

IPENZ ENGINEERING UPDATE March 2009



The IPENZ Engineering Update is published by the Energy Library on behalf of IPENZ.

If you wish to be placed on the mailing list to receive a copy directly, please contact Energy Library.

library@energylibrary.org.nz
and type "Subscribe IPENZ Update"
in the subject line.

Articles marked with a "√" are held in the Energy Library collection.

Samplings from this Issue

- Tools for tough times.
- Does it pay to be green? A systematic overview.
- Skills for work in the 21st century: what does the research tell us?
- Anaerobic treatment, fuel cell at brewery.
- Low-temperature geothermal technology expands clean energy reach.

► Special Focus on Wind energy.

If you are interested in Energy Library membership please contact library@energylibrary.org.nz

Energy Library members can request items by quoting the code number. Non-members can request by supplying the reference to their organisational or public library.

Energy Library requests should be emailed to: library@energylibrary.org.nz

Management/Leadership/Strategic Planning/Recruitment/Training and Development/Project Management/Corporate Responsibility

√IPENZ 22/01 Value-for-money strategies for recessionary times.

Williamson, P and Ming Z. Harvard Business Review, Volume 87 Issue 3 (March 2009) Pages 66-74. In tough economic times, some companies have outmaneuvered rivals to become market leaders through value-for-money strategies. That is, they have enabled recession-hit consumers to economize (do less and spend less), become more efficient (do the same for less), or become more effective (do more but spend no more). To implement such a strategy, argue this British professor and Chinese academic, companies must go beyond refining cost-cutting capabilities to develop expertise in cost innovation.

√IPENZ 22/02 Saving the day: cutting costs without wrecking the company.

Wileman, A. Conference Board Review, Volume 45 Issue 5 (September/October 2008) Pages 30-35. Some insights on cost cutting adapted from the book. "Driving Down Cost : How to Manage and Cut Costs Intelligently" by Andrew Wileman.

√IPENZ 22/03 Tools for tough times.

Beck, P. Construction, Volume 76 Issue 2 (1/26/2009) Pages 12-15. This article suggest strategies for contractors.

√IPENZ 22/04 In a time of crisis.

Van Ark, B. Conference Board Review, Volume 46 Issue 1 (January/February 2009) Pages 24-31. This article looks at the problems likely to be faced in the U.S. and global economies in 2009.

√IPENZ 22/05 6 ways companies mismanage risk.

Stulz, R. Harvard Business Review, Volume 87 Issue 3 (March 2009) Pages 86-94. Financial risk management is hard to get right even in the best of times. It can take one of six paths to failure, nearly all of them exemplified in the current crisis

√IPENZ 22/06 Geoff Colvin insists you are naturally good at nothing.

Liberman, V. Conference Board Review, Volume 45 Issue 6 (November/December 2008) Pages 29-31.

An interview with writer Geoff Colvin author of book "Talent Is Overrated: What Really Separates World-Class Performers from Everybody Else".

√IPENZ 22/07 My first public speaking experience, and other tales from H#\$\$.

Glagola, C. Leadership & Management in Engineering, Volume 8 Issue 1 (January 2008) Pages 1-5.

First public speaking experiences –some personal stories.

√IPENZ 22/08 Talking points.

Greengard, S. PM Network, Volume 22 Issue 2 (February 2008) Pages 58-63.

Outlines some key pointers to help avoid mistakes when giving a presentation to the public.

√IPENZ 22/09 11 public speaking pointers.

Kawasaki, G. Entrepreneur, Volume 26 Issue 10 (October 2008) Page 28.

One page article giving tips for public speaking.

√IPENZ 22/10 Life satisfaction around the globe: what role does income play?

McFarlin, D. Academy of Management Perspectives, Volume 22 Issue 4 (November 2008) Pages 79-80.

√IPENZ 22/11 The greening of Petrobras.

De Azevedo, G and Sergio, J. Harvard Business Review, Volume 87 Issue 3 (March 2009) Pages 43-47.

Over the past eight years Brazilian energy giant Petrobras has transformed itself from a notorious environmental offender into a global leader in sustainability. In this article the CEO, a onetime leftist activist who believes business should drive social improvement, describes how the company turned itself around. When Gabrielli took the reins, Petrobras was coming out of a tumultuous period. The state-owned monopoly had become a publicly traded corporation competing in an open market, and its operations were expanding rapidly. During this time a series of disastrous oil spills and accidents took place. In response, Philippe Reichstul, one of Gabrielli's predecessors, launched a \$4 billion program for environmental and operational safety, comprising more than 4,000 projects. Under Gabrielli's stewardship, the company approached environmental performance issues in three ways: improving its own culture and operations, influencing its suppliers, and championing renewable-energy development.

√IPENZ 22/12 Does it pay to be green? A systematic overview.

Ambec, S. and Lanoie, P. Academy of Management Perspectives, Volume 22 Issue 4 (November 2008) Pages 45-62.

√IPENZ 22/13 Environmental conflict resolution practice and performance: An evaluation framework.

Orr, P., Emerson, K. and Keyes, D. Conflict Resolution Quarterly, Volume 25 Issue 3 (Spring 2008) Pages 283-301.



√IPENZ 22/14 **The need for asset information management in the utilities industry.**

Leung, T. Electric Light and Power, Volume 86 Issue 6 (November/December 2008) Pages 36-37,40.
The current costs of poor asset information management are staggering, and we see these problems throughout the complete asset lifecycle.

√IPENZ 22/15 **Danish infrastructure projects new budgeting method - a rational process to managing political decisions.**

Andersen, D. AACE International Transactions, (2008) Pages RISK. 04-01-RISK.04-10.
Case study on signals renewal for railway infrastructure.

√IPENZ 22/16 **Knowledge-based proactive project risk management.**

Arrow, J. AACE International Transactions, (2008) Pages RISK 01- 1- RISK01-9.
Includes a summary of hard and soft benefits of project risk management.

√IPENZ 22/17 **A preliminary assessment of the relationships between project success, system engineering, and team organization.**

Componation, P., Youngblood, A., Utley, D. and Farrington, P. Engineering Management Journal, Volume 20 Issue 4 (December 2008) Pages 40-46.

√IPENZ 22/18 **Benefits of the NEC ECC form of contract: A New Zealand case study.**

Wright, N and Fergusson, W. International Journal of Project Management, Volume 27 Issue 3 (April 2009) Pages 243-249.

This paper examines by means of a case study the effectiveness of the project and process method detailed in the NEC Engineering and Construction Contract (ECC), as developed and published by the Institute of Civil Engineers (ICE), and makes recommendations regarding its future use. The performance of the ECC with that of a conventional form of contract delivered by two separate contractors to the same employer on the same site in similar timeframes in New Zealand provided a unique opportunity for comparison. The objective was to determine if the benefits claimed by the proponents of the NEC ECC were realised, to understand the factors which need to be considered to ensure successful use of this form of contract and to understand if any changes are needed to make the contract more effective in the NZ environment. Qualitative data were gathered by way of a series of semi-structured interviews with the project management teams of the employer and with both contractors, supplemented by secondary quantitative data extracted from project records. It is concluded that use of ECC does deliver business benefits. Minor changes are recommended for alignment with NZ statutes. It is considered that the findings will be of interest to project managers for larger and complex engineering and construction projects in any country.

√IPENZ 22/19 **"What's the best business book you've read lately?"**

Budman, M. Conference Board Review, Volume 45 Issue 6 (November/December 2008) Pages 67-71.

Business leaders discuss the best business books they have read lately.

√IPENZ 22/20 **Skills for work in the 21st century: what does the research tell us?**

Hilton, M. Academy of Management Perspectives, Volume 22 Issue 4 (November 2008) Pages 63-78.

√IPENZ 22/21 **Influencing those who lead you.**

Maurer, R. Journal for Quality and Participation, Volume 31 Issue 4 (January 2009) Pages 38-29.

√IPENZ 22/22 **Documentation dilemmas.**

Robinson, C. Journal for Quality and Participation, Volume 31 Issue 4 (January 2009) Pages 35-37.
The importance of managing documentation in a company structure.

√IPENZ 22/23 **Workplace stress management interventions: what works best?**

Sidle, S. Academy of Management Perspectives, Volume 22 Issue 3 (August 2008) Pages 111-112.

√IPENZ 22/24 **Attracting and retaining the next generation of water industry professionals: a young professional's perspective.**

Mills, S. American Water Works Association Journal, Volume 101 Issue 2 (February 2009) Pages 45-48.

Technical Aspects of Engineering

√IPENZ 22/25 **Safe, high-tech and sustainable concrete construction.**

Desai, S. Proceedings of the Institution of Civil Engineers: Construction Materials, Volume 161 Issue CM2 (May 2008) Pages 85-90.

√IPENZ 22/26 **Deformation capacity of reinforced concrete columns.**

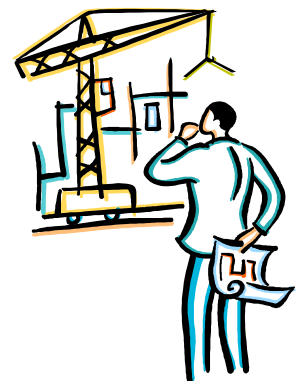
Mostafaei, T., Vecchio, F. and Kabeyasawa, T. ACI Structural Journal, Volume 106, Issue 2 (March/April 2009) Pages 187-195.

√IPENZ 22/27 **Low-cycle fatigue damage of circular concrete-filled-tube columns.**

Zhang, G., Xiao, Y. and Kunnath, S. ACI Structural Journal, Volume 106 Issue 2 (March/April 2009) Pages 151-159.

√IPENZ 22/28 **Historic concrete investigations at Pointe Du Hoc, Normandy, France.**

Concrete International, (January 2009) Pages 43-48.



√IPENZ 22/29 **Structural assessment of bridges with premature concrete deterioration due to expansive reactions.**

Boenig, A., Fúnez, L., Memberg, L., Roche, J., Tinkey, B., Klingner, R. and Fowler, T. ACI Structural Journal, Volume 106 Issue 2 (March/April 2009) Pages 196-204.

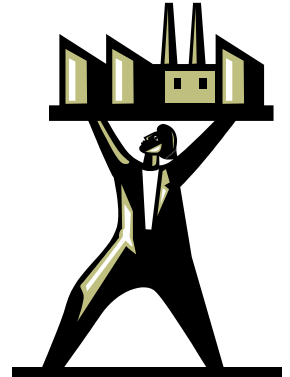
√IPENZ 22/30 **Sustainability leads to durability in the new i-35w bridge.**

Concrete International, (February 2009) Pages 27-32.

√IPENZ 22/31 **Low-temperature geothermal technology expands clean energy reach.**

Hansen, T. Electric Light and Power, Volume 86 Issue 6 (November/December 2008) Pages 50-51,56.

The plant provides power for the resort's on-site electrical needs. All 44 buildings at the resort - including a greenhouse, hotel, cabins and ice museum - are linked by a geothermal district heating system.



√IPENZ 22/32 **Energy potential of the oceans in Europe and North America: tidal, wave, currents, OTEC and offshore wind.**

Hammons, T. International Journal of Power & Energy Systems, Volume 28 Issue 4 (2008) Pages 416-428.

√IPENZ 22/33 **Comparative study of three types of controllers for water distribution networks.**

Prasanna Kumar, M and Mohan Kumar, M. American Water Works Association Journal, Volume 101 Issue 1 (January 2009) Pages 74-86.

√IPENZ 22/34 **Investigation of nitrification and nitrogen removal from centrate in a submerged attached-growth bioreactor.**

Pedros, P., Onnis-Hayden, A and Tyler, C. Water Environment Research, Volume 80, Issue 3 (March 2008) Pages 222-228.

√IPENZ 22/35 **Performance investigation of membrane bioreactor systems during municipal wastewater reclamation.**

DeCarolis Jr, J and Adham, S. Water Environment Research, Volume 79, Issue 13 (December 2007) Pages 2536-2550.

√IPENZ 22/36 **Removal of arsenic from water streams: an overview of available techniques.**

Vaclavikova, M. et al. Clean Technologies and Environmental Policy, Volume 10, Issue 1 (February 2008) Pages 89-95.

√IPENZ 22/37 **Aerobic membrane bioreactor for ammonium-rich wastewater treatment**
Chandrasekeran, P., Urgan-Demirtas, M and Pagilla, K. Water Environment Research, Volume 79, Issue 11 (October 2007) Pages 2352-2362.

√IPENZ 22/38 **Determination of friction factor for corrugated drains.**
Giustolisi, O., Doglioni, A and Laucelli, D. Proceedings of the Institution of Civil Engineers: Water Management, Volume 161 Issue WM1 (February 2008) Pages 31-42.

√IPENZ 22/39 **Anaerobic treatment, fuel cell at brewery.**
Gekas, K. BioCycle, Volume 50 Issue 1 (January 2009) Pages 42-43.

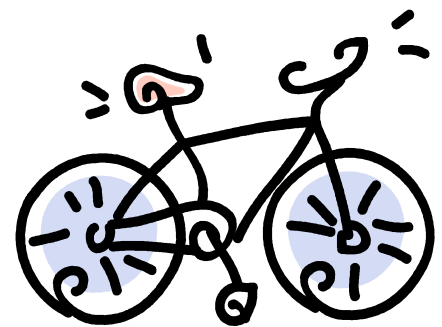
√IPENZ 22/40 **Natural gas vehicles gain in global markets.**
Fletcher, S. Oil&Gas Journal, Volume 107 Issue 7 (16 February 2009) Pages 20-24

√IPENZ 22/41 **A forecast of household ownership and use of alternative fuel vehicles: A multiple discrete-continuous choice approach.**
Jiwoon Ahn, Gicheol Jeong, Yeonbae Kim. Energy Economics, Volume 30, Issue 5, September 2008, Pages 2091-2104
The paper analyzes how adding alternative fuel passenger cars to the market will affect patterns in demand for passenger cars.

√IPENZ 22/42 **A detailed analysis of how an urban trail system affects cyclist's travel.**
Krizek, K., El-Geneidy, A and Thompson, K. Transportation, Volume 34 Issue 5 (September 2007) Pages 611-624.

√IPENZ 22/43 **The effects of the Pages Road Cycle Lane on cyclist safety and traffic flow operations.**
Flower, M and Koorey, G. Paper presented at 2006 IPENZ Transportation Conference, Queenstown.

√IPENZ 22/44 **Brave new non motorised world : a surprising resurgence of foot and pedal power in the coming decades.**
Walljapser, J. Planning, Volume 74 Issue 11 (December 2008) Pages 20-23.



√IPENZ 22/45 **Proximity to trails and retail : effects on urban cycling and walking.**
Krizek, K and Johnson, P. Journal of the American Planning Association, Volume 72 Issue 1 (Winter 2006) Pages 33-42.

√IPENZ 22/46 **Rolling into the future : emerging resources and new initiatives for bike transportation.**

Mouer, R. Institute of Transportation Engineers ITE Journal, Volume 78 Issue 5 (May 2008) Pages 20-23.

√IPENZ 22/47 **Complete streets : we can get there from here.**

Laplante, J and McCann, N. Institute of Transportation Engineers ITE Journal, Volume 78 Issue 5 (May 2008) Pages 24-28.

Explains the "Complete Streets" movement and explores ways to make urban thoroughfares more pedestrian and bicycle friendly. Techniques for describing an arterial street that can control traffic speeds and permit more comfortable and safe pedestrian and bicycle access are described.

√IPENZ 22/48 **Estimation of the determinants of bicycle mode share for the journey to work using census data.**

Parkin, J., Wardman, M and Page, M. Transportation, Volume 35 Issue 1 (January 2008) Pages 93-109.

√IPENZ 22/49 **Feebates promoting energy-efficient cars: Design options to address more consumers and possible counteracting effects.**

Peters, A et al. Energy Policy, Volume 36 Issue 4 (2008) Pages 1355-1365.

An increasing number of countries have implemented or are evaluating feebate systems in order to reduce energy consumption of new vehicle registrations. We distinguish between absolute feebates based strictly on a vehicle's energy consumption and relative feebates normalizing energy consumption by a given car utility. This paper analyzes whether absolute or relative feebates encourage more consumers to change to vehicles with lower energy consumption.

Special focus topic Wind Energy

√IPENZ 22/50 **The economic value of wind energy.**

Pavlak, A. The Electricity Journal, Volume 21, Issue 8, October 2008, Pages 46-50.

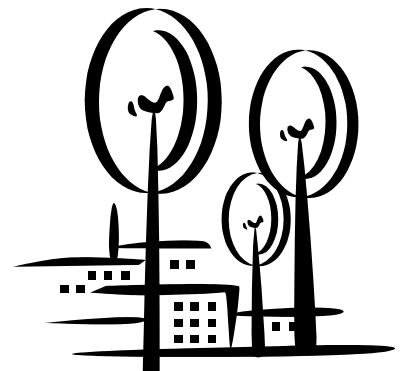
√IPENZ 22/51 **Do economic instruments matter? Wind turbine investments in the EU(15).**

Mulder, A. Energy Economics, Volume 30, Issue 6, Technological Change and the Environment, November 2008, Pages 2980-2991

This paper analyses how governments in the EU(15) countries have succeeded in stimulating investments in wind turbines between 1985 and 2005

√IPENZ 22/52 **Phase One of Wind Project Winds Down.**

Demuyndck, A and Gunst, N. Concrete International (October 2008) Pages 41-45.
Precast foundations anchor offshore turbines.



√IPENZ 22/53 **Public perceptions of wind energy developments: Case studies from New Zealand.** Graham, J., Stephenson, J and Smith, I. Energy Policy, In Press (Corrected Proof February 2009.) Although the public generally hold positive attitudes towards wind energy, proposals for the construction of new wind farms are often met with strong resistance. In New Zealand, where the government has recently introduced ambitious policy targets for renewable energy generation, negative perceptions of wind farms are increasingly evident and have the potential to prevent the achievement of these targets. This research sets out to examine what influences social resistance to wind farms in New Zealand. Drawing from public submissions on three wind farm proposals, a framework developed by Devine-Wright [Devine-Wright, P., 2005a. Beyond NIMBYism: towards an integrated Framework for Understanding Public Perceptions of Wind Energy. Wind Energy 8, 125-139.] was used as the basis for identification of factors affecting public perceptions of wind farms. The research found firstly that there was no apparent relationship between the proximity of submitters to a proposed wind farm and their likelihood of having a negative perception of the proposal. A wide range of factors written in submissions appeared to have affected the submitter's decision to support or oppose the wind farm proposal. Some of these were consistent with Devine-Wright's findings, but ten further factors were added to the framework to adequately cover the aspects raised in submissions. The findings have implications for the achievement of New Zealand's energy policy aspirations

√IPENZ 22/54 **Distributed small-scale wind in New Zealand: Advantages, barriers and policy support instruments,**

Barry, M and Chapman, R. Energy Policy, In Press, Corrected Proof (February 2009)

If future climate change goals being negotiated internationally are to have any chance of being achieved, developed countries need to undertake a major transition in their energy systems. This will require a rapid expansion of renewable energy generation, including wind electricity. Wind energy in New Zealand is commercially viable in many cases, yet opportunities for its exploitation are far from fully utilised. Many communities are showing resistance to wind farm developments, since large wind farms are often seen as intrusive. Building wind farms on a small scale may be a useful way of overcoming this problem.

This study examines the pattern of recent wind industry development in New Zealand. It is argued that two key characteristics have emerged that are limiting the potential development of the industry: a trend towards large scale, leading to increased local opposition; and a small number of investors. Research methods include a review of international and local literature, and a rural mail survey questionnaire, with 338 respondents. We provide survey evidence that small wind farms, and community ownership of them, may be attractive to local communities, and that this point of advantage is helpful for the rapid expansion of wind generation in New Zealand.

√IPENZ 22/55 **Evaluating operational risk in a power system with a large amount of wind power,** Gouveia, E and Matos, M. Electric Power Systems Research, Volume 79, Issue 5 (May 2009) Pages 734-739.

√IPENZ 22/56 **Evaluation of micro-wind turbine aerodynamics, wind speed sampling interval and its spatial variation.**

Makkawi, A., Celik, A and Muneer, T. Building Services Engineering Research & Technology, Volume 30 Issue 1 (January 2009) Pages 7-14.

√IPENZ 22/57 Assuring wind flows smoothly into the grid.

Wojaszczyk, D., Herbst, D and Bradt, M. Power Engineering, Volume 113 Issue 1 (January 2009) Pages 48.50.52.54.56-57.

As wind generation capacity grows, so will the need to ensure that interconnection schemes are designed to maintain grid safety and reliability.

√IPENZ 22/58 Wind energy hung up in the queue.

Sun&Wind Energy, Issue 1 (2009) Pages 20-24.

An overabundance of renewable energy should be good news in the U.S. However, in many renewable rich areas, the clean energy cannot be integrated into the grid- due to long transmission queues. The solution will likely come from many fronts.

**√IPENZ 22/59 Effects of wind energy supplied by independent power producers on the generation dispatch of electric power utilities.**

Chia-Liang Lu et al. International Journal of Electrical Power & Energy Systems, Volume 30, Issue 9 (November 2008) Pages 553-561.

Integration of wind power plants into the existing isolated system presents challenges to power system operators. The problem is further complicated to the generation dispatch imposed by the presence of wind turbine generators (WTGs), owned by independent power producers (IPP) with a large penetration of dispatchable wind energy sources.

√IPENZ 22/60 The intermittency of wind, solar, and renewable electricity generators: Technical barrier or rhetorical excuse?,

Sovacool, B. Utilities Policy, In Press, Corrected Proof (September 2008,)

A consensus has long existed within the electric utility sector of the United States that renewable electricity generators such as wind and solar are unreliable and intermittent to a degree that they will never be able to contribute significantly to electric utility supply or provide baseload power. This paper asks three interconnected questions:

1. What do energy experts really think about renewables in the United States?
2. To what degree are conventional baseload units reliable?
3. Is intermittency a justifiable reason to reject renewable electricity resources? To provide at least a few answers, the author conducted 62 formal, semi-structured interviews at 45 different institutions including electric utilities, regulatory agencies, interest groups, energy systems manufacturers, nonprofit organizations, energy consulting firms, universities, national laboratories, and state institutions in the United States. In addition, an extensive literature review of government reports, technical briefs, and journal articles was conducted to understand how other countries have dealt with (or failed to deal with) the intermittent nature of renewable resources around the world. It was concluded that the intermittency of renewables can be predicted, managed, and mitigated, and that the current technical barriers are mainly due to the social, political, and practical inertia of the traditional electricity generation system.

√IPENZ 22/61 Wind turbines: The seal deal

Guinivan, D. Power Engineering International, Volume 16, Issue 10 (December 2008) Pages 52-56. Looks at the wind power actuator seal research and development.

√IPENZ 22/62 **Offshore wind: how to take action for a more uncertain future**

Rogers,S., Jackson, M and Little., A. Power Engineering International, Volume 16 Issue 10 (December 2008) Pages 30-32.

Offshore wind options are becoming attractive in Europe.

√IPENZ 22/63 **Electricity generation scheduling with large-scale wind farms using particle swarm optimization.**

H. Siahkali, M. Vakilian. Electric Power Systems Research, Volume 79, Issue 5, May 2009, Pages 826-836,

Large-scale integration of wind power in the electricity system presents some planning and operational difficulties, which are mainly due to the intermittent and difficult nature of wind prediction process. Therefore it is considered as an unreliable energy source.

This paper presents a new approach for solving the generation scheduling (GS).

√IPENZ 22/64 **Generation management using batteries in wind farms: Economical and technical analysis for Spain.**

Rodolfo Dufo-Lopez, Jose L. Bernal-Agustin, Jose A. Dominguez-Navarro. Energy Policy, Volume 37, Issue 1 (January 2009) Pages 126-139.

This paper presents an hourly management method for energy generated in grid-connected wind farms using battery storage (Wind-Batteries systems). The method proposed is analysed technically and economically.

√IPENZ 22/65 **Propagation modeling parameters for wind power projects.**

Kaliski,, K Duncan, E. Sound and Vibration, Volume 42, Issue. 12 (December 2008) Pages 12-15. Discusses noise modeling of wind turbines using ISO 9613.

√IPENZ 22/66 **Humpback whales inspire new wind turbine technology.**

Canter, N. Tribology & Lubrication Technology. Volume 64, Issue 12 (December 2008) Pages 10-11.

√IPENZ 22/67 **New technology for large towers.**

Sun&Wind Energy, Issue 1 (2009) Pages 116-120.

Includes a comparison of wind turbine towers—tubular steel; site-mixed concrete tower; concrete tower with prefabricated elements; hybrid tower ; lattice tower.

√IPENZ 22/68 **Turbine tech drives wind Into the generation mainstream**

Spring, N. Power Engineering., Volume 112, Issue 11 (November 2008) Pages 66-68,70,73,77-78,80,82,84,86,88.

√IPENZ 22/70 **Wind power price trends in the United States: Struggling to remain competitive in the face of strong growth.**

Bolinger, M and Wiser, R. Energy Policy, Volume 37, Issue 3, March 2009, Pages 1061-1071. The amount of wind power capacity being installed globally is surging, with the United States the world leader in terms of annual market share for three years running (2005-2007). The rapidly growing market for wind has been a double-edged sword, however, as the resulting supply-demand imbalance in wind turbines, along with the rising cost of materials and weakness in the US dollar, has put upward pressure on wind turbine costs, and ultimately, wind power prices. Two mitigating factors—reductions in the cost of equity provided to wind projects and improvements in project-level capacity factors—have helped to relieve some of the upward pressure on wind power prices over the last few years. Because neither of these two factors can be relied upon to further cushion the blow going forward, policymakers should recognize that continued financial support may be necessary to sustain the wind sector at its current pace of development, at least in the near term. Though this article emphasizes developments in the US market for wind power, those trends are similar to, and hold implications for, the worldwide wind power market.

√IPENZ 22/71 **Wind in an investment planning model,**

Neuhoff et al. Energy Economics, Volume 30, Issue 4, (July 2008) Pages 1990-2008. Investment planning models inform investment decisions and government policies. Current models do not capture the intermittent nature of renewable energy sources, restricting the applicability of the models for high penetrations of renewables. We provide a methodology to capture spatial variation in wind output in combination with transmission constraints. The representation of wind distributions using stochastic approaches or using extensive historic data sets exceeds computational constraints for real world application. Hence we restrict the amount of input data, and use bootstrapping to illustrate the robustness of the results. For the UK power system we model wind deployment and the value of transmission capacity

√IPENZ 22/72 **Wind power in the Danish liberalised power market—Policy measures, price impact and investor incentives,**

Jesper Munksgaard, Poul Erik Morthorst Energy Policy, Volume 36, Issue 10, October 2008, Wind power has a strong position at the Danish electricity market, mainly caused by high feed-in tariffs in the 1990s. Investments in new wind-power installations on land, however, have declined dramatically after the Danish electricity market was liberalised in 1999. First, the paper describes how policy measures directed towards wind power have been redesigned to match the liberalised market. Then, we estimate the impact of the redesigned tariffs on the electricity prices. Finally, we assess whether the new tariffs make an incentive to invest in wind power. The paper concludes that the new tariffs not by itself make evidence for the actual Danish recession in new wind-power installations after the electricity reform. The main causes could include a combination of problems in spatial planning, high risk aversion of new wind turbine investors and perhaps more favourable support schemes in other countries.

√IPENZ 22/73 **Energy analysis and environmental life cycle assessment of a micro-wind turbine.**

S R Allen, G P Hammond, M C McManus. Proceedings of the Institution of Mechanical Engineers Part A Journal of Power and Energy, Volume 222, Issue A7 (November 2008) Pages 669-684.

√IPENZ 22/74 **Wind power blades energize composites manufacturing.**

Grane, J. *Plastics Technology*, Volume 54 Issue 10 (October 2008) Pages 68-72, 75,77.

The world's growing appetite for wind energy is transforming wind blades into one of the hottest composite applications around. The huge build up of wind power generating capacity increased the number of new plants.

√IPENZ 22/75 **Mathematical model for predicting the blade behaviour of horizontal axis wind turbine**

Wang, J and, Qin,D and Zhang, Q. *Proceedings of the Institution of Mechanical Engineers Part C Journal of Mechanical Engineering Science* Volume222, Issue. C9 (September 2008) Pages 1681-1694.

√IPENZ 22/76 **Icing wind tunnel study of a wind turbine blade deicing system.**

Fortin, G., Mayer, C and Perron, J. *Sea Technology*, Volume 49 Issue 9 (September 2008) Pages 41-44.

Simulation of deicing wind turbine blades with controlled electro-thermal systems.

√IPENZ 22/77 **Rotor blades under scrutiny.**

Sun&Wind Energy, Issue 6 (2008) Pages 166-168.

Discusses test methods for rotor blade failures.

√IPENZ 22/78 **Dynamic pricing of wind futures,**

Benth, F and Benth, J *Energy Economics*, Volume 31, Issue 1, January 2009, Pages 16-24,

√IPENZ 22/79 **Hydropower planning coordinated with wind power in areas with congestion problems for trading on the spot and the regulating market.**

Matevosyan, J., Olsson,M and Soder,L *Electric Power Systems Research*, Volume 79, Issue 1 (January 2009) Pages 39-48,

In this paper a day-ahead planning algorithm for a multi-reservoir hydropower system coordinated with wind power is developed.

√IPENZ 22/80 **The economics of wind power with energy storage.**

Benitez, U et al. *Energy Economics*, Volume 30, Issue 4, July 2008, Pages 1973-1989,

Abstract:

We develop a nonlinear mathematical optimization program for investigating the economic and environmental implications of wind penetration in electrical grids and evaluating how hydropower storage could be used to offset wind power intermittence.

Special focus topics in previous IPENZ Engineering Updates

IPENZ Update Link

- | | |
|--|------------------------------|
| ➤ Infrastructure development /investment | ➤ Feb 09 |
| ➤ Life cycling costing | ➤ Jan 09 |
| ➤ Women in engineering | ➤ Oct/Nov 08 |
| ➤ Risk management | ➤ Sept 08 |
| ➤ Electric vehicles | ➤ Aug 08 |
| ➤ Environmental Management Systems | ➤ July 08 |
| ➤ Biofuels | ➤ June 08 |
| ➤ Peak oil | ➤ May 08 |
| ➤ Rail transportation | ➤ April 08 |
| ➤ Planning aspects of windfarms | ➤ Mar 08 |
| ➤ Water reuse/ graywater/greywater | ➤ Feb 08 |
| ➤ Disaster and emergency planning and management | ➤ Jan 08 |
| ➤ Financing infrastructure/Public private partnerships | ➤ Nov/Dec 07 |
| ➤ Sustainability | ➤ Oct 07 |
| ➤ Geothermal energy | ➤ Sept 07 |
| ➤ E-waste/Electronic Waste | ➤ Aug 07 |
| ➤ Floods | ➤ July 07 |
| ➤ Green building | ➤ June 07 |
| ➤ Fuel cells | ➤ May 07 |
| ➤ Airports | ➤ April 07 |
| ➤ Tidal and ocean power | ➤ March 07 |

If you are a member of Energy Library we'd like to encourage you to take a look at our online catalogue. We add new items to the catalogue almost daily. You'll need to login to the members' section of the Energy Library website. If you have forgotten your login details please [email us](#).

As well as searching the catalogue you can try the **Quick Clicks**, where you can browse by subject and view our **Selected Resources** reading lists. So far we have reading lists for:

- Electric vehicles
- Health and safety
- Hydrogen
- Recent books on global energy or environmental problems
- Wind energy

We'll be adding more reading lists soon. If you'd like us to develop a reading list in your general area of interest just email us.

If you are interested in Energy Library membership please contact library@energylibrary.org.nz