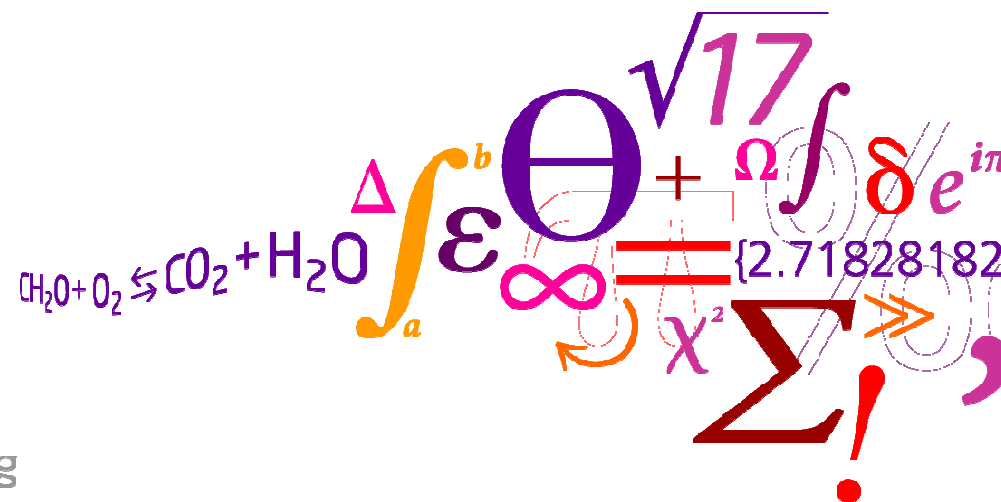


DTU Environmental Engineering Technical University of Denmark Copenhagen

Thomas H Christensen
 Head of Department
 Professor, Dr. Agro., PhD

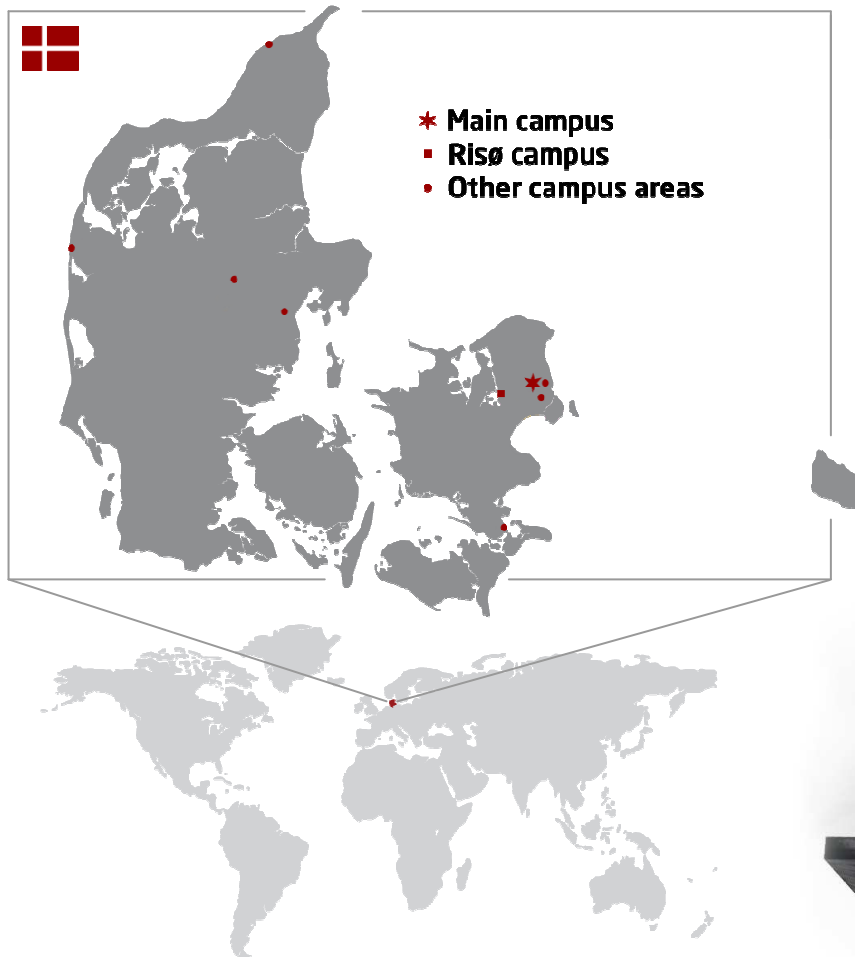


DTU Environment
 Department of Environmental Engineering

Technical University of Denmark



(founded 1829; first rector H.C. Ørsted)



Key figures

Total students	~8.500
including Ph.D.	1.100
and Int. M.Sc.	400
Research publications	3.600

Ranking

Leiden Ranking 2013:
no. 1 in Scandinavia
no. 7 in Europe



DTU Environment

DTU Environmental Engineering

Staff etc

- Faculty: 25 (F 16%)
- In total: 175 incl PhD students

Teaching

- BSc students: 148 (F 57%)
- MSc students: 95 (F 55%)
- Guest students: ca. 100 (ERASMUS, etc)

Research

- PhD students: >65 (F 60%)
- PostDocs and researchers: 32
- Technicians: 19



DTU Environment

Department of Environmental Engineering



**Water
Resources
Engineering**



**Urban
Water
Engineering**



**Residual
Resource
Engineering**



**Environmental
Chemistry**



Services:
Economy
IT
Lab
Secretariat

Department Sections

Residual Resource Engineering:

5 faculty (Scheutz, Astrup, Kjeldsen, Angelidaki, Damgaard & Christensen) + 5 researchers + 10 post docs + 30 PhD students

- Two research groups:
 - Solid waste (Astrup)
 - Bioenergy (Angelidaki)
- Activity:
 - > 40 ISI papers per year
 - > 15 conference contributions
 - > 10 external contracts per year
 - 1 patent per year
 - 3 PhD courses every year
 - 1 Continuing education activity per year
- Education- study line RESIDUAL RESOURCE ENGINEERING
 - Solid waste management
 - Environmental biotechnology
 - Life Cycle Assessment of waste management systems

Bioenergy:

Strategic research areas and key competencies

Biogas

Biofuels

Microbial Fuel Cell

Biorefinery

- Process optimization, modeling, VFA sensors, substrate characterization, pretreatment
- Hyper-thermophilic dark fermentation, microbial isolation
- Characterization of microbial environments, metabolic pathways
- Wastewater treatment, xylose degradation, fuel cell configuration
- Biorefinery processes, logistics, high-value by-products



Solid Waste:

Strategic research areas and key competencies

- Waste characterization
- Management of organic waste resources
- Quantification of gaseous emissions
- Resource management and recovery
- Waste disposal
- Environmental assessment

- Sampling, sample preparation and analysis (physical and chemical composition), leaching, release of trace gases and GHG
- Management of OWR: characterization, treatment technologies, emissions, energy and nutrient recovery
- Thermal technologies, CO₂ emissions, residues, biorefineries
- Landfilling technologies, biocovers, fugitive emissions, leachate
- LCA modelling, EASETECH, GHG accounting

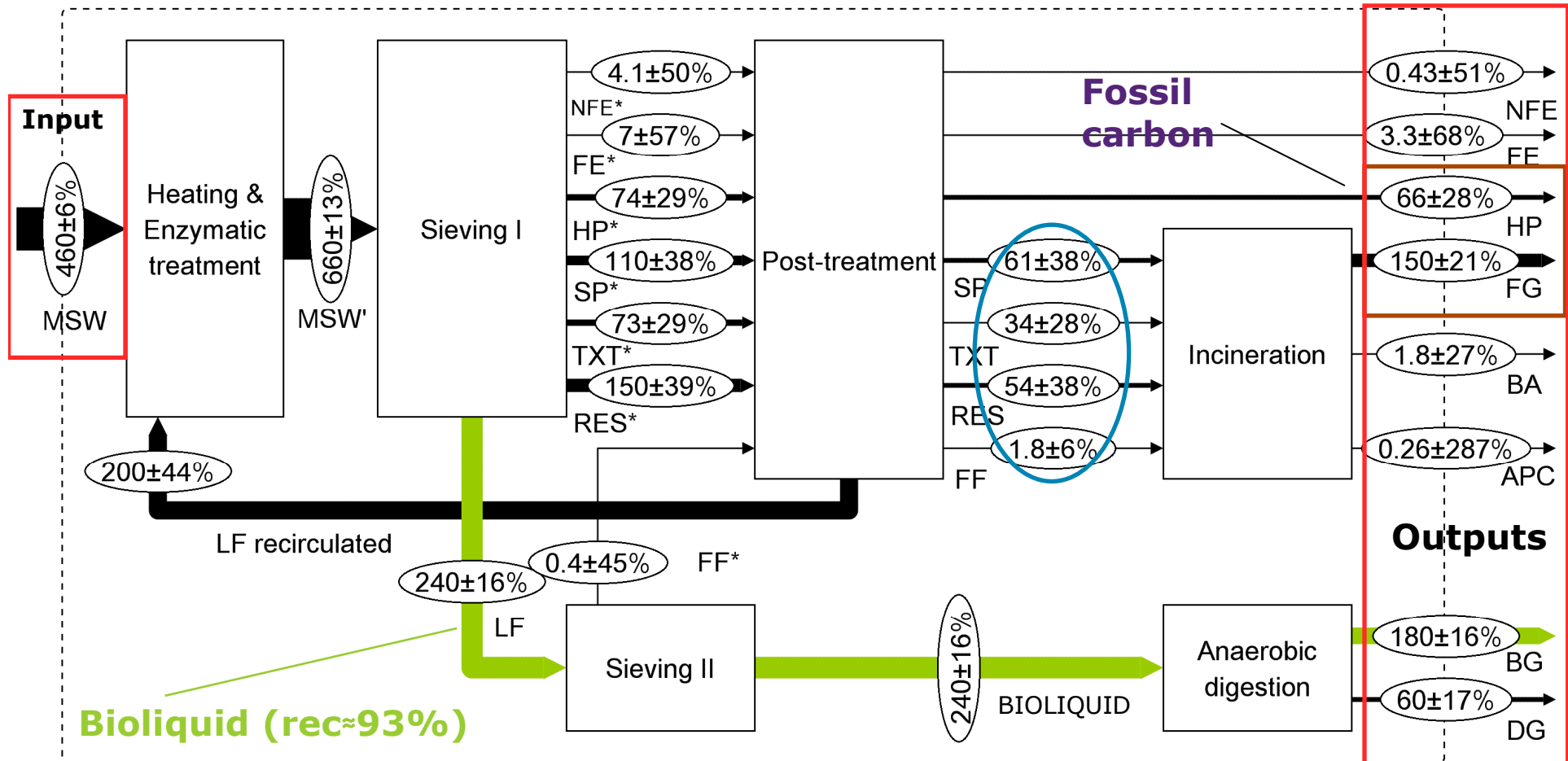


Vestforbrænding

Carbon flows

Waste refinery

Flow total carbon
(kg C t⁻¹ MSW dry)



Bioliqum (rec≈93%)

Tonini, D., Dorini, G., Astrup, T. Waste refineries: potential for recovery of bioenergy and resources based on advanced material, substance and energy flow analysis. Submitted to *Appl Energy*.

The waste management system

