

RESEARCH CENTRE:
Trondheim-based
Norwegian University of Science
& Technology is at the heart of
the debate over the ethics of
industry-sponsored research.



Petroleum research: the ethical question

An unlikely philosophical debate about the ethics of petroleum industry-funded research is brewing in Norway, as **Russell Searancke** reports.

The morality of oil and gas exploration and production, and its impact on the environment, has long been questioned, particularly in the developed world. The current debate in Norway — whether co-operative research could lead to conflict of interest for university researchers and the oil interests that fund them — while largely academic, is instructive, and could possibly escalate.

Norway's oil and gas industry is in fine fettle, contributing nearly \$60 billion to the country's total revenues in 2014

and underpinning a savings fund worth \$900 billion, projected to grow 50% in the next six years. The discovery of the Johan Sverdrup oilfield and other exploration breakthroughs on the Norwegian continental shelf has given the province a new lease on life.

The industry is kept honest by an engaged and largely supportive population. However, the association with being a substantial producer of oil and gas does not sit comfortably with a minority. Even the investment principles of the mighty

petroleum fund are in the public's firing line.

Under pressure from its political opponents, the government has just set up an expert group to investigate whether the petroleum fund should be barred from investing in petroleum and coal companies. The opposition argues that it is not a good strategy for addressing climate change if the petroleum fund invests in companies that extract fossil fuels.

Transitioning away from the use of fossil fuels is at the heart of the current debate

about the ethics of petroleum research funded by Big Oil. The debate was kick-started seven months ago by seemingly innocuous collaboration agreements between state-owned energy giant Statoil and various universities in Norway. The agreements seemed innocuous because they were not uncommon — the oil and gas industry has been doing co-operative research with academia in Norway for decades.

The ink had barely dried when a professor of oceanography from the University of Bergen, which had also just renewed its agreements

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ACADEMIC TEAM: Egil Tjaaland (left), head of the department of Petroleum Engineering & Applied Geophysics at NTNU, welcomes the ethics debate but believes people against industry/academia co-operation are in the minority. He is pictured with Jon Kleppe, the NTNU IPT professor.

» with Statoil, questioned whether it was ethical for a university to receive money from oil and gas companies for research in petroleum-related areas. This provoked a round of opinion pieces in newspapers, and even some minor public demonstrations, before the University of Bergen referred its question to the Norwegian National Committee for Research Ethics in Science & Technology (NENT).

The ethics committee decided it was a serious issue, and earlier this year requested that universities and petroleum research institutions in Norway should submit a detailed response that outlined their history of education, plus research and development activities.

They were required to detail their research and development arrangements with the oil and gas industry, and their expectations for the future. Up to nine major universities and institutions submitted responses.

NENT's findings, issued in June, concluded that "petroleum

research may be ethically indefensible if framework and research activities for petroleum research prevent adjustment processes in order to meet the UN [United Nations] climate change targets that Norway has committed to". The committee requested that universities and research institutions should immediately do a thorough analysis and review of their petroleum-related research activities.

"The goal for sustainable development and the application of a principle of precaution demands a contribution from the research community, as well as from political authorities and business communities. The universities have a specific responsibility, as the producers, and holders, of knowledge," NENT said.

The committee also said the funding companies had a "big responsibility" to "ensure that research contributing to a transition be prioritised", and to make a bigger effort to drive research toward that goal.

Being an advisory body,

NENT's recommendations are non-binding. But there are groups in Norway that have taken encouragement from the committee's findings and, rather than the findings marking the end of the debate, there is a possibility the debate will escalate.

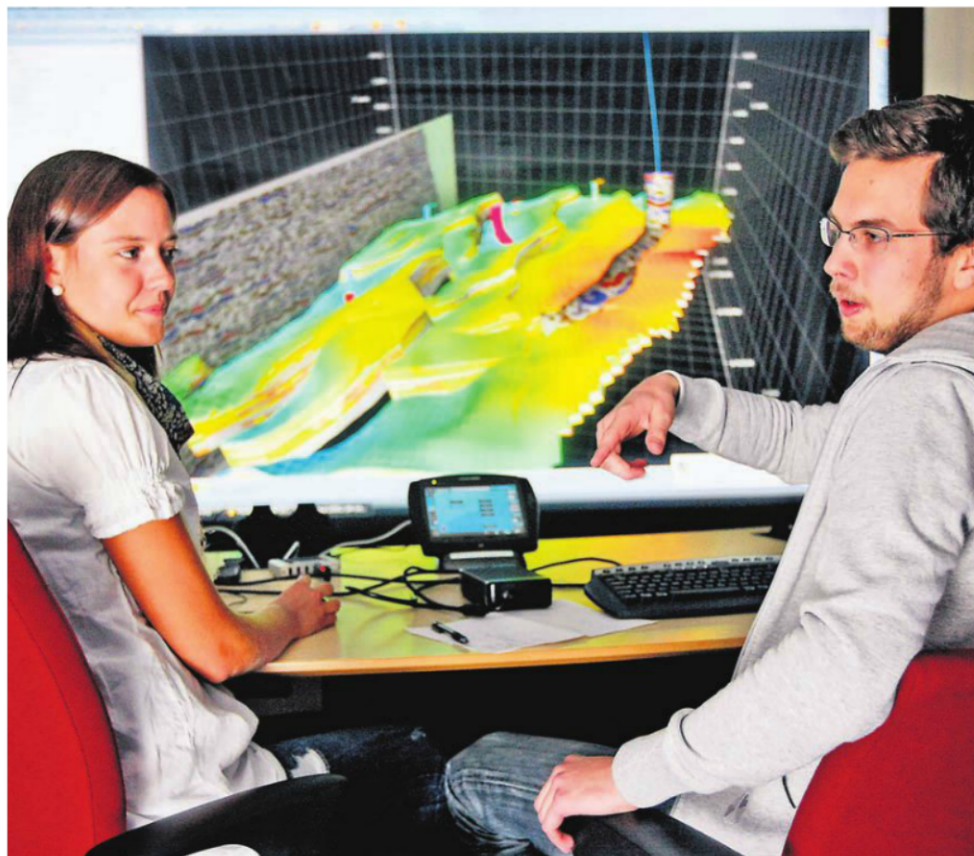
Egil Tjaaland, head of the Department of Petroleum Engineering & Applied Geophysics at Trondheim-based Norwegian University of Science & Technology (NTNU), said the conclusions from the ethics committee would not change his group's approach to petroleum research. "But we will of course continue to follow the rules and regulations with regards to exploration and production of oil and gas in a safe and environmentally safe way," he says.

Jon Kleppe, the NTNU IPT professor, agrees that in a perfect world there would be less use of oil and gas. But for that to happen requires energy alternatives. An energy revolution is needed before there can be any suggestion of

ending petroleum research, he says.

NTNU was one of several Norwegian universities to sign co-operation agreements with Statoil, which has kept a low profile throughout the debate. Statoil is without doubt the dominant actor in the Norwegian petroleum sector, and has a research budget in 2014 of nearly \$500 million, according to a letter from Statoil to the ethics committee. Half of that amount finances external research. Of these external resources, Norwegian research institutions receive about \$44 million, of which the academia agreements, which triggered the ethics discussion, represent a relatively small sum — about \$14 million. The company concluded in a letter to NENT that the research institutions, in fact, receive far more research funding through state channels than from Statoil.

NTNU has said it is focused on being an international leader in petroleum research, as well as in renewable energy, in addition



VISUALISE THIS: The NTNU visualisation room in Trondheim, widely employed for co-operative research.



“The committee report is a milestone in the development of this debate in Norway.”

*Peter Haugan,
University of Bergen*

to its core education role. Apart from Statoil, the university has co-operative research agreements with Schlumberger, Total and other industry players.

Peter Haugan is the University of Bergen professor who last December questioned the petroleum research agreements signed by Statoil with several leading major universities, including his own. Haugan said there was a lack of information about the nature of the Statoil agreements — how they were agreed, how was the money to be used, and what were the priorities.

NENT's conclusions seemed at face value to be toothless. But Haugan says the debate is far from over, and that the committee report will prove valuable. “I think it's a positive,” he says. “It's a milestone in the development of this debate in Norway.”

Haugan says the findings point out the responsibilities of the universities and research institutions “to take a good look at their research portfolios and check that against the guidelines

on contributing to sustainable development”.

Research funders also have an obligation to contribute to these guidelines. “There is a danger of creating a vacuum in between the funders and the performers, where neither takes responsibility for evaluation,” he says.

NTNU argued during the ethics investigation that it was too easy to point the finger of blame at the petroleum industry while ignoring urgent global energy demands, and that until cost-effective and viable alternative energy is available, research into improved reservoir understanding and performance should continue.

Tjaaland says that all of NTNU's research is done within an existing context of being ethically and environmentally conscious, and that its researchers welcomed the discussion.

“There are a minority of people who do not like this coupling between industry and academia,” he says. “But it is good to debate. We are not opposed to this investigation.”

Decisions on the type of

petroleum research are usually bilateral, but universities often make unilateral decisions on the type of research they undertake. For example, NTNU and Statoil signed two agreements last December worth up to a combined \$48 million. One was a four-year framework deal, and the other a five-year academia arrangement that will focus on petroleum and marine technologies. Among other things, the agreement funds research on increasing the recovery factor in the Haltenbank area and from the Norne field. VR Village, a virtual reality project, will also receive support for the visualisation of large volumes of seismic and reservoir data.

The academia agreement secures the funding of 17 adjunct professor positions and two full-time research professorships. It covers six doctoral scholarships and publishing support for doctoral students. In addition, geological field trips and excursions for other students within petroleum and marine enterprises will be financed.

The petroleum industry

needs the research done by the students and professors at the universities, while the universities — in the absence of sufficient state funding — need to co-operate with the industry to attract talented local and overseas students. The co-operation arrangements also provide universities with access to companies working at the cutting edge of technology. It is a virtuous circle, says Tjaaland.

Trondheim is considered the technology and engineering capital of Norway. NTNU is based there, as is Sintef, while Statoil has its main research centre there. NTNU is involved in several major technology centres, including the Centre for Integrated Operations, the Centre for Drilling & Wells for Improved Recovery, the Centre for Carbon Capture & Sequestration, and the Arctic Exploration Centre.

The ethics committee announced that it would host follow-up discussions with all parties later in the year. **U**