



Welcome to the EnviroDaq fortnightly newsletter focusing on companies in the UK's growing environmental goods and services (EGS) sector.

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EnviroDaq

The EnviroDaq Index, the first index for UK-listed environmental technology companies, has grown by 40% over the last 12 months against the FTSE 100's growth of 23%.

The EnviroDaq is an index of UK listed companies which generate at least 60% of their market value from providing environmentally-focused goods and services. This includes companies in the following sectors: renewable energy; energy efficiency equipment; renewable materials; waste management; water and waste water treatment; air pollution control equipment; environmental monitoring and instrumentation; cleaner technology processes.

Recent research carried out by EnviroDaq indicates that companies in the environmental goods and services sector now account for 2.5% of the AIM market. This is second only to the Speciality Finance sector in terms of market representation.

The EnviroDaq now has 72 members; all of whom are listed in the UK stock market, and over 95% are listed on the AIM market.

EnviroDaq stats (as from today)

EnviroDaq Index Current Value: 153.37

EnviroDaq Index Yesterday Close: 150.8
EnviroDaq Index Movement Today: +1.68%
EnviroDaq Index Movement Last 7 Days: -0.42%

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Opinion

The Green Bubble - will it burst?

The combination of high oil prices and growing concerns over climate change have focused the attention of policy makers and investors alike on the business opportunities in renewable energy and energy efficiency technologies. As a result, companies coming to market in the sector have also attracted interest from the media.

It is inevitable that before the initial spurt of interest has died down, the doom merchants are already suggesting the boom in share prices in the sector is a prelude to the bursting of the green growth bubble. The comparison with the dotcom era boom and bust is never far away.

Whilst there are parallels – rapid rise in share prices on the back of some optimistic looking numbers, and concerns over the capability of some of the management teams – there are also clear differences. Clear green water if you like.

Firstly there looks like something approaching maturity in parts of the market. Oil prices have been continuing their upward path, but share price growth in the renewable energy and energy efficiency sectors has stalled as the stock markets generally suffer from a gloomy outlook. Furthermore the government's push for nuclear energy could have been expected to further depress the sector but there was relatively little additional selling activity following the publication of the Energy Review.

Secondly, the sector is influenced strongly by legislation and it is important to note that the Energy Review provided further certainty to the sector by guaranteeing it 20% of the energy supply market by 2020. This provides a great deal of comfort to investors and more long term certainty than the dotcom companies ever enjoyed.

Thirdly, there is also a rare cross-party political consensus which means that a change of government is unlikely to result in a significant U-turn in the energy policies of most relevance to the sector. This again provides for greater certainty.

Finally, many of these companies and their investors have learnt the lessons of the dotcom era. Business plans are more robust, management teams generally stronger and due diligence processes more rigorous. They also have real world technologies to sell rather than virtual businesses.

This is not to say that companies in the sector won't rise and fail as in any other market. There may be some who go on to be the new Google, Amazon and eBay and there will be those who never get beyond the initial investment. However, it is likely that once the initial burst of enthusiasm dissipates we will see a fairly orderly market sector, albeit one that unusually offers the chance to deliver both economic growth and environmental improvement.

Editor

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News in Brief

BP has joined forces with Associated British Foods, one of Europe's biggest food groups, to build what is claimed to be the largest 'green' petrol plant, using sugar beet from the East of England. The move is designed to kick start a far larger programme involving hundreds of millions of pounds of investment.

DuPont, the US chemical group, are the third partner and they say the biobutanol plant at Wisington, Norfolk will reduce the agricultural surplus and assist the UK targets for greener fuels. It is estimated to cost £25 million, and when finished will have a capacity to produce 70 million litres a year of biobutanol, which will be used for refuelling cars. The traditional petrol can be blended with up to 10% of biobutanol without requiring any engine modifications.

Shares in Drax, Britain's biggest coal power station, have risen by 70% in the last 6 months. Issues of supply security and the emergence of clean coal technology have further strengthened the case for coal in the energy markets.

New environmental fund heads for AIM: Low Carbon Accelerator, a new environmental fund will float on AIM and look to raise £60m to £80m. The fund, expected to float in August, will concentrate on pre IPO companies active in areas such as solar panels; micro electricity generation from mini wind turbines and domestic CHP; ethanol; technologies that increase energy efficiency; and products that reduce emissions from buildings.

It has already received £2.5m from Panmure Capital Partners and has invested around £1.5m in five companies. Richard Wyatt executive chairman of Panmure will act as Chairman, and the advisory panel will include Lord Oxburgh (former chairman of Shell Transport) and Mark Shorrocks (founder of Wind Energy).

Policy News: The amount of carbon dioxide allowances that will be set under the UK's second National Allocation Plan (NAP) for 2008-2012 will be £238 million. This is seven million less than sites are currently allowed to emit under the scheme, representing an annual reduction of 3MtC and 8MtC.

Meanwhile, as part of the Energy Review, Environment Secretary David Miliband announced the formation of a joint DEFRA/DTI environmental transformation fund to boost investment in renewable energies and low carbon technologies.

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EnviroDaq Companies' news

D1 Oils: The Board of D1 has confirmed that it has been in preliminary discussions with a number of parties, which may or may not lead to an acquisition of a substantial shareholding in the company and/or an offer for the entire issued share capital of the company. As discussions are at a very preliminary stage, there can be no certainty that any offers will be indeed be made.

Clearspeed Ltd, a leader in high-performance coprocessors, today confirmed that following its announcement on 22nd June 2006, the company will team up with IBM to deliver advanced technology for the world's most powerful supercomputer installations. This will be achieved by integrating ClearSpeed Advance boards into the IBM System Cluster 1350.

ITM Power has announced that it has initiated a joint development programme with The University of Hertfordshire, to develop an electrolyser refuelling system for use in cars with hydrogen internal combustion engines. Hydrogen can be burnt in conventional internal combustion engines and after conversion, enables the vehicle to produce virtually zero emissions.

The development programme has been initiated following ITM's successful 'cost over life' electrolyser testing. ITM's electrolyser, using water and low tariff electricity, could address the cost issues of hydrogen fuel and the requirement to build a hydrogen refuelling infrastructure.

The aim of the programme is to reduce internal combustion engine emissions, and to advance in the global quest to move to zero carbon fuels.

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EnviroDaq Company Case Studies

The following case studies of companies in the EnviroDaq index were penned by the companies themselves and have not been edited by the EnviroDaq editor. We therefore accept no liability for the accuracy of the information contained within them and they should not be used as a prospectus for investment purposes.

Nature Technology Solutions Limited

1) Introduction

The Nature Group activities commenced in 1997 in the UK and Gibraltar at the time of being awarded a long term contract to build and operate an oil waste reception and treatment operation in the Port of Gibraltar. This plant was commissioned in 2001 at the time of listing of the Group on the AIM section of the London Stock Exchange.

Nature Group activities in Norway commenced at a similar time in 1997 with the development of a flocculent based adsorbent for separation of hydrocarbons, suspended solids and heavy metals from water to a very low residual level. This was used by Nature in the Maureen platform decommissioning and in other applications.

In 2002 the UK and Norwegian activities merged under the current Group name and relisted on AIM.

Since 2002, the Nature Group has achieved;

Expansion of Gibraltar operations through a joint venture commenced in 2003, now

handling 40,000 cu.m.'s per year, and operating Gibraltar's overall Port Waste Management.

Establishment and expansion of a reception and treatment facility in Stavanger Norway, handling mainly oil industry oil wastewaters and now as an enlarged joint venture treating in excess of 10,000 cu.m.'s of complex wastewaters per year.

Joint Oil Industry research programs with 4 multinational oil companies on the applications of the patented Nature adsorbent to reservoir produced waters.

Development and launch in August this year of an on rig containerised treatment unit, capable of meeting discharge requirements set by environmental agencies and oil companies for discharge to sea.

Successful installations for complex wastewater treatment at a leading European plant manufacturer and trials for treatment solutions at a large international dry dock facility. Other successful build and supply contracts and a 2 year contract at the Shell Sola refinery decommissioning.

The Nature Group offers proprietary engineered treatment solutions based on both the green Nature adsorbent and if appropriate to the solution, successful constant flow biotreatment demonstrating minimal sludge generation over long periods of use.

2) USP www.naturetechnologysolution.com

3) Competition

The Nature Group is not aware of any proven or successful utilisation of a similar flocculent or additive achieving the effects of the Nature CF 200 adsorbent and our compact dissolved gas flotation units. However many fluids treatment and waste companies serving the oil industry are believed to be seeking to identify similar solutions.

In biotreatment there are some European competitors offering constant flow treatment solutions. It is believed that the Nature success over several years in at least 3 proven locations is relatively an improvement on other offered solutions.

As to reception facilities; Gibraltar operations have 17 years remaining on a 20 year Government contract. In Norway, Nature offers the most successful and professional treatment plant in the Stavanger region.

4) Financial Performance

In 2005 Nature generated a small surplus before depreciation and amortisation, on revenues of £950,000. Revenues attributable to the Nature Group should exceed £1.2 million in 2006 and with continued growth in performance at the two joint ventures a better Group result is anticipated.

Net Tangible Assets attributable to shareholders exceed £2 million with no debt.

5) Future Prospects

Continued growth in volumes and revenues at the Gibraltar and Stavanger

treatment sites is expected. The success of the new 'on rig' treatment module following trials in August 2006, should lead to considerable growth in activity at the Group's new subsidiary, Northern Treatment. This is not included in the revenue prospects above. Overall the Directors believe that the Nature Group has exciting immediate prospects for growth.

6) Management

The technical and engineering management of the Group is located in Stavanger , Norway , led by Stig Keller a co-founder of the Group and Trond Aarestrup the General Manager. The Chairman Richard Eldridge, who initiated the Gibraltar project in 1996/7, is based at the Group's UK engineering support office in the West Country. The treatment centres in Gibraltar and Stavanger have their own managing director and general manager respectively, leading a combined staff of some 15 people. New prospects are under review in many locations worldwide. These are processed both in Norway and the UK.

Nature Technology Solutions - main completed projects:

- 99-00 Treatment of over 5000 cbm of produced water from Jotun at SAR. Oil in water discharge achieved was below 5 ppm.
- 00 Treatment of 800 cbm of oily ballast water for ØSI in Moss. Oil in water discharge in project was below 5 ppm, from the new Nature mobile treatment unit.
- 01-02 Treatment of over 5000 cbm of oily washing/ballast water from Phillips' Maureen Platform. Average outlet was below 5 ppm on average, the project was performed offshore at Aker Stord.
- 02-04 Shell Refinery Decommissioning. Nature subcontracted to TS Maskin and was responsible for water management and treatment according to SFT discharge license.
- 02-03 Formation of SART, building of site, delivery of technology and licensing from SFT.
- 02-04 Joint Industry Project for the development of new Produced Water Treatment Technology. Founded by Statoil, Hydro, Total, Shell and Phillips. Ongoing project in 2005, including offshore testing.
- 04 Contract on large capacity Fixed Film Bioreactor in GRP to SART for the treatment of dissolved components in wastewater. Delivered 01.01.05.
- 05- Contract on large capacity Fixed Film Bioreactor and DAF for the treatment of 20,000 cm³/year for to a major Pup-manufactory in Denmark
- 05- Offshore Slop water treatment unit for the oil industry to be installed on platforms and rigs in the Barents Sea.
- 05-06 Formation of Northern Treatment, building of offshore treatment unit, delivery of technology and personnel.
- 06- Delivery of complete treatment unit including bio treatment and DAF units to a major Pup-manufactory in Denmark.

Ashe Morris Limited; engineering for leaner, cleaner chemistry

1) Business Overview

Established in 2000, Ashe Morris Ltd (AML) is an engineering design and technology licensing company focused on delivering next generation process technologies to the pharmaceutical and fine chemicals industries. Our unique and proven COFLUX[®] technology delivers step changes in process economics and environmental performance. To date we signed two license agreements with established equipment manufacturers. The first two COFLUX[®] products were launched in the latter part of 2005.

2) Technical and Intellectual Property Portfolio

AML's proprietary technologies are focused on transforming the control and monitoring capabilities of a variety of batch and continuous process equipment. These include:

- **Batch Process Equipment:** AML's proven COFLUX[®] technology dramatically improves batch reactor performance. It is ideal for a wide variety of batch manufacturing operations such as chemical synthesis, polymerisation, bio reactions, crystallisation and fermentation.
- **Continuous Process Equipment:** AML's second technology is a novel continuous reactor technology with unique capabilities. The chemical industry is currently showing a lot of interest in such 'process intensive' chemical process solutions to improve process efficiencies and environmental performance.
- **Other:** A new process analytical control software that allows the continual improvement philosophy to be introduced into the traditional recipe driven processes. This is of increasing interest for pharmaceutical companies following the launch of the FDA's PAT (Process Analytical Technologies) initiative.

AML has also received significant 3rd party recognition through a number of grants and awards:

- DTI SMART Feasibility Award 2002 (£45,000), DTI SMART Exceptional Award 2002 (provisional £325,000) and DTI Research Grant 2005 (£55,000)
- Shortlisted in the IChemE Hayden Freeman Engineering Excellence & Crystal Faraday Green Chemistry Awards '03

AML has filed 13 patents internationally to date, two of which have been granted thus far in Europe.

3) Market Opportunity

AML is targeting the \$2 billion p.a. reactor systems market [1] where our proprietary technologies can deliver compelling economic and environmental benefits. With over 50,000 chemical plants globally, market estimates suggest that there are several hundred thousand batch reactors in service [2]. Several thousand new and replacement vessels are sold annually across the globe. AML aims to secure a significant market share through licensing relationships with established equipment manufacturers. Indeed, Imperial College believes that COFLUX[®] "*has the potential*

to become an industry standard with the herd instinct of the sector resulting in large scale adoption of the technology” [3].

[1] Source: Robbins & Myers 2000 Annual Report and AML analysis

[2] Source: European Chemical Industry Council (www.cefic.org): July 2005 estimates 27,000 chemical enterprises in Europe; India Infoline Brokers (Report estimating over 20,000 manufacturing units in India & AML analysis)

[3] Source: Imperial College Paper: “A modelling study of constant flux heat transfer for improved process development and operation”

4) Commercial Strategy and Development Status

AML generates revenues through a mixture of royalty bearing licensing agreements and JV agreements with established equipment manufacturers and end users across a number of market segments.

The initial commercial focus is on developing and exploiting COFLUX[®] in the lab and pilot scale markets within the batch pharmaceutical and chemical industries. Two licensees have been signed up so far:

- **Syrris/Radleys:** A UK based developer and supplier of laboratory equipment with international distribution in over 15 countries.
- **PSL:** A Queen’s Export Award winning company (backed by 3i) that supplies pilot and industrial equipment to the pharmaceutical industry.

Commercialisation is at an early stage. However, Pfizer has purchased the first commercial COFLUX[®] lab calorimeter, and has given very positive feedback on the unit’s capabilities. Furthermore, numerous companies are currently trialing the technology (including GSK, AstraZeneca, Bristol Myers, Sanofi Aventis) at both lab and pilot scale with a view to future adoption.

5) Management Team

Ashe Morris has a stable team of three directors that has worked together for over 4 years, and employs a number of contractors and consultants on retainer as required. The team, together with two non-executive directors, brings a blend of deep domain knowledge of pharmaceutical and chemical manufacturing process design and implementation with proven commercial and financial expertise.

- **Robert Ashe, Chairman and Technical Director** (CEng, MICHemE, MIMechE): 25 years+ experience in pharmaceutical, chemical and food industries; Process lead/design consultant for GSK, Pfizer, Merck, Novartis and AstraZeneca.
- **Richard Barker, Managing Director** (MEng, Oxford University): 11 years+ experience in consulting and investment banking; Ex-Head of Strategy at ANZ Investment Bank; ex-management consultant at A.T. Kearney & MMG.
- **David Morris, Director of Engineering** (BSc): 20 years+ experience in pharmaceutical, nuclear and manufacturing industries; Extensive design experience in prototype and scale-up plants including 9 years with Merck.
- **Prof. Nilay Shah, Non-Executive Director** (PhD, DIC, FICHEM): Professor of Process Systems Engineering, Department of Chemical Engineering, Imperial College with specialisation in optimisation of process systems.
- **Sally Leeson, Non-Executive Director** (MSc, MA(Oxon), ACA): Previously Investment Manager at Quester, investing in early stage technology companies; VP at JP Morgan; Assistant Manager at Price Waterhouse, and MSc in

Environmental Technology.

6) Funding Requirement & Use of Funds

AML is EIS registered and has invested over £1.0m to date. Management is looking to raise up to an additional £1.0m to drive the continued commercialisation of the core COFLUX[®] technology, undertake broader R&D work on our other technologies and establish a more robust infrastructure to further develop our market position.

7) Equity Funding Targeted and Investor Value Opportunity

Investors can anticipate value realisation through a strategic sale, partial (IP related) divisional sale, company buy back or, if conditions are favourable, a listing.

8) Website

www.ashemorris.com

9) Contact

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Envirodaq is an initiative of The UK Centre for Economic and Environmental Development (UK CEED), an independent, entrepreneurial research foundation. Please get in touch if you wish to give feedback on our newsletter or submit relevant news or case studies. For more information on EnviroDaq visit www.EnviroDaq.com. For more information on EnviroDaq 50 contact me as below.

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About Envirodaq

EnviroDaq has been developed by the [UK Centre for Economic and Environmental Development](#)

[\(UK CEED\)](#), a charitable foundation, and the Centre for Sustainable Engineering (CSEng), a not-for-profit company. The aim is for the index to become an authoritative benchmark for performance in the environmental industries and to attract recognition for, and investment activity in the sector. [Top](#)

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