

FRACKING FREE IRELAND

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To: Kevin Greene
Environment International and Sustainable Development Unit,
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Dublin

email: fsdi@environ.ie
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Ref: Submission on the Draft Framework for Sustainable Development of Ireland

Date: 27 February 2012

Dear Mr. Kevin Greene,

Please take in consideration my Submission on the Draft Framework for Sustainable Development of Ireland.

I wish to contribute to the theme: **Climate change and clean energy** and share some ideas how to meet the targets as outlined in the [National Energy Efficiency Action Plan](#) and in the [Draft Framework for Sustainable Development for Ireland](#) and how Ireland could distinguish itself from the rest of Europe in developing and implementing a sustainable energy economy.

' It is widely recognised that economic prosperity depends on maintaining and enhancing our assets, including natural capital' (page 26)

and the OECD report Towards Green Growth page 77

'Green growth is an essential component of sustainable development and a way to pursue economic growth and development while preventing environmental degradation, biodiversity loss and unsustainable natural resource use.'

The report states that: " If we want to make sure that the living standards we have seen in the past 50 years does not grind to a halt, we have to find new ways of producing and consuming things and even redefine what is meant by progress and how it is measured."

Ireland- the Emerald Island, Green Ireland.

As a Dutch native I wish to bring under your attention the (latest)developments in technology on sustainable energy by a.o. the Dutch former astronaut Wubbo Ockels. Physicist Wubbo Ockels, is currently professor of Aerospace for Sustainable Engineering and Technology at Delft University of Technology, (The same university where Professor De Pater is appointed, who was invited by Sr. Susan O'Keeffe, to inform the TD's on the use and the developments of unsustainable energy in the Netherlands: hydraulic fracturing.) He strongly advocates the use of sustainable energy as a solution for the overall energy demand.

Wubbo Ockels

Introduction to Wubbo Ockels and the sustainable opportunities in a new era

Physicist Wubbo Ockels, former astronaut and currently professor of Aerospace for Sustainable Engineering and Technology at Delft University of Technology, discusses the urgent need for transition to a sustainable energy management. "The costs of climate change are higher than the combined profits of all oil companies." The crises facing the world – social crises, financial crises and climate crises – are signalling the end of the industrial revolution and we will move to new culture. Many of the innovations caused by the urgency of climate change are very exciting. It is not simply about replacing fossil fuel; they are innovations in a new era

The screenshot shows the ES Insight website interface. At the top, there are navigation links for 'Sustainable and Responsible Investments', 'Green Buildings Finance', and 'Sustainable Energy Finance'. Below this is a search bar and a navigation menu with 'Sharing What Matters in Finance and Sustainability'. The main article title is 'Sustainable opportunities in a new era', dated Dec 1, 2011. The article text is partially visible, discussing the need for sustainable energy management. To the right, there is a 'Subjects' sidebar with various categories like 'Bonds Investing', 'Cleantech', 'Energy Efficiency', etc. At the bottom of the article, there are two video thumbnails of Wubbo Ockels, one with his name 'Wubbo Ockels' and another with 'HD' and a play button icon. A small promotional box on the right asks 'Want to share business or insight with world?'.

According to Ockels, gas could play a major role during the transition from fossil fuels, and in that period priority must be given to renewable energy production. "Every new gust of wind, every sunny day means a reduction in the amount of gas used. But the gas companies don't want to reduce consumption because that will erode their profits."

Read more and Watch the youtube movie:

<http://fsinsight.org/insights/detail/sustainable-opportunities-in-a-new-era> ((1December 2011))

Energy opportunities for Ireland - Energy independence - by using sustainable energy

Ireland, surrounded by the sea, has an inexhaustible abundance of wind, waves and tides to be exploited as sustainable energy, in the form of: **wind, tidal, waves, ladder mill, and blue energy** (along with solar, waste, bio energy etc.)

It takes a little more effort to tap into these resources but if we do we will have the following benefits:

a. It is safe, guaranteed.

No unconventional gas extraction by-products will enter the food chain.

b. Lower carbon footprints.

Ireland will lower its GHG emissions, and is – as a major stakeholder - able to sell green energy

c. Carbon credits

Ireland can sell its carbon credits to other countries. (or at least lower its GHG fines)

WIND

- **Ladder mill**

Currently Wubbo Ockels is involved in his "LadderMill" sustainable energy program. A Laddermill is a kind of windmill consisting of a "ladder" of "kites".

The LadderMill is the response to the challenge for exploiting the gigantic energy source contained in the airspace up to high altitudes of 10 km. The concept has been developed with the aim to convert wind energy at altitude in electricity on the ground in an environmental and cost effective manner. http://en.wikipedia.org/wiki/Wubbo_Ockels#cite_note-1

A laddermill is a hypothetical [airborne wind turbine](#) consisting of a long string or loop of [power kites](#). The loop or string of kites (the "ladder") would be launched in the air by the lifting force of the kites, until it is fully unrolled, and the top reaches a height determined by designers and operators; some designers have considered heights of about 30,000 feet (9144 meters), but the concept is not height-dependent. The laddermill method may use one endless loop, two endless loops, or more such loops.

Wednesday, 2 March 2011

New Laddermill Video from Delft, New international conference

TU Delft flying high, Next AWEC conference in europe

Quick post today, here's a new video showing the great progress being made at TUDelft. They've made good progress on the kites working with Mutiny, you can clearly see the modified attachment points and bridle on the in-flight video. This video also shows the teams first autonomous controller deployed on the kite.



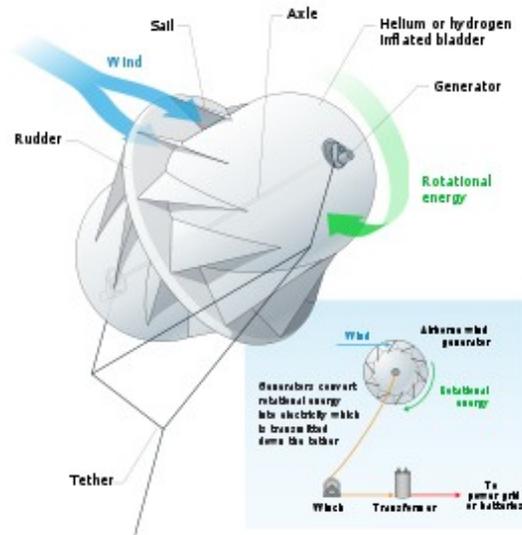
Tu Delft flying high , article and video - <http://kiteenergy.blogspot.com/>

- **High Altitude Wind power HAWP**



HAWP – wikipedia article - http://en.wikipedia.org/wiki/High-altitude_wind_power

- **Airborne windturbine**



Airborne windturbine – wikipedia article -
http://en.wikipedia.org/wiki/Airborne_wind_turbine

WATER

- **Blue energy**

Blue Energy: A potential source of renewable energy

March 1, 2009, 9:00 am

What do you get when saltwater and fresh water meet? A clean, renewable source of power called blue energy.

Diane Daniel | March 2009 Issue



Photo: istockphoto.com/istockcloud

The blades stutter a bit at first, but after a couple of halting starts, the tiny propeller on the miniature windmill is soon turning at top speed. The fuel: a tank containing saltwater and fresh water. "Here's your proof," says Jan Post, a Ph.D. student at the Dutch water technology research institute [Wetsus](http://www.wetsus.nl). "Blue energy works."

This little windmill is just a laboratory demonstration model, but Post and his colleagues have big ambitions for blue energy, a process that derives clean power from the mixing of saltwater and fresh water. Within a decade or so, they

hope blue energy will produce a significant share of the Netherlands' electricity. But if

Blue Energy: a potential source of renewable energy -
<http://www.odemagazine.com/doc/61/blue-energy/> 2007, the beginning of blue energy

200 megawatt uit zout en zoet water - 200 megawatt from salt and fresh water

Blue energy will start on the Afsluitdijk soon (from IJsselmeer and Waddenzee/North see) http://www.vnci.nl/actualiteit/nieuwsbrief/nieuwsbrief-artikelen/11-12-15/200_megawatt_uit_zout_en_zoet_water.aspx
15 dec 2011 in Dutch

Translation of above article:

It has been talked about for years, but now a pilot power plant will finally start generating electricity from fresh and salt water. Water Technology institute Wetsus has developed and extensively tested in the laboratory the technique called Blue Energy. The next step is to put this technique into practice in a place where fresh and salt water meet. The pilot power plant will be situated at the Afsluitdijk, a dam that separates the IJsselmeer, Holland's largest freshwater lake from the Waddensea. Now that the funding in place the building can start, reports the December issue of Chemistry magazine.

The initiators, Wetsus, REDStack (the developer of the power plant) and Fujifilm will investigate the plants profitability. The pilot power plant starts at a small capacity - about 50 kilowatts - that, if successful, may be gradually be expanded. The ultimate goal of the Afsluitdijk power plant is the capacity of 200 megawatts, the amount of energy required by 500,000 households.

Michel Saakes, leader of the Wetsus Blue Energy team, hopes that construction can start in early 2012. This is likely to be the case with the promised financing of 1.6 million by the Provincial States of Friesland. REDstack successfully applied in April 2011 for the same amount in the Northern Netherlands (SNN). "The investment requirement is about 7 million," says Jan de Heer, Project Blue Energy in the province of Friesland. The remaining money comes from Wetsus, REDstack and Fujifilm.

The technique, called Reversed ElectroDialysis (RED), is based on the presence of ions (positive sodium and negative chlorine ions) in seawater. In the power plant these ions move through special membranes to fresh water. The negatively charge particle move to the left, the positive to the right, creating voltage difference that induces an electric current.

In theory, a cubic meter of fresh water could generate 2.5 megajoules (0.7 kWh).

TRANSPORT

- **powered by electricity: Electric superbus**



The image shows a screenshot of a website article. At the top, the logo reads "TOMORROW is Greener" with a green leaf icon. Below the logo is a navigation bar with links: HOME, FUTURE GREEN TECHNOLOGY, GREEN PROJECTS, GREEN NEWS, RENEWABLE GREEN ENERGY, and SUSTAINABILITY. The article title is "Electric superbus" and it is dated "Posted by Greener Tomorrow on April 7th, 2011". The article text describes a new electric superbus invented by Wubbo Ockels, which can reach 250 km/h and transport 23 passengers. It is 15 meters long, 2.5 meters wide, and 1.65 meters high. The article also mentions that the bus will be seen on the streets of the Netherlands and that it is efficient and fast. A small image of the blue superbus is included in the article.

Electric superbus - <http://www.tomorrowisgreener.com/electric-superbus/> 7 April 2011

The **Superbus project** aims to develop high speed coaches capable of speeds of up to 250 kilometres per hour (160 mph) together with the supporting infrastructure including special highway lanes constructed separately next to the nation's highways.[1] It is envisaged that the system will offer comfortable, demand-dependent door-to-door transportation rivaling the car and the train. The project includes studies into the infrastructure, logistics, safety, reliability and economic viability as well as the design of the vehicle itself. Total costs of the project are currently estimated at around seven million euros, funded largely by the Dutch State. This project is led by Dutch astronaut professor Wubbo Ockels of the Delft University of Technology.

- **powered by Hydrogen**

press release



Filling up at the pumps with hydrogen instead of petrol has become a real possibility

Filling up at the pumps with hydrogen instead of petrol has moved a step closer to reality with the launch of a new company which holds the technology to make it happen. Cella Energy Limited is a brand new spin-out company from STFC's Rutherford Appleton Laboratory. It is developing a novel technology that allows hydrogen to be stored in a cheap and practical way, making it suitable for widespread use as a carbon-free alternative to petrol.

Hydrogen, which produces only pure water when burned, is considered an ideal solution to cutting carbon emissions from

micro-fibres 30 times smaller than a human hair. These form a tissue-like material that is safe to handle in air. The new material contains as much hydrogen for a given weight as the high pressure tanks currently used to store hydrogen and can also be made in the form of micro beads that can be poured and pumped like a liquid. It could be used to fill up tanks in cars and aeroplanes in a very similar way to current fuels, but crucially without producing the carbon emissions. This is the technology underpinning Cella Energy Ltd.

"In some senses hydrogen is the perfect fuel, it has three times

Filling up at the pumps with hydrogen instead of petrol has become a real possibility

- http://www.cellaenergy.com/uploads/pdf/CellaEnergy_PR_Filling%20up%20with%20hydrogen%20now%20a%20real%20possibility_v1.pdf

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Oil companies seem to work against the development, according to the UK. The price per liter could be between 25 and 30 ct.

SOLAR

Nano particle Electrode for Batteries could make grid-scale power storage feasible



[Nanoparticle electrode for batteries could make grid-scale power storage feasible](http://www.sciencedaily.com)

www.sciencedaily.com

Researchers have used nanoparticles of a copper compound to develop a high-power battery electrode that is so inexpensive to make, so efficient and so durable that it could be used to build batteries big enough for economical large-scale energy storage on the electrical grid -- something researchers...

SUSTAINABILITY and the ECONOMY - INVESTORS



sustainability should be mainstream, but for most investors it is still way down

Sustainability allows investors to do a better long term investment job -

<http://fsinsight.org/insights/detail/sustainability-allows-investors-to-do-a-better-longterm-investment-job> (January 6, 2012.)

Sustainability should be mainstream, but for most investors it is still way down the list of priorities. The question is whether to leave it there or to advance it to a special item. The time horizon is a major challenge: investors are more comfortable setting benchmarks at three or twelve months; sustainability has a much longer horizon. A strategy must be developed that "simultaneously is fit for today's time and fit for purpose to adapt to a transforming economy."

Pension funds are aggravated by their current circumstances; many are underfunded and the situation is viewed as urgent. They may acknowledge the importance of sustainability, but it is difficult to persuade them to address it now. There are suspicions that the collateral benefits may detract from the true purpose of the fund, which is to make profit. "The benefits of sustainability are not the primary purpose; the primary purpose is to do a better long-term investment job."

TO CONCLUDE

Three times Green: Food, Tourism, Energy

Ireland has a green reputation in tourism and food produce, a reputation that can be extended with green - winds, waves, tidal - and blue energy

Green is our trademark, we should be at the forefront of green energy and with the advent of these new technologies as I have outlined Ireland has the potential to surpass its 20% target.

Yours sincerely,

Fracking Free Ireland

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[& Wind Energy](#)

Aerospace
Science for
Sustainable
Engineering
and
Technology

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