & Innovation Sciences
- Prof. Geert Verbong – Industrial Engineering & Innovation Sciences

Selection of the professor depends on students background, interest, capabilities & capacity available

Courses at TU/e (selection)

- Sustainability transitions and responsible innovation
- International development and sustainability

- Thermal energy storage
- Building performance and energy system simulation

- Planning and operation of power systems
- Power system analysis and optimization
- Decentral power generation and active networks

- Solar cells
- Plasma processing science and technology

Information

- https://www.tue.nl/en/education/tue-graduate-school/masters-programs/european-masters-program-select/

TU/e – facilities for international students

- All courses on MSc level in English
- Support by international office for requirement of VISA, housing etc.
- TU/e-wide introduction program in August
- Classes start August

Students at TU/e: Team Energy

- Centralize knowledge
- Increase engagement
- Energize the energy debate

Information and SELECT contact TU/e

- www.tue.nl
- Han van Kasteren, SELECT program coordinator
- J.m.n.v.kasteren@tue.nl

Feel free to contact me about….

- ✓ Examples of research projects
- ✓ Courses
- ✓ Professors involved
- ✓ Does TU/e fit your ambitions?

TU/e Technische Universiteit Eindhoven University of Technology