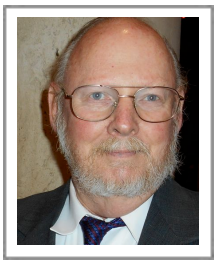
Water and Power Associates, Inc.

Newsletter

Year 44, Volume 2 — April 2015

INSIDE

Editor *Dorothy M. Fuller*



From the President

Edward A. Schlotman

On April 13, 2017 at approximately 5:43 AM a massive earthquake, later determined to be between magnitude 8.5 and 9.0, struck Southern California causing enormous property damage. Water trunk lines serving Hollywood, downtown Los Angeles, South Central Los Angeles and the Eagle Rock-Highland Park areas snapped like twigs. Property damage could only be described as catastrophic. Oddly enough the San Fernando Valley was largely spared.

Impossible you say or at least not likely. Well, think again. An article published in the Los Angeles times March 11, section B2 stated, "the estimated chance of whether such a mega – earthquake would hit California in the next three decades was raised to 7% from about 4.7% the U. S. Geological Survey said... An 8.0 earthquake hitting a populated area would be devastating – producing 89 times more energy than the magnitude 6.7 Northridge earthquake in 1994..."

The article also said… "As scientists identified more faults in California it has become increasingly apparent that we are not dealing with a few well separated faults but with a vast interconnected fault system." (*Continued on page 2*)

VOLUNTEERS NEEDED

(See January 2015 W&PA Newsletter, page 4.)
If you are willing to participate in this effort, please contact Gerald Gewe at Jgewe@hotmail.com and indicate your interest.

Svante Arrhenius: An Early Prophet Of The 'Energy Crisis'

Global Warming Policy Forum, 11 March 2015

Although Svante Arrhenius showed great foresight in many of his comments on energy in 1919, he was wrong in some of his most important predictions: America will run out of oil by 1953 at the latest. Coal reserves will be depleted in England within 50 years and in America within 150 years.

Svante Arrhenius (1859-1927) was the first peak oil alarmist and the first scientist to calculate how changes in the levels of atmospheric CO2 could alter the surface temperature due to the greenhouse effect. Photo Wikipedia

For most of us the concept of an energy crisis dates primarily from the oil embargo established by the Arab nations against many of the western nations in 1973. Who can forget the long lines at service stations and the increases in gasoline and chemical prices which soon resulted? Thus, it was surprising to the author to encounter a book by Svante Arrhenius (famous for his theory of ionization of acids, bases, and salts in water) published in 1919 (and in 1925 in English translation[1]) which contains many very current-sounding ideas on energy topics. He mentions the following energy-related problems: (*Continued on page 2*)

President's Message

(*Continued from page 1*)

The article further notes that while the experts agree they cannot predict the next big earthquake they are getting better at modeling the possibilities. Frankly, I'm not sure how comforting that is, if we are not truly prepared. Ironically the article observes that the scientists use 30 years to forecast a chance for the next big earthquake because that's the typical term for homeowners to pay off the mortgage on the house. Wow!

Are we prepared, truly? I suspect not really. No one ever thinks it could happen to them except those of us who have been wakened by an earthquake a hundred miles away. We all too easily get complacent. What can you do to get ready? Are you doing it? And just as importantly what has and is DWP doing to get ready? Is it really? What if it strikes the day after you read this article? Inquiring minds want to know!

As you read this it should be obvious that the article focused on damage and destruction of and to water supply facilities. If, rather I should say when, such an earthquake strikes it will not only strike water facilities but it will strike power facilities as well. Poles will be toppled. Lines will come down. Transmission towers may or may not stay up! Streets will be damaged. Buildings will collapse. In general there will be chaos. Is anyone really prepared for this? We all need to ask ourselves that question.

As always I am interested in your thoughts and suggestions.

Edward A. Schlotman

Submitted by
Thomas J. McCarthy

Charles G. Moseley,
Journal of Chemical Education 55(3) 1978

(*Continued from page 1*)

- Some oil fields are already depleted, and known petroleum reserves will last only a short time.
- Known coal reserves will last longer but are certainly finite.
- Burning large amounts of fossil fuels will increase the carbon dioxide concentration in the atmosphere and possibly cause adverse climate changes.
- No really adequate battery exists for use in electric vehicles or for storing energy derived from the sun, wind , or water.

The book also contains the following proposals to help solve the predicted energy crisis:

- Institute stringent conservation programs to reduce consumption of coal and oil.
- Replace all lights which utilize petroleum products with electric lights.
- Push development of water, wind, and solar energy sources.
- Develop more efficient fossil fuel powered engines.
- Utilize alcohol derived from plant sources as a fuel to replace oil and coal.
- Develop more efficient methods to transport coal and utilize its energy content.
- Study atomic energy for possible future use.

Although Arrhenius obviously showed great foresight in many of his comments on energy, he was far from correct in some of his most important predictions. Examples are: America will run out of oil by 1953 at the latest. Coal reserves will be depleted in England within 50 years and in America within 150 years.

There are at least two lessons which can be derived from this very interesting book. One is that our energy problems are not really new (although they may, of course, be more acute at some times than at others). Providing sufficient reasonably priced energy for our needs has always been a challenge and will likely continue to be so. Another lesson is that it is very easy to underestimate our ability to solve or at least alleviate our energy problems. That so great a scientist as Svante Arrhenius could badly overestimate the energy problems of his time suggests that we should perhaps place more emphasis on using technology to solve our energy problems and less emphasis on bemoaning the difficulty of the problem.

Footnote 1: Arrhenius, Svante A., and Leonard, Clifford S. (Translator), *Chemistry in Modern Life,* D. Van Nostrand Company, New York, 1925.

MWD Customers Likely Facing Substantial Water Cuts in April

by Duane Georgeson

Although the Department of Water Resources (DWR) recently increased the 2015 water allocation for the State Water Project (SWP) to 20 per cent, Metropolitan Water District's (MWD) General Manager **Jeff** Kightlinger stated " the modest increase does not substantially change the water supply picture for 2015."

MWD staff in presentations to the MWD Board on March 9th laid out a bleak picture that grows bleaker by the day as hot dry weather state-wide shrinks the District's potential SWP supplies The possibility of additional increases in SWP water allocations grows increasingly unlikely as the winter draws to its end. The staff summarized the grim statistics of shrinking water reserves in 2014 as follows:

Diamond Valley Reservoir- down 180,000 acre feet

Lake Mathews Reservoir - down 45,000 acre feet

Castaic Lake Reservoir- down 180,000 acre feet

SWP Carry-over storage- down 220,000 acre feet

Lake Perris Reservoir - down 25,000 acre feet

Total storage drawdown - down 650,000 acre feet

In addition MWD is facing a 100,000 acre foot reduction in its Colorado River Aqueduct supply in 2015 as compared to 2014.

MWD staff reviewed several water rationing options for likely action at Board meetings on April 13th and 14th. The staff emphasized that with continuing draining of MWD and SWP reservoirs in 2015, the District must look not only at meeting critical water needs in 2015 but must also preserve adequate reserves for 2016 without cutting into emergency supplies. The plan that appears to meet the test of preserving critical storage under "Dry" hydrology for 2016 is a Level 3 allocation which would mandate a reduction of about 200,000 acre feet of water sales. MWD's most recent experience with the District's rationing Plan was in July 2007 when a Level 2 was implemented requiring a 100,000 acre feet reduction in water sales.

by Jack Feldman

Mystery History

J. A. Griffitts opens the circuit breaker on the last DWP 50 cycle circuit.
Taken in the old control house at Receiving Station-C (RS-C).

Background Information

In the early days, the Southland was sort of an electrical enclave. Both Edison and DWP generated and distributed their power at 50hz where most parts of the country were at 60hz. Some electrical appliances worked at both frequencies, but for frequency-sensitive products manufacturers created special 50hz models just for the Southern California market. And when newcomers moved from outside the region, they paid to have their old devices converted, or simply bought new ones that would work on the 50hz grid.

Questions:

1. What year did DWP convert its frequency from 50hz to 60hz? A) 1926 B) 1936 C) 1946 D) 1956

2. What event prompted DWP to convert its operating frequency to 60hz?_ _____

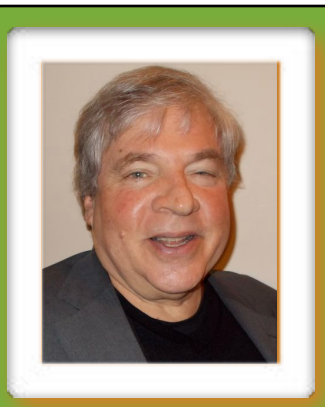
Bonus Question:

3. What year did SCE convert its frequency to 60hz?
A) 1928 B) 1938 C) 1948 D) 1958

Answers can be found at: http://waterandpower.org/museum/Mystery_History_Answers(April_2015).html

Welcome Our Recent Guests

☆ Denise M. Ducheny
The Honorable Former California State Senator



☆ David Abel
Founder of ABL Inc. and the VerdeXchange Conference

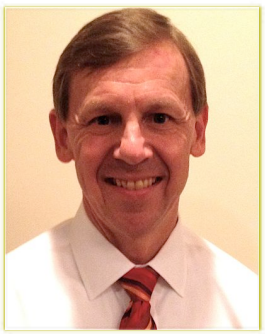
☆ Bob Filner,
The Honorable Former Mayor of San Diego

☆ Karen Foshay
Investigative Producer Southern California Public Radio

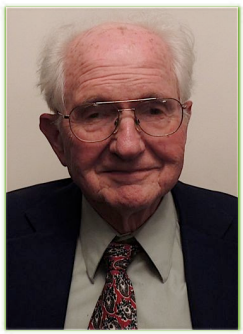
☆ Vicky Herrera,
Retired Member of Huntington Park City Employees Retirement Board

☆ Brent Kawasaki
MWD Manager of Operations

☆ Donna Schlotman
Water And Power Associates, Inc. Supporter



☆ Michael S. Webster
Assistant Director of Power System Planning and Development LADWP



☆ Paul Wight
Retired Power Engineering Associate. Electric Station Design & Construction, LADWP

Thank You

AMERICAN ENERGY POLICY IN THE 1970s, edited by Robert Lifset. Norman: University of Oklahoma Press, 2014. 322 ppp. Notes, Index. Paperback, $24.95. www.oupress.com

In November 2007 "Energy in Historical Perspective: American Energy Policy in the 1970s," a conference held at the University of Houston, historians concerned with energy policy met to discuss the issues of that decade. Inasmuch as the United States is currently dealing with the challenges of solar power, coal, nuclear power, oil, and wind, the conference was important in reminding people that "the good old days" weren't all that good, particularly during the 1970s when the American people first realized, quite dramatically, that energy sources could no longer be taken for granted.

Robert Lifset, an assistant professor of history at the University of Oklahoma, has gathered eleven essays from participants at the conference. Each essay is well researched and documented with end notes, and the book is user-friendly with an index and list of abbreviations for anyone who gets lost amid the numerous acronyms that may be familiar only to specialists. The anthology collectively is a sobering reminder that in the more than four decades since the 1970s, the United States still struggles to formulate a coherent energy policy.

Yanek Mierczkowski leads off with an assessment of President Gerald Ford's efforts to establish a strong energy policy, concluding that while Ford may be considered a caretaker president finishing out Richard Nixon's term, he had some strong proposals that Congress found unacceptable. Jay C. Hakes finds a similar failure in the energy policies of Jimmy Carter. David S. Painter focuses on the international issues regarding oil in the 1970s, particularly Iran and the fall of the Shah.

In a larger focus, Steve Marsh traces U.S.-Iran oil policies from Presidents Truman to George W. Bush. Tyler Priest discusses offshore oil drilling, and Bruce Beaubouef explores the U.S. Strategic Petroleum Reserve. A major failure, the Agrifuels Ethanol Plant, gets attention from Jason P. Theriot, and Jeff Womack performs a similar autopsy on the unsuccessful solar power satellites in the 1970s.

J. Samuel Walker assesses the nuclear power debate of the 1970s. However, although he covers the subject well, he doesn't mention the influence of the Walt Disney film *Our Friend the Atom* which originated as a television program on the *Disneyland* TV show in 1957 and was thereafter shown in school classrooms for many years. I have commented on this in an earlier review: The host-narrator of the program, Heinz Haber, assured the viewing audience that nuclear energy was "clean, silent, powerful," omitting the issue of nuclear waste disposal and the possibility—later the fact—of meltdowns such as occurred at Three Mile Island, Chernobyl, and Fukushima. Also, the threat of nuclear war was brilliantly satirized in an episode of *The Simpsons* in showing how ridiculous were the "protections" offered by the cartoon character Mr. Turtle in the 1950s Cold War era.

The last two essays in the book deal with consumer views. Brian Black evaluates U.S. petroleum use in the 1970s and the increase in consumption when consumers felt the crisis had ended, a view that makes it difficult for energy producers to expend funds on exploration when people forget there was a crisis. Finally, Robert Lifset looks at the crisis in electrical energy and the environmental movement.

A book review cannot do justice to the eleven essays (plus Lifset's introduction). All of the essays are important in measuring whatever progress has been made (or not made) in formulating a coherent federal energy policy. The 1970s were clearly a major turning point in U.S. energy policy and the reluctance of the federal government and energy producers to work out long-term plans to avoid a future energy crisis (or crises).

It will be noted that almost no mention is made by any of the authors regarding wind energy. In the 1970s wind power was not considered much as an alternative energy option, and solar power was still in an experimental stage, as Jeff Womack discussed in his essay. Anyone interested in the history of energy policy over the last half century will find this book more than just a guide, but an important assessment by a group of very perceptive historians.

Abraham Hoffman teaches history at Los Angeles Valley College.

POWER

Philip Verleger: Saudi's Oil Market Strategy Makes Sense

In December Saudi Arabia's oil minister Ali al-Naimi posed an interesting question: "Is there a black swan out there that we don't know about which will come by 2050 and we will have no demand?"

Obviously, we do not know the answer. However, it is almost certain that prospects for a big innovation that validates his anxiety have been increased by very high oil prices. This suggests that Saudi Arabia did itself no favours in the past by cutting production to support such prices.

Mr Naimi implicitly recognised this point in a speech he gave to the German-Arab Friendship Association in Berlin earlier this month. In the talk, he pointedly referred to the effect of high prices on development of high-cost reserves:

"When prices are rising, or at a historic high, as they have been over the past few years, the global oil industry tends to increase investment. So we have seen higher production from oilfields that are more costly to develop or operate, such as in the arctic, deep offshore, heavy oils in Canada and Venezuela, and shale oil deposits in the US," he said.

Mr Naimi then added tellingly: "It is not the role of Saudi Arabia, or certain other Opec nations, to subsidise higher cost producers by ceding market share."

While leaving the door open for an agreement between Opec and non-Opec nations to stabilise prices, Mr Naimi made it clear that Saudi Arabia, as the world's low-cost producer, would not make sacrifices for other high-cost producers. He also implied that Saudi Arabia did not intend to make it easier for alternative energy sources or conservation efforts to replace oil.

Mr Naimi has raised an important and relevant point. Changes in the technology of production and consumption and the availability of alternative fuels threaten to alter energy markets permanently. Further changes could result in nations agreeing to limit greenhouse gas emissions, or worse, individual jurisdictions such as California embarking on radical programmes to end hydrocarbon use. The prospect of global economic growth falling short of the rates recorded before the Great Recession is an additional threat.

In this context it is a rational strategy for the kingdom to refuse to cut production. In effect, after raising the spectre of black swans, the Saudis are taking steps to increase the likelihood of oil continuing as an important source of world energy in 2050. By maintaining production and allowing prices to fall, Saudi Arabia and its allies in effect are starving the black cygnets to death.

The implications for those engaged in oil exploration and production, as well as those developing alternatives such as electric cars or renewable fuels, are obvious. Oil prices will be much lower than anticipated. The lower prices will force those who back alternatives to look for larger subsidies or make a greater effort to reduce their costs.

Financial Times, 11 March 2015

Report: U.S. Solar Power Has Banner Year, Despite Market Uncertainties

U.S. solar power grew by 6.2 gigawatts in 2014, a 30-percent increase over the previous year and representing nearly $18 billion in new investment, according to data released Tuesday morning by the Solar Energy Industries Association and GTM Research. "The new power systems, comprising tens of thousands of photovoltaic (PV) arrays for homes, schools, businesses and utilities, as well as a handful of large concentrated solar power facilities in places like the Mojave Desert, raised the United States' profile as one of the world's leading adopters of solar power, officials said," Environment & Energy Publishing reports. "But the future for U.S. solar isn't without its bumps."

FierceEnergy, March 11
Tags: Duke Energy Corp.

Nev. Delegation Floats Bill That Revives State Veto on Yucca Mountain

Senate Democratic Minority Leader Harry Reid and Republican Sen. Dean Heller of Nevada joined their state's House colleagues Tuesday in unveiling a bill that would require federal nuclear regulators to obtain approval from affected states, local governments and tribes before building a nuclear waste repository. "Reid and Heller, outspoken opponents of the abandoned Yucca Mountain nuclear waste repository in Nevada, introduced the bill, the 'Nuclear Waste Informed Consent Act,' and Nevada Republican Rep. Joe Heck and Democrat Dina Titus introduced a companion bill in the lower chamber," Environment & Energy Publishing reports.

Environment & Energy Publishing, March 10, 2015

comments@waterandpower.org

More POWER For You!

Submitted by Thomas J. McCarthy

EPA's McCabe Testifies Before Senate Committee 2020 Goals

Acting Assistant U.S. EPA Administrator Janet McCabe didn't make any specific promises during her testimony before the Senate Environment and Public Works Committee yesterday [Feb. 11, 2015] morning. "But between the lines of her answers, the agency's top air quality official delivered a clear signal to the state officials charged with implementing the Obama administration's Clean Power Plan: There's a strong chance EPA will back away from the interim 2020 goals many states have decried as unreasonable, rushed and too expensive to comply with," Environment & Energy Publishing reports. "We are looking very, very closely" at changing those requirements, McCabe told lawmakers at several points during the two-hour hearing.

Environment & Energy Publishing, Feb. 12

Chairman: NRC Will Complete Environmental Review of Yucca Project

The Nuclear Regulatory Commission (NRC) intends to complete an environmental review of the waste repository under Yucca Mountain in Nevada because the Energy Department has refused to do so, the NRC's chairman said Tuesday. "The decision is we will do that since [the Department of Energy] told us they won't be doing it," NRC Chairman Stephen Burns told reporters at the Platts 11th annual Nuclear Energy Conference in Washington, D.C. on Tuesday. "We have the funds that are left over from the carryover for high-level waste, will cover the preparation of the supplemental [environmental impact statement].

Environment & Energy Publishing.

Social Media Becoming Important Customer Service Tool for Utilities

A new report by Talkwalker, "Utilities & Social Listening: 5 Ways To Power Your Business Strategy," studied the ways utilities can jump in the social media game. "For utility companies in particular, understanding trends and public sentiment online can have important business implications," the report explained. "For example, in countries where customers have a choice as to which utilities provider they opt for, understanding perception towards your brand or the industry in general can help to combat customer churn."

Available for Members

Send your request to
dormfull@att.net