

Energy Library update April 2006

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Contents

Featured Energy Library journal

Books and Reports

Journal Articles

Standards Watch

Oldies and goodies

Free Web Resources

Food for thought

Featured Energy Library Journal

Refocus provides a forum for debate and dialogue between research, industry, financial organisations and government bodies worldwide. With in-depth coverage and incisive editorial on all areas of renewable energy, the magazine takes an objective look at biomass and biogas, fuel cells, geothermal, hydroelectricity, - photovoltaic, solar architecture, solar thermal, tidal and wave, and wind energy.

Refocus keeps you and your organisation up-to-date with the industry as a whole as well as with the individual renewable energy markets. For a fresh look at the renewable energy market look no further than Refocus magazine. Bridging the gap between research and industry, and encouraging essential debate and dialogue, Refocus is a unique magazine in this dynamic market.

Request a free sample article from this journal – choose from

- Wind and other RE: How much can the grid accommodate?
- Delivering power stations: Wind power joins the mainstream
- Transforming the solar cell: Emerging PV manufacturing technologies and efficiencies
- From acorns to oak trees: Executive recruitment trends in the RE sector

ReFocus offer an excellent free weekly email [newsletter](#). Circulation and table of contents services are available for this journal.

New books, standards and reports

Alternating Currents or Counter-Revolution? Contemporary Electricity Reform in New Zealand, Lewis T. Evans & Richard B. Meade, Victoria University Press, April 2006

Lewis T. Evans and Richard B. Meade place New Zealand's current institutional arrangements for its electricity sector within the context of successive waves of economic reform. They compare these arrangements with developments internationally, drawing together lessons for future policymaking both in New Zealand and overseas. *Alternating Currents or Counter-Revolution?* is a work of political economy – and the book carefully analyses the interplay between technology, economics and politics that has at different times driven the sector.

Controversially, the authors argue that the market reforms of the 1980s and 1990s provided greater supply security than the more centralised arrangements prevailing in the past – and that New Zealand's reversion to more centralised and political control since the late 1990s has resulted in an unsustainable half-way house that hinders private electricity investments and reinforces this trend.

We have a [loan copy](#) of this book or can purchase it on your behalf.

The Bottomless Well: The Twilight of Fuel, the Virtue of Waste, and Why We Will Never Run Out of Energy, Peter Huber, New York, 2005

The authors point out that America consumes 25 percent of the world's natural gas, 23 percent of its hard coal, 25 percent of its crude petroleum, 43 percent of its motor gasoline, and 26 percent of its electricity. They reveal that our main use of energy isn't lighting, locomotion, or cooling; what we use energy for, mainly, is to extract, refine, process, and purify energy itself. Huber and Mills list what they call the seven energy heresies: the cost of energy as we use it has less and less to do with the cost of fuel; "waste" is virtuous; the more efficient our technology, the more energy we consume; the competitive advantage in manufacturing is now swinging decisively back toward the U.S.; human demand for energy is insatiable; the raw fuels are not running out; and America's relentless pursuit of high-grade energy does not add chaos to the global environment but rather restores its order.

(To borrow this book email library@energylibrary.org.nz)

Climate change and energy efficient behaviour: a benchmark qualitative study / UMR Research / UMR Research for the New Zealand Climate Change Office; Energy Efficiency and Conservation Authority (EECA)

(To borrow this report email library@energylibrary.org.nz)

2020 vision: the next generation: Meeting UK power generation objectives in 2020- a strategic insight Deloitte & Touche LLP London, England, 2006

In recent years, the UK has generated sufficient electricity to meet rising demand whilst achieving an acceptable balance between energy security, climate change concerns and affordability.

Latterly however, uncertainty has increased around the achievement of energy policy objectives, culminating in HM Government's announcement of a policy review to determine how to meet future energy needs. This report on how the UK can meet its power generation objectives in the medium term estimates that the UK will face an energy gap of up to 50GW by 2020.

(To borrow this report email library@energylibrary.org.nz)

AS 60265.2:2005. High voltage switches. Part 2: High voltage switches for rared voltages of 52 kV and above Standards Australia, 2005

Specifies requirements for a.c. switches and switch-disconnectors having, making and breaking current ratings at rated voltages of 52 kV and above for in-door and outdoor installations.

(To borrow this standard email library@energylibrary.org.nz)

NZS 7500: 2005. Automotive biodiesel : specification for manufacture and blending

Standards New Zealand, 2005,

The Standard addresses issues around managing biodiesel, which can be used in trucks, buses, cars and other diesel engines as a blend with diesel fuel or as 100% biodiesel. Fuel sold at the retail pump will contain no more than 5% biodiesel.

(To borrow this standard email library@energylibrary.org.nz)

Renewable Energy: RD&D Priorities -- Insights from IEA Technology Programmes

International Energy Agency, 2005

This publication reviews the current status of the renewable energy technologies portfolio and provides guidance on their mid- and long-term development. The study explores the options for the RD&D to achieve breakthroughs that will lead to large-scale markets and identifies what activities should take priority. It also looks at the benefits of increased RD&D funding in terms of technological advancement and cost improvement. It covers renewable energy technologies in the early research stage through to those that have reached a level of maturity. It also lists national renewable energy RD&D trends in IEA member countries. The [Table of Contents](#) is available online.

(To borrow this report email library@energylibrary.org.nz)

Journal articles

Step changes for decarbonising the energy system: Research needs for renewables, energy efficiency and nuclear power Ekins, P. (2004) *Energy Policy*, 32 (17), Pages 1891-1904.

(To receive a copy of this article email library@energylibrary.org.nz)

Space and Time: Wind in an Investment Planning Model, Karsten Neuhoff et al, Faculty of Economics (DAE), University of Cambridge, February 2006

This article is [freely available](#) on the web, along with many other energy-related [papers](#) from this faculty.

Bio-energy in Europe: Changing technology choices, Faaij, A.P.C., (2006) *Energy Policy*, 34 (3), Pages 322-342.

(To receive a copy of this article email library@energylibrary.org.nz)

Development of ecological standards for biomass in the framework of green electricity labelling, Clean Energy Network for Europe, 2006

(To receive a copy of this report email library@energylibrary.org.nz)

Integrated Hydrogen and Intelligent Transportation Systems Evaluation for the California Department of Transportation, Institute of Transportation Studies University of California – Berkeley, 2006

(To receive a copy of this article email library@energylibrary.org.nz)

Burning Issues: Hot topics in people management for 2006, NZ Employment Today, February 2006, pp13-17

Highlights issues that will be relevant in the New Zealand employment and HR markets in 2006. If this article interests you, check out the report **Work Force Planning for Public Power Utilities** in the Free Web Resources section of this newsletter.

(To receive a copy of this article email library@energylibrary.org.nz)

Oldies and goodies from the Energy Library collection

Energy to 2050 Scenarios for a Sustainable Future, International Energy Agency, 2003

The work presented here intends to provide an experimental introduction to different types of scenarios, in the effort to complement the array of available tools, and to address specific aspects of the analysis of the energy and environment intersection in the longer term. The objectives pursued are:

- to strengthen the analysis of energy and environment issues over the long term by aiding in the correct identification of the main drivers of change and in understanding the dynamic links among these drivers;
- to clarify the relationship between short-term and longer-term objectives, and how they change over time under the pressure of long term trends and factors;
- to ensure greater consistency between long-term policy objectives and policies to bring them about, particularly with respect to the planning of the policies and their impact over time.

(To borrow this report email library@energylibrary.org.nz)

Power Generation Investment in Electricity Markets, International Energy Agency, 2003

This report looks at how investors have responded to the need to internalise investment risk in power generation. While capital and total costs remain the parameters shaping investment choices, the value of technologies which can be installed quickly and operated flexibly is increasingly appreciated. Investors are also managing risk by greater use of contracting, by acquiring retail businesses, and through mergers with natural gas suppliers. Another key finding is that while price fluctuations are intrinsic to well-functioning markets, these can be reduced by encouraging greater response of demand to prices.

(To borrow this report email library@energylibrary.org.nz)

Investment in Coal Supply and Use - An Industry Perspective on the IEA World Energy Investment Outlook, International Energy Agency, 2003.

This report addresses the issues raised from the perspective of Coal Industry Advisory Board members operating in developed and developing nations, liberalised and managed markets and engaged in coal production, consumption, equipment manufacture and transportation. It serves as a compendium of member responses summarised under the main headings of:

- How can coal-fired generation alleviate poverty in developing countries?
- How is investment in the coal industry affected by liberalisation of electricity generation and carbon policies, including emissions trading?
- How can the coal industry contribute to technological advances in the hydrogen economy and in carbon capture and sequestration?
- How can the coal industry contribute to international energy security?

The [Table of Contents](#) is available online.

(To borrow this report email library@energylibrary.org.nz)

Hydraulic Machinery and Cavitation: Proceedings of the IAHR Symposium, Cabrera et al (eds), London, 1996

Papers on hydraulic turbines, analysis and design, pumps, elements, dynamic characterization and hydraulic behaviour, cavitation and sand erosion, hydraulic transients and control systems, oscillatory and vibration problems, experimental investigations, practical applications, monitoring, predictive maintenance and refurbishment. Available for issue or tables of contents available on request.

(To borrow this book email library@energylibrary.org.nz)

Electrotechnology: Principles and Practice, Open Polytechnic Press, 2000

Text on fundamentals of electrotechnology theory, essentials of safe practice, coverage of National Certificate in Electrical Engineering levels 2-4 theory content. Written in a clear and simple style, this book is an excellent introduction to the topic.

(To borrow this book email library@energylibrary.org.nz)

Electricity: Principles and Applications, Richard Fowler, 5th edition, 1999

Another introductory text to electricity concepts. The preface promises to build on terms such as switch, plug, computer and television, this is a good introductory text. If you're new to the industry and horribly confused, this might be the book for you. (Don't worry, we won't tell anyone if you get it out.)

(To borrow this book email library@energylibrary.org.nz)

Standards Watch

The Concrete Structures Standard (NZS 3101:2006) has gone through a major revision process, updating critical information. The changes will have a significant impact on Structural and Civil engineers and Building Inspectors. Standards New Zealand and the Cement and concrete Association of New Zealand are holding a series of [seminars](#) to bring practitioners up to speed.

Web resources

New Zealand

Acting Energy Minister Trevor Mallard's [Speech to Employers & Manufacturers Association \(Central\) Energy Forum](#), 6 April 2006 highlighting the [risk of a power shortage](#) this winter.

EECA has [announced](#) that it will replace the National Energy Efficiency and Conservation Strategy. The new National Energy Efficiency and Conservation Strategy will be part of the planned National Energy Strategy. The new National Energy Efficiency and Conservation Strategy is expected to be finalised by March 2007. The [situation assessment](#) and [current strategy](#) can be found on the EECA site.

The Ministry for Economic Development has posted the [Energy Brief 2006](#) and the proceedings of a recent workshop which offered participants an opportunity to learn about, and comment on, preliminary versions of the projections to be published in [Preliminary Projections for New Zealand Energy Outlook to 2030](#) on their website. Club MED have also produced a sassy little booklet called [Energy in Brief 2006](#) – full of colours and graphs.

The Electricity Commission has posted the 2005-06 [Annual system operator performance review](#) and an update on the Transpower application for [approval of interim grid expenditure](#) on their website.

[Transpower](#) and the [Commerce Commission](#) have reached an [agreement](#) that means that consumers won't pay the planned 19% price rise while the two parties negotiate an administrative settlement.

Transpower has published its first [Annual Planning Report](#), a document which provides detail on the issues impacting on electricity demand and generation in New Zealand over the next ten years, viewed from the perspective of the transmission network owner. The Annual Planning Report also encompasses the regulatory requirement on Transpower to submit a Grid Reliability Report to the Electricity Commission by 31 March 2006. Also on their site is the [Cross Submission on the Commerce Commission](#) (try saying that six times, fast).

The [Gas Association of New Zealand](#) (GANZ) website is for people wanting to know about GANZ and the Natural Gas Industry. This site contains useful information, background material, maps, frequently asked questions and answers and statistics on reserves, production and use of natural gas.

[Energy Use and Efficiency Measures for the New Zealand Dairy Farming Industry](#)

AgriLINK New Zealand Ltd was contracted by the Climate Change Office (CCO) to collate and provide a stock take of the existing information on energy efficiency measures for the New

Zealand Dairy Industry with a particular focus on irrigated dairying. This includes a database of information sources, costs, and suppliers of services and products.

The [Sustainable Energy Forum](#) has a new website for their publication, [EnergyWatch](#).

The NIWA [National Centre for Climate–Energy Solutions](#) has the Proceedings of the Climate-related Risks for Energy Supply and Demand 2004 Workshop online.

International

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CLEAN-E report: [Ecological standards for hydropower](#)

This month, a report on the development of ecological standards for hydropower has been issued as part of the EIE project "Clean Energy Network for Europe (CLEAN-E)". The aim of the report is to assess the steps needed for the transfer of the Swiss green hydro standard to green electricity labelling schemes in other countries.

The hard copy of this report is available for loan from the [Energy Library](#).

[UK Select Committee on Science and Technology First Report](#)

This report found that there is significant scope for Carbon Capture and Storage (CCS) technology to contribute both to reducing CO₂ emissions in the UK and abroad, and to enhancing the security of the UK's future energy supplies. Most of the technology is already proven and available but there is a lack of experience in integrating the component technologies in single projects at the scale required. Multiple full scale demonstration projects using different types of capture technology and storage conditions are urgently needed.

The Ontario Power Authority (OPA) has released its much-anticipated [Supply Mix Advice Report](#). The report is in response to the Ontario Minister of Energy's request for recommendations on options for the future development of Ontario's electricity system. The focus of the Report was to provide advice on the best way to meet needs over the long term, specifically by 2015, 2020 and 2025. An interpretation and discussion of the report can be found on the [EnergyPulse site](#).

UK Biomass Task Force - [Final report to Government](#), October 2005

This biomass study aims to help government and the industry develop biomass energy in support of renewable energy targets and sustainable farming and forestry and rural objectives.

In New Zealand, as in the States, a large number of our skilled engineers in the power industry are look forward to retirement. The implications of this are examined in a report called [Work Force Planning for Public Power Utilities](#), put out by the American Public Power Association. This report is available free online or available in hard copy from the [Energy Library](#).

The Supergen Initiative was created by the Engineering and Physical Sciences Research Council in the UK to encourage the development of sustainable power generation and supply. The [Marine](#) section has links to presentations and proceedings relating to marine energy. The Bioenergy website contains links to the presentations from various SUPERGEN Bioenergy events, as well as some publications and research outputs from members of the SUPERGEN Bioenergy Consortium. Articles available online include:

[CFD Applied to the Fast Pyrolysis of Biomass in Fluidised Beds](#)

[Chemical Sub Models in Biomass Combustion](#)

[Fundamentals of Grate \(bed\) Processes \(Report on Recent Progress\)](#)

[Mathematical Modelling of Biomass Pyrolysis and Gasification in Lab-scale and Packed Bed Systems](#)

[Modelling Biomass Ash Deposition in Pulverised Fuel Combustion Furnaces](#)

[Fuel Specification and Matching: Metals in Biomass](#)

[What Producers Should Produce for the New Generation of Dedicated Biomass Boilers](#)

[Growing Energy Crops - an Opportunity](#)

[Fast Growing Bioenergy Trees, the Potential for Poplar](#)

Links to IEA specialist sites

[IEA Greenhouse Gases R&D programme](#)

[IEA Bioenergy](#)

[IEA Hydrogen Production](#)

[IEA Photovoltaic Power Systems](#)

[IEA Solar Heating and Cooling](#)

[IEA Co-operation in R&D of Wind Turbine Systems](#)

[IEA Hybrid and Electric Vehicle Implementing Agreement](#)

[IEA Advanced Motor Fuels](#)

[IEA Buildings and Community systems](#)

[IEA Energy Technology Data Exchange](#)

[IEA Coal Research – The Clean Coal Centre](#)

[IEA Energy Storage](#)

[IEA Energy Technology Systems Analysis](#)

Food for thought

Gull Petroleum has begun [selling biodiesel](#) in Perth, and plans to introduce it here by the end of 2006.

[Biodiesel boat](#)

It cost \$3 million to build, runs on fish or vegetable oil and can go through waves rather than over them. Skipper Peter Bethune is confident his 24m racing boat will get him around the world in his March 2007 attempt to beat the world record for power boat circumnavigation of the globe.

Sweden is to take the biggest energy step of any advanced western economy by trying to [wean itself off oil completely within 15 years](#) - without building a new generation of nuclear power stations. Their goal is to replace all fossil fuels with renewables before climate change destroys economies and growing oil scarcity leads to huge new price rises.

[Interview with John Elkington](#)

Elkington is "founder and chief entrepreneur" of [SustainAbility](#), the London-based strategy consultancy and think tank he established in 1987. He and his 25 strong team of consultants and international faculty of 50 experts specialise in briefing enterprise and non-government organisations on corporate responsibility and sustainable development. BusinessWeek magazine has described him as the "dean of corporate responsibility for three decades".

The British Government is [selling](#) British Nuclear Group, which means that the Sellafield Nuclear complex will pass into the private sector. (Trivia question –Which nuclear power station is on the front of the Pink Floyd 'Animals' cover? The first correct answer emailed to library@energylibrary.org.nz gets an Energy Bar.)