

## Press release

Presse-Information • Information de presse

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<http://www.efce.org>

### **Research pinpoints cost of carbon capture and storage**

Research analysing the economic impact of carbon capture and storage (CCS) shows that operating costs for generators could increase by around 25 per cent coupled with a ten per cent decrease in power generation efficiency.

The additional cost to power plant generators is approximately € 40-50 per tonne of CO<sub>2</sub> abated<sup>1</sup>, with major implications for end users.

The research methodology, developed to effectively compare and model low carbon energy and carbon capture processes, has been recognised by the European Federation of Chemical Engineering (EFCE).



Dr. Laurence Tock's work addresses the challenge of greenhouse gas emissions from power generation. She compares fuel decarbonisation in the production of hydrogen and energy from renewable sources, such as biomass, with the production from fossil fuels.

A more specific analysis of hydrogen production from natural gas shows that pre combustion carbon capture is found to be thermodynamically more efficient than post combustion, but the capital cost is significantly higher.

Dr. Tock, from the École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland, was awarded the 2014 EFCE Excellence Award in recognition of an Outstanding PhD thesis on computer aided process engineering (CAPE).

Professor Antonio Espuña, Chair of the CAPE Working Party awards committee, said: "Tock's thesis sheds new light on some of the hot issues in energy production. She has introduced novel concepts to the CAPE discipline and has successfully developed a uniform methodology for the systematic comparison and optimisation of different fuel decarbonisation processes.

"Her thesis effectively combines energy integration techniques as well as economic and environmental models in order to better support the decision making process for optimal plant design and operation."

This press release is also available at the EFCE website: <http://www.efce.org>

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On receiving the award, Dr. Laurence Tock said: "I'm very happy and honoured to be the recipient of this award. I'm proud that my efforts have been appreciated. This award is a milestone and it will motivate me to contribute further to the progress of CAPE in meeting the global energy challenge."

She was presented the Excellence Award for her thesis *Thermo-environmental optimisation of fuel decarbonisation alternative processes for hydrogen and power production* at the 24<sup>th</sup> European Symposium on Computer Aided Process Engineering (ESCAPE-24), which was held in Budapest, Hungary in June.

The award comprised of a €1,500 cash prize and certificate.

## **Ends**

## **Related links**

[EFCE media centre](#)  
[ESCAPE-24](#)

## **Notes to media:**

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## **About chemical engineers**

Chemical, biochemical and process engineering is the application of science, maths and economics to the process of turning raw materials into everyday products. Professional chemical engineers design, construct and manage process operations all over the world. Oil and gas, pharmaceuticals, food and drink, synthetic fibres and clean drinking water are just some of the products where chemical engineering plays a central role.

## **About EFCE**

Founded in 1953, The European Federation of Chemical Engineering (EFCE) is a non-profit-making association, whose object is to promote co-operation in Europe between non-profit-making professional scientific and technical societies in 30 countries for the general advancement of chemical engineering and as a means of furthering the development of chemical engineering. See [www.efce.org](http://www.efce.org)

## **Reference**

<sup>1</sup> L. Tock, Thermo-environmental optimisation of fuel decarbonisation alternative processes for hydrogen and power production (2013):  
[http://infoscience.epfl.ch/record/184901/files/EPFL\\_TH5655.pdf](http://infoscience.epfl.ch/record/184901/files/EPFL_TH5655.pdf)