

Energy Library Update September 2006

The New Zealand Electricity Networks Management Summit is being held in Wellington on 6-7 November. More details are available [here](#)
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Featured Energy Library Journals

ENR (Engineering News Record)

A weekly engineering news magazine for contractors, design and engineering professionals. Global and multidisciplinary in coverage.
(To go on our circulation list or borrow a sample issue for evaluation please email kmcara@energylibrary.org.nz **Ref: 09 ENR**)

HR Focus

Published monthly by the Institute of Management & Administration, this newsletter provides human resources managers with helpful articles, the latest book reviews, interviews and four special single-topic reports per year. Find out more [here](#)
(To go on our circulation list or borrow a sample issue for evaluation please email kmcara@energylibrary.org.nz **Ref: 09 HRFocus**)

Occupational Hazards

Some examples of topics from recent issues of this monthly magazine: respiratory protection for contaminated environments; strategies for dealing with back injuries; ergonomics in the oil and gas industry; preparing for an influenza pandemic. Find out more [here](#)
(To go on our circulation list or borrow a sample issue for evaluation please email kmcara@energylibrary.org.nz **Ref: 09 Occupational**)

Materials Evaluation

A monthly magazine published by the American Society for Non Destructive Testing. See the table of contents from the latest issue [here](#)
(To go on our circulation list or borrow a sample issue for evaluation please email kmcara@energylibrary.org.nz **Ref: 09 Materials**)

Workforce Management

Published twice a month, this magazine focuses on developments in the field of human resources. Find out more and see the table of contents from the latest issue [here](#)

(To go on our circulation list or borrow a sample issue for evaluation please email kmcara@energylibrary.org.nz **Ref: 09 Workforce**)

New Books and Reports

2020 Energy opportunities : report of the Energy Panel from the Royal Society of New Zealand. Wellington, The Society, 2006. (Royal Society of New Zealand miscellaneous series no 69)

Report released in advance of a presentation and discussion on Monday 2 October in Wellington. Makes six recommendations towards the development of a national energy strategy.

(To borrow this book email library@energylibrary.org.nz **Ref: 09Royal**)

Energy supply in the post-Maui era : an investigation into thermal fuel options and their contribution to energy security. Christchurch : Centre for Advanced Engineering, 2005.

(To borrow this book email library@energylibrary.org.nz **Ref: 09CAE**)

Manapouri : the toughest tunnel (DVD). NHNZ, 2002.

DVD which highlights the highs and lows experienced during the construction of an additional tunnel in the Manapouri power station. In the 1960's Manapouri hydroelectric power station was New Zealand's biggest construction project which was built to take advantage of the massive water supply in the region.

(To borrow this dvd email library@energylibrary.org.nz **Ref: 09Manapouri**)

World energy handbook, Issue 2. London, World Energy Council, 2006.

ISBN 1861862563

Partial contents:- World overview-the case for coal; Oil sands-potential for growth; Sections on North America; Latin America and the Caribbean

(To borrow this book email library@energylibrary.org.nz **Ref: 09World**)

Oldies from our collection

Fuel cell systems explained / James Larninie and Andrew Dicks. 2nd ed. Chicester, Wiley, 2003. ISBN 10047084857X

Fuel cell technology is developing at a rapid pace, thanks to the increasing awareness of the need for pollution-free power sources. New developments in catalysts and improved reliability have made fuel cells viable candidates in a broad

range of applications, from small power stations to cars, laptop computers, and mobile phones.

(To borrow this book email library@energylibrary.org.nz Ref: **09Larninie**)

Fuel cells: clean power, clean transport, clean future. Hart, David and Bauen, Ausilio.(1998). London: Financial Times.

Some see fuel cells as the way of the future. This is a comprehensive analysis by a prestigious publisher; chapters cover such areas as fuel cell economics, national programmes and policy, and Environmentally benign?

(To borrow this book email library@energylibrary.org.nz Ref: **09Hart**)

Performance of generating plant: new realities, needs. London, World Energy Council, 2004. 104p.

Includes thermal generating plant, nuclear generating plant, hydro and pump storage.

(To borrow this book email library@energylibrary.org.nz Ref: **09Performance**)

Norwegian Institute of Technology. Hydropower development series.

No.1. Hydropower in Norway. 1993 (**Ref09Hydro1**)

No.4. Landscape design in hydropower planning. 1992. (**Ref09Hydro4**)

No.6. Economic and financial analysis of hydropower projects. 1993.

(**Ref09Hydro6**)

No.8. Hydraulic design. 2003. (**Ref09Hydro8**)

No.12. Mechanical equipment. 2003(**Ref09Hydro12**).

No.13. Electrical equipment. 1994. (**Ref09Hydro13**)

No.14. Underground powerhouses and high pressure tunnels. 2002.

(**Ref09Hydro14**)

No.15. Construction management. 2003. (**Ref09Hydro15**)

No.17. Maintenance strategies. 2002. (**Ref09Hydro17**)

(To borrow any of the books in this series email library@energylibrary.org.nz and quote code listed above for each item required)

Inside teams: how 20 world-class organizations are winning through teamwork.

Wellins, R.S., Byham, W.C. and Dixon G.R. San Francisco, Jossey-Bass. (1994.)

(To borrow this book email library@energylibrary.org.nz Ref: **09Wellins**)

Organizing genius: the secrets of creative collaboration. Bennis, W, Biederman, P.W.

Reading, Mass.: Addison-Wesley. 1997.

(To borrow this book email library@energylibrary.org.nz Ref: **09Biederman**)

Harvard Business Review on advances in strategy. Boston, Mass., Harvard Business School Press, 2002.

(To borrow this book email library@energylibrary.org.nz Ref: **09Harvard**)

Journal Articles

The Human Factor II: Creating a High Performance Culture in an Organization

Minnesh Kaliprasad, Cost Engineering, Volume 48, Issue 6 (June 2006) Pages 27-34. Part one of this article was listed in the August 06 update.

Discusses the obstacles to sustaining high performance in an organization and what contributes to organizational culture. It is noted that there are financial implications to having a high performance culture. The value of establishing a culture of business excellence is highlighted, with teamwork, global thinking and dynamic leadership being key issues. Five key success factors in sustaining a high performance culture are outlined.

(For a copy of this article email library@energylibrary.org.nz Ref: 09Kaliprasad2)

How to keep "A players" productive

S. Berglas. Harvard Business Review, Volume 84 Issue 9 (2006) Pages 104-112.

An "A player" is someone who is regarded as one of the firm's most gifted and productive employees. This article discusses how to make sure these stars are achieving their potential.

(For a copy of this article email library@energylibrary.org.nz Ref: 09Berlas)

Hiring for smarts

Justin Menkes. Harvard Business Review, Volume 83, Issue 11 (November 2005) Pages 100-109.

The process for selection of executives with sheer business intelligence and potential leaders should include testing on subjects that indicate the candidates have "executive intelligence". This includes showing that they can achieve goals, successfully work with staff, and be capable of self judgment.

(For a copy of this article email library@energylibrary.org.nz Ref: 09Menkes)

A practical experience of using competency-related pay.

Jorge Valdes Conca. Competency and Emotional Intelligence, Volume 13, Issue 4 (Summer 2006) Pages 24-28.

The author argues that Utility company Union Fensoa's experience of using a competency framework to integrate its rewards systems with its other HR practices casts doubt on the perceived wisdom that pay and competencies should not mix.

(For a copy of this article email library@energylibrary.org.nz Ref: 09Conca)

Effective cost management - Back to basics

R.L.Tichacek. Cost Engineering, Volume 48, Issue 3 (2006) Pages 27-33.

The most visible metric for measuring the success of a project is cost. This article discusses project management and project control to ensure this is highly sought after resource is properly managed.

(For a copy of this article email library@energylibrary.org.nz Ref: 09Tichacek)

A construction cost contingency tracking system (CTS)

J.F.Rowe. Cost Engineering, Volume 48, Issue 2 (2006) Pages 31-37.

This system has been successfully tested on a 1.4 billion rail and highway improvement programme. It can be used to assess the project overall budget health and provide early warning for budget overruns.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Rowe**)

Visualizing stakeholder influence – two Australian examples.

Lynda Bourne and Derek H.T.Walker. Project Management Journal, Volume 37, Issue 1 (March 2006) Pages 5-21.

This paper introduces and illustrates a tool for measuring and visualizing stakeholder influences on managing projects drawing upon two case study examples.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Bourne**)

Improved PFI/PPP service outcomes through the integration of Alliance principles

C. Clifton and C.F. Duffield. International Journal of Project Management, Volume 24, Issue 7 (2006) Pages 573-586.

Comparisons from infrastructure projects in Australia exploring the management of PFI/PPP projects (private finance initiatives/public private partnership). Includes investigation of contract structure, risk management, successful governance.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Clifton**)

Stakeholder management for public private partnerships

N.M.Gohary, H.Osman and T.E.El-Diraby. International Journal of Project Management, Volume 24, Issue 7 (2006) Pages 595-604.

A semantic model and taxonomy for key concepts relating to stakeholder involvement in (PPP) public private partnership projects. Many projects have failed because of stakeholder opposition. A good system of capturing and addressing their inputs is crucial to the success of these projects.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Gohary**)

A green hydrogen economy

W. Clark and J.Rifkin. Energy Policy, Volume 24, Issue 17 (2006) Pages 2630-2639.

This article suggests that a hydrogen economy is closer than predicted and the time frame is not 30-40 years away as suggested by some. It will be less than a decade before there will be the number of vehicles in the mass market to make hydrogen commercially viable. The hydrogen economy needs trained people, new ventures and public-private partnerships now.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Clark**)

An options approach to investment in a hydrogen infrastructure

A.A. Benthem, G.J Kramer and R.Ramer. Energy Policy, Volume 24, Issue 17 (2006) Pages 2949-2963.

This paper discusses the investments needed for the introduction of hydrogen as a transport fuel. A model was developed to calculate the value and optimal timing of a first commercial rollout of hydrogen vehicles in a larger area, taking Japan as a

specific example. An important finding is that the moment of investment is first and foremost determined by the maturing of the technology. By contrast, the investment timing is not as much affected by deployment strategy as is frequently thought. The various forms of government support are assessed, e.g. subsidies or tax cuts. It was found that tax incentives are relatively ineffective. It is suggested that government subsidy for technology development is a more effective means to achieve earlier investment, as faster production cost reductions for hydrogen and fuel cell vehicles lead to accelerated investment.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Benthem**)

Geographic variation of solar water heater performance in Europe

Y G Yohanis and others

Proceedings of the Institution of Mechanical Engineers: Part A : Journal of Power and Energy, Volume 220 Issue A4 (June 2006) Pages 395-407.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Yohanis**)

Solar Cooling: An Overview of European Applications & Design Guidelines

Constantinos A Balaras and others. ASHRAE Journal, Volume 48 Issue 6 (June 2006) Pages 14-22

There is an emerging market for solar air conditioning which could have large growth potential. High cost and lack of experience with design, installation, and maintenance are obstacles for large scale applications.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Constantinos**)

Wind & hydro: a match made in heaven?

Bob Fesmire. Electric Light and Power, Volume 84 Issue 4 (May/June 2006) Pages 26- (3 pages)

The variability of generation and the need for backup power are some of the key criticisms of wind power as a generation source. Hydro is regarded as a good partner for wind generation.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Fesmire**)

Tower Windmills in Medieval England: A Case of Arrested Development?

John Langdon and Martin Watts. Technology and Culture, Volume 46, Issue 4 (October 2005) Pages 697-718.

An historical perspective on windmills and wind power—going back to Medieval times. It is estimated there were probably tens of thousands windmills constructed in Europe between the late 12th and early 14th century.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Langdon**)

Further Validation of Artificial Neural Network-Based Emissions Simulation Models for Conventional and Hybrid Electric Vehicles

Csaba Tóth-Nagy and others. Journal of the Air & Waste Management Association. Volume 56 Issue 7 (July 2006) Pages 898-910.

Researchers have developed artificial neural network (ANN) models for predicting emission from heavy duty vehicles. This paper expands on previous research.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09TothNagy**)

The Hybrid Challenge

Austin Weber. Assembly Troy, Volume 49, Issue 6 (June 2006) Vol. 49, Pages 28-40. The challenge is to reduce production costs so that the prices are competitive. Hybrid vehicles average \$3000 to \$6000 more than the traditional internal combustion engine vehicles.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Weber**)

Transmission loss allocation in a deregulated electrical energy market

S. Abdelkader. Electric Power Systems Research, Volume 76, Issue 11 (2006) Pages 962-967.

This paper presents a new method for transmission loss allocation in a deregulated electrical power market. The proposed method is based on physical flow through transmission lines. Results of application show the accuracy of the proposed method compared with the commonly used procedures.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Abdelkader**)

On voltage collapse and apparent-power losses

G. Verbic and others. Electric Power Systems Research, Volume 76, Issue 9-10 (2006) Pages 760-767.

This paper proposes a new concept for assessing vulnerability of a power system in terms of voltage stability. The concept is based on the apparent-power losses and uses only local data, i.e. voltage and current phasors at every line end in the system. The proposed local method has several advantages over the existing static and dynamic methods, which are also shown in the paper.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Verbic**)

Outlook for advanced biofuels

C.N.Hamelinck and A. Faaij. Energy Policy, Volume 34 Issue 17 (2006) Pages 3268-3283

Methanol, ethanol, hydrogen and synthetic diesel are reviewed. Key fuel production technologies; gasification, gas processing, synthesis, hydrolysis and fermentation are reviewed. Economics of production is outlined and then the likely fuel chains (including distribution to cars and end use) are compared on an economic basis.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Hamelinck**)

Biofuels – a booming industry worldwide.

Suzanne Hunt and Chris Flavin. Future Fuels (September 2006) Pages 1-4

This high growth area is now attracting a large wave of investment.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Hunt**)

The rush for wood.

Jonas Dahl. Energy Risk, Volume 3 Issue7 (May 2006) Pages 10-12.

There is an increased demand for wood pellets from power generators and supply problems are predicted.(For a copy of this article email library@energylibrary.org.nz

Ref: 09Dahl)

Energy Economics' most influential papers

R.S.J. Tol and J.P. Weyant. Energy Economics, Volume 28 Issue 4 (2006) Pages 405-409

The most requested papers from this journal

(For a copy of this article email library@energylibrary.org.nz Ref: 09Tol)

Forecasting Long-Run Electricity Prices

G. Hamm and A. Borison. Electricity Journal, Volume 18 Issue 7 (2006) Pages 47-57.

Estimation of long-run electricity prices is extremely important but it is also very difficult because of the many uncertainties that will determine future prices, and because of the lack of sufficient historical and forwards data. The difficulty is compounded when forecasters ignore part of the available information or unnecessarily limit their thinking about the future. The authors present a practical approach that addresses these problems.

(For a copy of this article email library@energylibrary.org.nz Ref: 09Hamm)

Autonomous control of microgrids

Paolo Piagi and Robert H. Lasseter. IEEE PES Meeting, Montreal, June 2006

Discusses distributed generation and its integration with the national grid.

(For a copy of this article email library@energylibrary.org.nz Ref: 09Piagi)

A technical evaluation framework for the connection of DG) to the distribution network

S.A. Papathanassiou. Electric Power Systems Research, Volume 77 Issue 1 (2007) Pages 24-34.

For the connection of new DG installations to the network a variety of factors are taken into account, including technical requirements imposed by utilities to ensure that the DG station does not adversely affect the operation and safety of the network. In this paper, fundamental issues related to the interconnection of DG installations to the grid are discussed and evaluation rules are presented, which address power quality considerations and are suitable for application by electric utility and DG engineers.

(For a copy of this article email library@energylibrary.org.nz Ref:

09Papathanassiou)

Optimal operation of dispersed generation under uncertainty using mathematical programming

E. Handschin, F. Neise, H. Neumann and R. Schultz. International Journal of Power and Energy Systems, Volume 28 Issue 9 (November 2006) Pages 618-626.

The foreseen decentralization of the electrical energy supply has a significant impact on the overall system operation and control. To increase the economic efficiency of dispersed generation (DG) a powerful optimization technique is required. This paper presents a mathematical model including different kinds of DG units with respect to their technical characteristics as well as the optimization technique which is used to solve the problems under the existing uncertainties.

(For a copy of this article email library@energylibrary.org.nz Ref: 09Handschin)

Energy efficiency standards for equipment: Additional opportunities in the residential and commercial sectors

G. Rosenquist and others. Energy Policy, Volume 34, Issue 17 (2006) Pages 3257-3267.

Energy efficiency standards for residential and commercial equipment have been a major source of energy conservation in the US This study estimated key national impacts of potential new and upgraded energy efficiency standards. These impacts approximate the opportunity for national benefits that may be lost if energy efficiency standards for residential and commercial equipment are not upgraded and expanded from current levels. The results suggest that national benefits from new and upgraded standards may be substantial.

(For a copy of this article email library@energylibrary.org.nz Ref: **09Rosenquist**)

Boiler system efficiency

Thomas H Durkin. ASHRAE Journal, Volume 48, Issue 7 (July 2006) pg. 51-57

(For a copy of this article email library@energylibrary.org.nz Ref: **09Durkin**)

Climate change and human health : impacts, vulnerability, and mitigation.

A. Haines and others. The Lancet, Volume 367, Issue 9528 (June 24-30 2006) Pages 2101-2109.

(For a copy of this article email library@energylibrary.org.nz Ref: **09Haines**)

Long-term security of energy supply and climate change

H. Turton and L.Barreto. Energy Policy, Volume 34 Issue 15 (2006) Pages 2232-2250.

Security of energy supply and climate change are central concerns for policy makers and important dimensions of the long-term quest for a sustainable global energy system. This paper examines the role of several policy instruments in managing energy security and climate risks and stimulating technological change towards a more secure and climate-benign global energy system in the long-term future.

(For a copy of this article email library@energylibrary.org.nz Ref: **09Turton**)

Including embodied energy considerations at the conceptual stage of building design

Y G Yohanis, and B Norton Proceedings of the Institution of Mechanical Engineers: Part A : Journal of Power and Energy, Volume 220, Issue 3 (May 2006) Pages 271-288.

(For a copy of this article email library@energylibrary.org.nz Ref: **09Yohanis2**)

Blending Architecture And Renewable Energy

Mehdi Jalayerian and Steven Eich. ASHRAE Journal, Volume 48, Issue 9 (September 2006) Pages 70-76.

Discusses some innovations in building design which use solar photovoltaic technology. The project is an example of sustainable architecture and has been awarded a Leadership in Energy and Environmental Design (LEED) Silver rating from the U.S. Green Building Council.

(For a copy of this article email library@energylibrary.org.nz Ref: **09Jalayerian**)

Topological properties of high-voltage electrical transmission networks

Electric Power Systems Research, Volume 77, Issue 2, February 2007, Pages 99-105
V. Rosato, S. Bologna and F. Tiriticco

The topological properties of high-voltage electrical power transmission networks in several UE countries (the Italian 380 kV, the French 400 kV and the Spanish 400 kV networks) have been studied from available data. An assessment of the vulnerability of the networks has been given by measuring the level of damage introduced by a controlled removal of links. Topological studies could be useful to make vulnerability assessment and to design specific action to reduce topological weaknesses.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Rosato**)

A new approach for power system online DSA using distributed processing and fuzzy logic.

Electric Power Systems Research, Volume 77, Issue 2, February 2007, Pages 106-118

In this paper, a new approach for power system online dynamic security assessment, as well as a tool for calculating the proposed fuzzy dynamic security index is presented. (For a copy of this article email library@energylibrary.org.nz **Ref:**

09New)

Planning for floods : will we ever learn?

Colin Clark. International Water Power and Dam Construction, Volume 58 Issue 6 (June 2006) Pages 20-27.

Assessment of progress in the assessment of magnitude and frequency of floods. Uses the extreme flood which occurred in Boscastle, UK as an example.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Clark2**)

Fuse plug construction to improve flood control.

Gregory G. Glunz and Gregg Batchelder Adams. International Water Power and Dam Construction, Volume 58 Issue 6 (June 2006) Pages 36-40.

Describes how the fuse plug will provide necessary flood detection without changing normal operating conditions or requiring significant modifications to an existing spillway and dam.

(For a copy of this article email library@energylibrary.org.nz **Ref: 09Glunz**)

September Competition

To be in to win a **king-size bar of energy chocolate** [email us](#) the answer to the following question (put "Competition" in the subject line. Draw closes Oct 10th)

Name three types of hybrid transport?