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ABSTRACT

This publication is a bibliography of available periodical literature on specific aspects of energy and today's technology. The Applied Science and Technology Indexes were searched for articles that related to these specific areas: (1) Energy control systems; (2) Maintenance of Energy Systems; and (3) Energy storage. The articles and papers included were published from January 1972 through November 1977. This bibliography includes 249 entries of articles and papers organized by the three specific areas mentioned before. In each of the three areas they are further organized by subheadings and then, alphabetically by author. This bibliography was prepared to be useful to individuals designing teaching courses on energy. The entries are in standard bibliographic form with no annotation. (MR)

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ENERGY: SYSTEMS FOR [redacted] MAINTENANCE, AND STORAGE

BIBLIOGRAPHY

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With energy a vital concern of us all, this bibliography was conceived as an aid and enlightenment for those who are interested in the latest developments of ideas and technology within the vast subject. Presented is a broad spectrum of current thinking by those who are working to improve and implement energy availabilities and their management.

This compilation addresses itself to three major subject areas with specific subheadings under each: Energy Control Systems: Nuclear, Electric, Petroleum, Steam Turbine, Valves. Maintenance of Energy Systems: General Information, Maintenance Information, Maintenance Problems, Energy Storage: Solar, Petroleum, Hydroelectric, Storage Batteries, Fuel Cells, Gas (liquefied natural and petroleum), Air, Storage Miscellany.

Arbitrarily a five year period was selected for a search through the Applied Science and Technology Indexes for the years 1973 through 1977 and then further extended to include the months of January through May 1978. The articles and papers noted cover the period of publication from January 1972 through November 1977. The extensive information gathered was edited and those selections judged most revelent to the three subject area subheadings comprise this bibliography.

This bibliography provides a ready source of available periodical treatises concerned with specific aspects of energy and today's technology in maintaining and expanding this most important fact of life. It should be of particular interest to those individuals who desire to design or to teach courses on energy.

June 1978

ENERGY: SYSTEMS FOR CONTROL, MAINTENANCE, AND STORAGE

A

BIBLIOGRAPHY

PART I. Energy Control Systems

PART II. Maintenance of Energy Systems

PART III Storage of Energy

ENERGY CONTROL SYSTEMS

NUCLEAR

Advanced control center for nuclear power plant. Nuclear Engineering International, August 1976, 21 30.

Bailey, S.J. New slant on energy use control. Control Engineering, January 1974, 21 61-2.

Browne, D.L. Control system designed for nuclear power. Instrumentation Technology, September 1974, 21 60-4.

Central control system uses standard components to manage energy cheaply. Power, July 1976, 120 74-plus.

Clifford, P.M. Accuracy of measurement of very large currents. Chemistry and Industry, February 19, 1977, p. 143-4.

Control systems build up from simple basics. Power, May 1974, 118 sup 22-4.

Kompass, E.J. Energy conservation: It's time to put industrial controls to work. Control Engineering, October 1976, 23 32.

McIntyre, B. Test facility enhances reactor safety. Electrical World, September 15, 1975, 184 60-2.

Merriken, L. Sharpen up station circuit protection. Electrical World, May 1977, 187 33-4.

Mills, R.G. Problems and promises of controlled fusion power. Mechanical Engineering, September 1975, 97 20-5.

Nelson, J.E. Exploding technology is shaping the course of tomorrow's instrumentation. Instrument and Control Systems, May 1976, 49 199.

Nishamura, F. Constant power factor control systems for HVDC transmission. IEEE Transactions on Power Apparatus and Systems, November 1976, 95 1845-52, Discussion 1852-3.

Nuclear physics breakthrough. Mechanical Engineering, August 1977, 99 69.

Overload - protector/fault indicator circuit. Computer Design, May 1977, 16 130

Rao, N.D. Effect of load characteristics and voltage-regulator speed stability. Proceedings of the Institution of Electrical Engineers, July 1977, 14 613-18.

NUCLEAR

Real-time digital governor for a generating unit: Analysis, design and test results. Proceedings of the Institution of Electrical Engineers, December 1976, 123 1357-9.

Scott, R.L. & Gallaher, R.B. Recent occurances at nuclear reactors and their causes. Nuclear Safety, January-September 1977, 18 84-94, 228-37, 380-9, 535-48, 676-88.

Seminara, J.L. and others. Human factor in the nuclear control room. Nuclear Safety, November 1977, 18 774-90.

Tripathy, S.C. Real-time monitoring of power systems using fact-decoupled load flow. Proceedings of the Institution of Electrical Engineers, July 1977, 14 602-6.

ELECTRIC

Adaptive control emerges for practical use. Chemical and Engineering News, January 13, 1975, 53 28-30.

Akenfier, V.K. & Tsvirkun, A.D. Formulation and solution of problems of determination of an effecient structure of control systems. Automation and Remote Control, January 1972, 33 121-6.

Allan, R.N. Reliability evaluation of the auxiliary electric systems for power stations. IEEE Transactions on Power Apparatus and Systems, September 29, 1977, 96 1441-9.

Bealy, W. Distribution switching: Key to reliability: Special Report. Electrical World, January 15, 1975, 183 39-46.

Bechert, T.E. Area automatic generators controlled by multi-pass dynamic programming. IEEE Transactions on Power Apparatus and Systems, September 1977, 96 1467-9, Discussion 1467-9.

Bethane, J.L., III Use of the computer for dynamic analysis of a power plant's performance. ISA Transactions, 1975, 14 no. 1 1-16.

Brubaker, J.F.B. Fault protection and indication on sub-station transformers. IEEE Transactions on Industrial Applications, May 1977, 13 199-207.

Calovic, M.S. Autonomous area generation control of interconnected power systems. Proceedings of the Institution of Electrical Engineers, April 1977, 14 393-402.

Capece, R.P. Energy control systems makers watch utilities. Electronics, July 7, 1977, 50 68-9.

Castenschiold, R. Ground fault protection of electrical systems with emergency stand-by power. IEEE Transactions on Industrial Applications, November 1977, 13 517-23.

Computer becomes a trouble-shooter. Electrical World, September 1974, 182 66-7.

Computer-controlled systems level power consumption. Design News, June 20, 1977, 33 70-1.

Controlled capacitors improve stability. Electrical World, September 15, 1977, 188 110-111.

Couch, G.H. Computer control in sub-stations: Allocation of zones and formulation of switching strategies for primary and backup protection. IEEE Transactions on Power Apparatus and Systems, March 1975, 94 579-87, Discussion 587-90.

Current sensor remembers to turn off the power. Machine Design, June 26, 1975, 47 32.

DyLiacco, T.E. Real-time computer control for power systems. Proceedings of the IEEE, July 1974, 62 884-91.

Electric controls for hydrostatic drive. Machine Design, September 29, 1977, 49 215.

Electronic watchdog for eastern electricity. Electronics and Power, June 1977, 23 456.

Fluidics is not really dead - it's just out of sight. Product Engineer, Februdry 1977, 48 21-3.

Galto, E.J. Detecting electrical power system problems by infrared survey. Plant Engineer, May 12, 1977, 31 145-8.

Glavitsch, H. Computer control of electric power systems. Scientific American, November 1974, 231 34-44.

Hagle, D.L. Computerizing a petrochemical plant: Case history of a retrofit project. Instrumentation Technology, April 1977, 24 53-9.

Hnatek, E.R. Switching power supplies: Design consideration. Computer Design, February 1977, 16 89-94.

Impedance prevents capacitor inrush surges: Questions and Answers. Electrical World, June 1, 1976, 185 40-1.

Kaplan, G. Power plant controls: Displays, computers and man. IEEE Spectrum, November 1974, 11 78-82.

Knight, U. Computer in power system planning. Proceedings of the Institution of Electrical Engineers, July 1974, 62 872-83.

Kennedy, G.P. Applications of motor control centers to systems having high available fault currents. IEEE Transactions on Industrial Applications, May 1973, 9 66-71.

Kotheimer, W.C. Source and nature of transient surges. IEEE Transactions on Industrial Applications. November 1977, 13 501-3.

Landman, W.J. HVAC controls that save energy. Design Engineering Journal, November 1974, 224 137-8.

Lefevre, T. Optimal scheduling of hydroelectric power generation by multi-level-control techniques. Proceedings of the Institute of Electrical Engineers, May 1975, 122 525-34.

Lewis, G. Provision transmission and measurement of large direct currents: General Principles. Chemistry and Industry, February 19, 1977, p. 137-8.

Load shedding, tight control spearhead energy program. Power, November 1976, 120 53-8.

Marten-Sanchez, J.M. New solution to adaptive control. Proceedings of the IEEE, August 1976, 64 1209-18, Discussion 65 587-8, April 1977.

Midlands power distribution control leads world. Process Engineering, October 1974, p. 89.

Morabito, R.A. Control and switching capacitors. Electrical Construction and Maintencance, December 1976, 75 66-8.

Moser, H.O. Reliable, inexpensive remote control systems for equipment in high-voltage terminals. Science Instruments, May 1977, 10 445-6.

Murphy, E.E. Remote feeder controls cuts outage duration. Electrical World, January 1, 1975, 183 46-8.

Okamura, M. New power model and solution method, including load and generator characteristics and effects of systems control devices. IEEE Transactions on Power Apparatus and Systems, May 1975, 94 1042-50.

Oughton, A.G. Developments in the computer control of power plants. Combustion, September 1975, 47 11-13.

Phillips, H. Use of online computer control in power distribution. Electronics and Power, March 1977, 23 225-8.

Power modulation and control devices. Machine Design, September 30, 1976. 48 46-66.

Rav, N.S. New approach to the selection of insertion resistance to control switching over-voltages. IEEE Transactions on Power Apparatus and Systems, July 1975, 94 1367-74.

Rose, J. Computer controls oil field surveillance. Petroleum Engineer, November 1976, 48 72.

Ross, D.E. Building automation; Energy optimation by computer. Architectural Record, May 1977, 1611 243-4.

Shaw, M.C. Designs for safety: The mechanical fuse. Mechanical Engineering, April 1972, 94 23-9.

Shinsky, G. Adaptive control: Consider the alternatives. Instrument and Control Systems, August 1974, 47 71.

Simple thermistor circuits solve variety of problems in control. Product Engineer, April 1976, 47 39.

Thanakachalasen, A. On-line operation of phase shifters using energy control center computers. IEEE Transactions on Power Apparatus and Systems, September 1974, 93 1563-71.

Thuries, E. Compressed air, the solution for generator breaker problems. IEEE Transactions on Power Apparatus and Systems, November 1976, 95 1901-9, Discussion 1909-10.

Tinney, W.F. Controlling and optimizing powers systems. IEEE Spectrum, June 1974, 11 56-60.

Tipton, J. Philosophy of digital fuel control systems. Gas Turbine International, March 1977, 18 116-19.

Trapeznikov, V.A. Man in the control system. Automation and Remote Control, February 1972, 33 171-9.

Watson, T.A. Controlling power with mechanical amplifiers. Machine Design, July 11, 1974, 46 117-19.

PETROLEUM

Cho, C. and others. Modern control systems for liquid pipelines. Pipeline and Gas Journal, July 1977, 204 31-4.

Gas grid computer and telemetry system is most advanced of its kind in Europe. Process Engineering, December 1974, p. 15.

Javan, M.R. Control of an energy system using a multimodel control hierachy, Proceedings of the Institution of Electrical Engineers, December 1975, 122 1431-6.

Leakage Indicator. Mechanical Engineering, January 1976, 98 44.

Liquefied gas instrumentation and control system. Instrument and Control Systems, December 1974, 47 24 plus.

PETROLEUM

Optimal unit prevents gas overfill. Canadian Chemical Processing, June 1976, 60 34-6.

Rankin cycle energy-converters: Remote units to power Trans-Alaskan operations. Pipeline Industry, February 1977, 46 59-60.

Szabo, M. Electrical controls for fluid power systems. Hydraulics and Pneumatics, June 1976, 29 54-8: August 1976 66-8: September 110-13: October 166-9, December 1976, 62-3.

Takatsu, R. Automatic pipeline control advances in Japan. Oil and Gas Journal, January 17, 1977, 75 54 plus.

Warren, E.G. Uninterruptible power systems in refineries. Instrumentation Technology, March 1977, 24 65-9.

STEAM TURBINE

Morris, E.L. Adaptive digital control of a steam turbine. Proceedings of the Institution of Electrical Engineers, June 1976, 123 549-53.

Uram, R. Computer control of steam turbines permits added safety features. Control Engineering, April 1977, 24 54-6.

Uram, R. Software flip-flops control steam turbine. Control Engineering, September 1974, 21 83-5.

Weaver, F.L. Reliable overspeed protection for steam turbines. Hydrocarbon Process, April 1977, 56 173-9.

VALVES

Arriens, K.H. Operating experience with valves in nuclear power plants. Combustion, February 1974, 45 31-6.

Backward check valve guards gas lines. Machine Design, March 21, 1974, 46 54.

Duffy, D.W. Development of hermetically sealed valve aims at nuclear-power-plant service. Power, December 1974, 118 42-4.

Freeman, M. Designing nuclear control valves. Power, October 1974, 118 39-45.

How valves answer commands. Machine Design, September 1977, 49 76-7.

New recirculation valves and costly failures: Cavitrol IV. Power Engineer, October 1977, 81 110.

VALVES

New turbine valve partially recovers lost energy. Control Engineering, April 1975, 22 36.

Nuclear valve surpasses regulating requirements. Power Engineer, November 1976, 80 118.

Piezoelectric sleeve regulates gas flow. Machine Design, June 23, 1977. 49 38.

Roche, M.C. Automated cryogenic valves. Cryogenics, September 1976, 16 558-62.

Schuder, C.B. Thermodynamics of flow through control valves. Instumentation Technology, June 1973, 20 33.

Shinsky, G. Energy conservation: Throttling is an irreversible operation. Instrument and Control Systems, December 1976, 49 113.

MAINTENANCE OF ENERGY SYSTEMS

GENERAL INFORMATION

Birkle, A.J. Experience focuses attention on details of inservice inspection in nuclear plants. Power, September 1975, 119 104-5.

Boase, D.G. Canadian spent fuel storage cannisters: Some material aspects. Nuclear Technology, Janaury 1977, 32 60-71.

Carson, R.L. Periodic operational tests help keep unit availibility at high levels. Power, July 1976, 130 59-64.

Crawley, P. Power supply testing: Manual or automatic? Electronic Engineer, Mid April 1977, 49 59-60.

Davis, B.O., Jr. Focus on pipeline leaks and safety problems. American Gas Association Monthly, January 1975, 57 12-13.

Dowgiallo, E.J., Jr. High power facility for testing electrochemical power sources. Electrical Chemistry Society Journal, September 1974, 121 1134-7.

Establish freeze seal system for pipe repair in radiation area. Power, July 1976, 120 120.

GENERAL INFORMATION

Gambs, G.C. Industrial energy in the United States: Role of coal, natural and synthetic gas, and nuclear power. September 1977, Tappi, 60 76-80.

Jaffares, G.M. Liquid lines: More attention to corrosion training, data processing. Pipeline Industry, March 1977, 46 35-6.

Maintenance shop handling methods and equipment are new approach for utility industry. Material Handling Engineer, November 1976, 30 58-9.

Maintenanee: Special Report. Hydrocarbon Process, January 1976, 55 79-93.

Maintenance: Special Report. Hydrocarbon Process, January 1977, 56 77-112.

Mockup eases tests of nuclear steam tubes. Electrical World, February 1, 1976, 185 30.

Phillips, R.D. Minicomputers used in metering and leak detection systems for liquid petroleum product pipelines. IEEE Transactions on Industrial Applications, July 1976, 12 341-8.

Planners and inspectors can benefit from accumulated in-service inspector experience. Power, December 1976, 120 30-1.

Rinard, J.W. Maintainability of in-line pumps. Hydrocarbon Process, January 1977, 56 101-02.

Scott, R.L. and Gallaher, R.B. Recent occurances at nuclear reactors and their causes. Nuclear Safety, January 1977 18 84-94: March 1977 228-37.

Sculthorpe, H.L. Pump controls that save energy. Machine Design, April 21, 1977, 49 25-9.

Tight maintenance program provides nearly 100% compressor availability. Pipeline and Gas Journal, May 1976, 203 53-4.

MAINTENANCE INFORMATION

Bush, H.E. Corrosion control in gas storage wells and liners. Pipeline and Gas Journal, November 1975, 202 36 plus.

Butts, E.O. Detecting leaks in pipeline and storage tanks. Engineering Journal, May 1977, 60 45: Discussion: Hardcastle, B. September 1977, 60 38-39.

Cutter safety snips channel-disposal costs. Electrical World, August 15, 1977, 188 75-6.

deVroome, H.C. Electrical plant maintenance: A modern approach. Electronics and Power, June 1976, 22 366-8.

MAINTENANCE INFORMATION

Genscheke, G.P. Fault locator speeds restoration: Time domain reflectometry. Pulsarc, Electrical World, January 1, 1975, 183 42-4.

Glauser, J.E. Mechanical snubbers solve severe maintenance problem at nuclear plant. Power Engineering, November 1977, 81 108-9.

Jette, A.N. and others. Active acoustic detection of leaks in underground natural gas distribution lines. Materials Evaluation, October 1977, 35 90-6.

Lapides, M.E. Predicting perfromance of generating units. Power Engineer, October 1977, 81 52-5.

Merriken, L. Sharpen up station circuit protection. Electrical World, May 4, 1977, 187 32-4.

Portable instruments speed electrical trouble-shooting. Electrical Construction and Maintenance, August 1975, 74 55-8.

Tenny, R. Power supply transients kept under control. Electronics, January 23, 1975, 48 101 plus.

Transmission line patrolling practices: Questions and Answers. Electrical World, June 1, 1975, 183 53-4.

Zurn, H.H. Several objective criteria for optimal generator preventive maintenance scheduling. IEEE Transactions on Power Apparatus and Systems, May 1977, 96 984-91: Discussion 992.

MAINTENANCE PROBLEMS

Beatson, C. Cracks in generators need not be signals for a plant shut-down. Engineer, December 30, 1976, January 6, 1977.

Gaggioli, R. Pinpointing real inefficiences in power plant and energy systems: Abstract. Combustion, August 1975, 47 7-8.

Load management studies get underway. Electrical World, August 1, 1975, 184 170-1.

Mendel, T. Energy Crisis: Some ideas on maintenance. Metal Finishing, April 1974, 72 33-4.

Preventing mechanical failures of electrical equipment. Electrical Construction and Maintenance, August 1974, 73 58-61.

Should we base maintenance on output or operating hours? Power, December 1974, 118 92-3.

ENERGY STORAGE

SOLAR

Applebaum, J. Performance analysis of a solar-electrical system with a load and storage batteries. Energy Conversations, 1977, 16 no 3105-10.

Avarado, F.L. Direct cupling of solar cell arrays to electrical power networks. IEEE Transactions on Industrial Applications, January 1976.

Braunstein, A. Charging control system for accumulation charged by means of solar cell array. IEEE Transactions on Power Apparatus and Systems, September 1976, 95 1567-70.

Coming (maybe) inexpensive solar cell arrays. Machine Design, May 20, 1975, 47 8.

Dalai, V.L. Design considerations for high intensity solar cells. Journal of Applied Physics, March 1977, 48 1244-51.

Efficiency boosted for solar cells. Machine Design, May 26, 1977, 49 10.

ERDA seeking standards for evaluating solar cells. ASTM Standardization News, August 1975, 319.

Hammond, A.L. Photovoltaics: The semiconductor revolution comes to solar. Science, July 29, 1977, 197 445-7.

Increased efficiency in conversion of sunlight to electricity with high flux solar cell. Electronic Engineer, January 1974, 46 7.

Manassen, J. Photoelectrochemical energy conversion and storage: The polycrystalline Cd Se cell with different storage modes. Journal of the Electrochemical Society, April 1977, 14 532-4.

New solar cells, Mechanical Engineering, March 1977, 99 76.

Ramakumar, R. Solar energy conversion and storage systems for the future. IEEE Transactions on Power Apparatus and Systems, November 1975, 94 1926-34.

Simulated multiple suns may boost solar cell output. Machine Design, May 2, 1974, 46 2.

Solar cells more efficient. Engineer, July 1977, 245 9.

Solar cells' 20th anniversary. Mechanical Engineer, July 1974, 96 27-8.

Sowup, R.J. High voltage vertical multijunction solar cell. Journal of Applied Physics, February 1976, 47 555-9.

SOLAR

Treble, F.C. Progress in solar cell technology. Electronics Engineer, Mid April 1977, 49 51-3.

PETROLEUM

Burkhalter, J.P. Crude oil handling and storage. Journal of the American Oil Chemists Society, June 1976, 53 332-3.

FEA moving quickly on oil storage program. Chemistry and Engineering News, April 11, 1977, 55 6.

Flexible storage tanks boom as fuel grows better. Rock Products, April 1974, 77 34.

Gerwick, B.C. Condeep: In 400 feet of water, concrete caisson requires no piles. Civil Engineering ASCE, April 1976, 46 54-6.

Kostin, W.B. How to instrument fuel oil systems; Storage and handling. Instrumentation Technology, October 1974, 21 35-8.

Open ocean petroleum storage. Petroleum Engineer, August 1977, 49 14.

Rubber bladder for ocean fuel storage. Engineer, August 1977, 99 50-1.

Shmidt, P.F. Designing an unloading and storage system for fuel oil. Power, March 1976, 120 71-4.

Wright, L.M. Finished oil handling and storage in the U.S. Journal of the American Oil Chemists Society, June 1976, 53 408-9.

HYDROELECTRIC

Allen, A.E. Potential for conventional and underground pumped storage. IEEE Transactions on Power Apparatus and Systems, May 1977, 96 993-8.

California pumped storage plants show reliance on hydro power. Engineer News, March 31, 1977, 198 11.

Caselton, W.F. Long-term operation of storage hydro projects. Proceedings of the American Society of Civil Engineers, 120 (WR) no 12089: April 1976, 163 76.

Miller, D.J. Foyers pumped storage project. Proceedings of the Institution of Electrical Engineers, November 1975, 122 222-34, Discussion: October 1976 123 1013-15, Reply: 123 1015-16.

Pfallin, G.E. Future trends in hydro pumped storage equipment. Combustion, July 1974, 46 77-8.

PETROLEUM

Pumped storage can be unique. Electrical World, August 1, 1977, 188 28-31.

Robinson, A.L. Energy Storage: Using electricity more efficiently. Science, May 17, 1974, 184 785-7.

Stitky problem, sticky solution at utility's pumped storage station. Power, August 1976, 120 110-111.

Strong future predicted for pumped storage hydro unit. Electrical World, June 1, 1974, 180 92-3.

Survey of pumped storage projects in the U.S. and Canada to 1975. IEEE Transactions on Power Apparatus and Systems, May 1976, 95 851-8.

Windsor, J.S. Pumped storage optimation in generation systems. Proceedings of the American Society of Civil Engineers 103, (WR 1 no 12946): May 1977 99-109, April 1977 341-52.

STORAGE BATTERIES

Batteries: Past developments and future promises. Material Handling Engineer, Spring 1977, 32 36-7.

Beck, J.W. Computer study of battery energy storage and power conversion equipment operation. IEEE Transactions on Power Apparatus and Systems, July 1976, 95 1064-72.

Choosing energy and standy-by power: Questions and Answers. Electrical Contractors and Maintenence, September 1977, 76 19 plus.

Comeau, G.E. Mechanical battery-stored energy systems for meeting uniterruptible and buffered electric power needs. IEEE Transactions on Industrial Applications, March 1974, 10 209-12.

Fastler, D.A. Sodium-water primary cell with a rotating cathode. Journal of the Electrochemical Society, September 1976, 123 1259-61.

Hogan, B.J. Low-temp, thermally activated electroytes fill battery needs. Design News, June 20, 1977, 33 42.

Introducing the dynamic: A new concept in dry-charged batteries. Diesel Equipment Superintendent, December 1974, 52 30.

Lyman, J. Battery technology: Packaging more muscle into less space: Special Report. Electronics, April 3, 1975, 48 75-32.

Mahato, B.K. Some aspects of gas recombination to lead-acid systems. Journal of Electrochemical Society, January 1974, 121 13-16.

STORAGE BATTERIES

Mason, J.F. Storing energy for peak power is a job for super batteries. Electronic Design, March 15, 1977, 25 30-plus.

Mennie, D. Batteries today and tommorow. IEEE Spectrum, March 1976, 13 36-41.

Nickle-zinc battery may double range of electric cars. Machine Design, October 21, 1976, 48 28.

Prime movers and electical generators: Emphasis spans clean fuel supply and gas turbine design. Power, September 1977, 121 60-3.

Promise of advanced batteries. Iron Age, April 18, 1977, 219 59-60.

Recommended practice for installation design and installation of large stationary generating stations and sub-stations lead storage batteries. IEEE Transactions on Power Apparatus and Systems, July 1974, 93 1105-9.

Robinson, A.L. Advanced storage batteries: Progress, but no electricity. Science, May 7, 1976, 192 541-3.

Scott, D. Non-electric battery stores energy from waste heat: Water-vapor battery. Popular Science, September 1977, 211 112.

Super battery. Light Metal Age, June 1976, 34 25.

Superbatteries due on market in eight years. Electrical World, January 1, 1977, 187 21-2.

Utilities look to batteries to handle peak power demand. Instrument and Control Systems, July 1975, 48 6.

Wittingham, M.S. Electrical energy storage and intercalation chemistry. Science, June 11, 1976, 192 1126.

FUEL CELLS

Aronson, R.B. Fuel cells: A sleeper in the energy race. Machine Design, February 24, 1977, 49 20 plus.

Commercial fuel cells. Mechanical Engineering, February 1974, 96 50-1.

Control-station fuel cells seen for late 70's. Electrical World, January 15, 1974, 181 27-8.

Electricity for 20,000 on half an acre. Power Engineer, February 1974, 78 60.

Fuel cell plants by 1985? Mechanical Engineer, April 1977, 99 55.

FUEL CELLS

Fuel cell power source finds many jobs. Product Engineer, September 1974, 45 16.

Fuel cell research finally paying off. Chemistry and Energy News, January 7, 1974, 52 31-2.

Gas powered fuel cells: Smaller and better. Pipeline and Gas Journal, April 1974, 201 46.

Good things in small packages: Fuel cell power plants. Forbes Magazine, March 1, 1977, 119 66.

Gorman, R. On the way: Power for electric grids from fuel cells. Popular Science, March 1977, 210 84-5 plus.

Liang, C.C. High energy density solid state batteries system. Journal of Electrochemical Society, April 1976, 128 458.

Low-temp thermally activated electrolytes fill battery needs. Design News, June 20, 1977, 33 42.

Ogedingle, O. Performance-potential of polyelectrolytes and high velocity gradients in the treatment of waste waters. Water Research, no 10, 1976, 4 343-9.

Philips, G.A. Inverters for commercial fuel cell power generation. IEEE Transactions on Power Apparatus and Systems, May 1976, 95 944-53.

Schoonman, J. Solid state galvanic cell with flouride conducting electrolytes. Journal of Electrochemical Society, April 1976, 123 1772-5.

Sylwan, C.L. Methanol-air fuel cells with hydrophilic air electrodes. Energy Conversations, 1977, 17 nos, 2-3, 67-72.

Utility plant to harness fuel cells. Machine Design, September 1976, 48 4.

GAS - LPG, LNG

Allen, K. Hydrocarbon storage with emphasis on natural gas storage in salt. Canadian Mining and Metallurgical Bulletin, December 1973, 66 59-63.

Gas migration by diffusion in Aquifer storage. Journal of Petroleum Engineering, February 1977, 29 121-3.

Industry operations: Storage. American Gas Association Monthly, (Research and Development): 1973, 27 8.

GAS - LPG, LNG

Loeb, M.B. Optimum vessel design for gas storage. Chemical Engineer, June 24, 1974, 81 170 plus.

LNG/LPG update: Floating LNG by Moss Rosenberg will service transport ships where needed. Marine Engineering Log, September 1976, 81 54-7.

Magruder, P.S. Aliso Canyon facility is giant among gas storage projects. Pipeline and Gas Journal, November 1975, 202 20-3.

Mid-west gas production and storage symposium, Indianapolis, April 14-15: Progam and Abstracts. Journal of Petroleum Technology, March 1977, 29 271.

Springborn, H. For peak-shaving, underground storage. Chilton's Oil and Gas Energy, June 1975, 1 46-8.

Thompson, G.A. Standby gas systems. Chemistry Technology, September 1974, 4 52-4.

Wakabayashi, J. Competing methods build 70 ft. high concrete tanks on same site. Construction Methods, January 1976, 58 50-1.

What's new in peakshaving LNG, SNG underground storage. Pipeline and Gas Journal, November 1976, 206 26-7.

Winar, R.M. Needed more underground storage along the Atlantic seaboard. Pipeline and Gas Journal, November 1976, 203 30 plus.

AIR

Ayers, D.L. Compressed air storage: Another answer to the peaking problem. Power Engineering, August 1975, 79 38-9.

Ayers, D.L. Gas turbine system using underground compressed air storage: Abstract. Combustion, July 1974, 46 27.

Coste, W.H. Evaluating a combined windpower/energy storage system. Power Engineering, May 1977, 81 48-51.

Lang, W. Air stored for peaking power. Electrical World, January 1, 1977, 187 30-1.

Power plant stores energy by compressing air. Machine Design, August 25, 1977, 49 8.

Serenson, B. Dependability of wind energy generators with short-term energy storage. Science, November 26, 1976, 194 935-7.

AIR

Stys, Z.S. Peaking power from stored air. Civil Engineering ASCE, January 1977, 47 48-50.

STORAGE MISCELLANY

Ayers, R.D. Energy storage in the electrical field. American Journal of Physics, September 1974, 42 788-9.

Clampitt, B.H. Energy recovery from saline water by means of electrochemical cells. Science, November 12, 1976, 194 719-20.

Clark, W.H. First storage field automation in Michigan. Pipeline and Gas Journal, July 1975, 202 23-6 plus.

Fowler, D.P. Northern Illinois uses storage effectively. Energy Pipeline and Systems, April 1974, 1 46-7.

Jaffee, R.I. Material requirements for energy generation, conversion and storage. Bulletin of the American Ceramic Society, July 1975, 54 657-61.

Masuda, M. and Shintami, T. Super conducting magnetic energy storage. Cryogenics, November 1977, 17 607-12.

Laquer, H.L. Superconducting magnetic energy storage. Cryogenics, February 1975, 15 73-8.

Peterson, H.A. Look at superconductive energy. Electrical World, March 1, 1975, 183 30-3.

Peterson, H.A. Superconductive energy storage indicator-converter units for power systems. IEEE Transactions on Power Apparatus and Systems, July 1975, 94 1337-46, Discussion 1347-8.

Rattan, D.K. AC/DC/AC transmission supplements power system operation. Proceedings of the IEEE, October 1976, 64 1543-4.

Ricci, L.J. Utilities eye large scale energy storage. Chemistry Engineer, February 3, 1975, 82 24-6.

Robinson, A.L. Energy storage: Developing advanced technologies. Science, May 24, 1974, 184 884-7.

Ruch, S. Storing energy for peak demand. Turbomachinery International, September-October 1977, 22-28 plus.

Stys, Z.S. New energy storage concept sold. Electrical World, June 15, 1975, 183 46-7.

STORAGE MISCELLANY

Sulzberger, V.T. Potential for application of energy storage capacity on electric utility systems in the U.S. IEEE Transactions on Power Apparatus and Systems, November 1976, 95 1872-81.

Thermal storage systems aid load factor. Electrical World, August 15, 1975, 184 56-7.

Thomsen, S.E. Superconducting swirls of stored energy. Science News, January 18, 1976, 107 47.

Vibrating discharger for storage piles. Plant Engineer, April 28, 1977, 31 138.

Wilson, H.S. Coal storage at industrial plants. Plant Engineer, June 23, 1977, 31 121-2.