

## **Faculty of Engineering Science and Technology**

### **Department of Energy and Process Engineering**

#### **Positions on Life Cycle Assessment and Input-Output Analysis of Bio Energy Systems with the Industrial Ecology Programme at NTNU**

The Industrial Ecology Programme and Department of Energy and Process Engineering are seeking candidates for one 4 year researcher position, one PhD stipend on Life Cycle Assessment (LCA) and Input–Output analysis (IOA) and one research assistant position. For administrative purposes the positions are part of the Department of Energy and Process Engineering and affiliated with Bio Energy Innovation Centre (CenBio).

The overall objective of CenBio is to enable sustainable and cost-efficient bioenergy. In this project, leading institutions on bioenergy technology, NTNU and SINTEF, will cooperate with leading institutions on forestry economics and ecology, UMB, BioForsk and NFLI. With a budget of 320 mill. NOK over its 8-year mission period, CenBio aims to address and solve the key research and innovation challenges that will enable Norway to double its present use of bioenergy by the year 2020.

The environmental systems analysis group with The Industrial Ecology Programme and Department for Energy and Process Engineering is leading the work on LCA and IOA in CenBio. The planned work on bioenergy systems will interface with ongoing activities on LCA, Hybrid LCA, and IOA at Master, PhD and Post Doctoral level at The Industrial Ecology Programme. We are seeking candidates for the following positions:

#### **IVT - 45/09 Researcher – Extended Life Cycle Assessment of Bioenergy Systems**

The industrial Ecology program is in the process of building up activity on environmental assessment of bioenergy systems. To support this activity we are looking for a researcher with a PhD in life cycle assessment or input output analysis. Prior experience with bioenergy systems is advantageous. The researcher will work closely with Associate Professor Anders Hammer Strømman and assist him in leading this work. Main responsibilities will be towards the planned activities in the Bioenergy Innovation Centre (CenBio). In particular this involves the work packages on extended LCA. The position also includes advising master students and working with PhD students on bioenergy (fuels and stationary applications). Participation in developing new projects is expected. The position has a duration of 4 years. For this position we are looking for a person with at least a PhD level degree. The candidate must be fluent in both written and oral English.

#### **IVT – 46/09 PhD research fellowship on Extended Life Cycle Assessment of Bioenergy Systems**

Given the present formidable focus on GHG reduction, it is important to assess technologies with respect to several environmental issues. It is crucial to avoid solving one problem by merely generating another. Assessing impacts beyond GHG emissions is a prerequisite for providing direction towards a sustainable bioenergy system. In this project we plan to apply state of the art life cycle assessment and input-output based approaches to assess the environmental impacts of bio

energy systems. The CenBio consortium offers access to industry and research partners which will be beneficial for establishing good inventory models.

For the PhD stipend we are looking for a person with a master's level degree in the field of energy and environmental engineering, industrial ecology, life cycle assessment and or input-output analysis. The position has a duration of 3 years, or alternatively 4 years, including 25% of teaching assistance

Engagement as PhD candidate is done in accordance with current appointment regulations with supplementary rules in force giving guidelines for scholarship appointments in universities and university colleges. The goal of each announced position is to obtain a PhD degree. Applicants are obligated to engage in an organized PhD training program, and appointments requires approval of the applicant's plan for a PhD study within three months from date of commencement. A contract of employment will be set up for the engagement period regulating the rights and duties of the PhD student.

### **IVT – 47/09 Research Assistant – Coordinator Graduate School in Bio Energy**

NTNU is hosting a graduate school in BioEnergy as a part of the Bio Energy Innovation Centre. We are therefore looking for a coordinator for this activity. The position will be split half time between coordinator activities and LCA related research activities. For this position we are looking for a person with a master's level degree with training in the field of energy and environmental engineering, industrial ecology, and or life cycle assessment. The position has a duration of 2 years.

Further information on the positions can be obtained from Associate Professor Anders Hammer Strømman (anders.hammer.stromman@ntnu.no), Industrial Ecology Programme, Department of Energy and Process Engineering.

#### **Salaries, etc.**

Researchers are remunerated in code 1109, grade 57-76 on the Norwegian State salary scale, gross NOK 435 500 to NOK 625 900 per year before tax. PhD candidates are remunerated in code 1017, grade 45-51 on the Norwegian State salary scale, gross NOK 353 000 to NOK 391 500 per year before tax. Research assistants are remunerated in code 1085, grade 36-56 on the Norwegian State salary scale, gross NOK 308 100 to NOK 427 900 before tax. There will be a 2 % deduction to the Norwegian Public Service Pension Fund from gross salary.

The engagements are to be made in accordance with the regulations in force concerning State Employees and Civil Servants.

The position adheres to the Norwegian Government's policy of balanced ethnicity, age and gender. Persons with immigrant background are encouraged to apply. NTNU's objective is to increase the number of females in scientific positions. Female applicants are therefore encouraged to apply.

The application must contain information of educational background and work experience. Certified copies of transcripts and reference letters should be enclosed.

An application inclusive CV, grade transcripts and other enclosures should be sent electronically though <http://www.jobbnorge.no>, make reference to the position and IVT-number you apply for.

**Application deadline for all positions April 25<sup>th</sup> 2009.**