

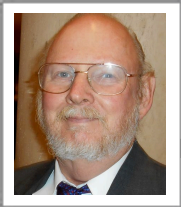
WATER AND POWER ASSOCIATES, INC.

Newsletter

Year 46, Volume 2 — April 2017

Associates And Friends

Field Trip To L.A. Power Plant & Dam



President
Edward A. Schlotman

The Associates recently visited Power Plant 1, toured the control room located in the building and received a very good description from Plant personnel of the operations of Power Plant 1. We also spent time in a small museum located in the building which contained a number of interesting items. These included an old light bulb and a picture of William Mullholland. After spending a fair amount of time at the power plant we traveled to the site of the now non-existent St Francis Dam. Again we benefited from a good talk about the Dam and its demise. ❖❖



Field Trip Coordinated by
Gerald A. Gewe-

This year marks the 100th anniversary for Power Plant One, which was placed in service in San Francisquito Canyon on March 19, 1917. At the time, this facility was the primary source of electricity for the City of Los Angeles, with the City's street lighting system being the primary customer. By contrast, today the plant provides about one percent of the City's electricity needs, depending on the runoff available from the Owens Valley. While the quantity of electricity produced is small, it is valuable as a source of low cost, non-polluting power. After 100 years of service, two of the original generators are reliable and still in service today, while the other units in the plant were replaced in the 1980's with more efficient units. (Continued on page 2)



TOUR ATTENDEES

Rex B. Atwell	Fred Barker	Thomas J. McCarthy
Ching-Lien Chang	Mary Su Chang	Patti David
Jack J. Feldman	Duane L. Georgeson	Gerald A. Gewe
William Glauz	Gayle Glauz	Bruce Hamer
Pam Hamer	Carl Jacobs	Larry J. Kerrigan
Scott Munson	Helyne Noyes	Kent Noyes
David J. Oliphant	Tom Parker	Donna Schlotman
Edward A. Schlotman	Richard West	Robert Yoshimura

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Water and Power Associates, Inc.

is a non profit, independent, private organization incorporated in 1971 to inform and educate its members, public officials and the general public on critical water and energy issues affecting the citizens of Los Angeles, of Southern California and of the State of California.

Field Trip!



Water exiting the plant going into the tailbay of Power Plant One.

(Continued from page 1) On February 15, 2017, seventeen persons participated in a field trip to the **Los Angeles Aqueduct Power Plant One** and the **Saint Francis Dam** site examining an important element of LA Department of Water and Power's history.

The plant is in the process of being spruced up for its 100th anniversary and the operators are extremely proud of the plant's performance and reliability. They are preparing to run the plant full out this year as the snowpack at Mammoth Mountain was at 268% of normal for this time of year on February 21. This means that the Los Angeles Aqueduct will be operating at full capacity, for the first time in many years.

Following the visit to the power plant, the group traveled to an overlook of the Saint Francis Dam site. There Fred Barker, a retired LADWP manager and the unofficial historian of the Water System, talked about the history of the Saint Francis Dam. Saint Francis Dam was placed in service in 1926, in the midst of one of the greatest California droughts to increase the storage of the Los Angeles Aqueduct System to increase the reliability of supply of water to the City.

While there was a far more suitable dam site at Long Valley in the Owens Valley, the site had been purchased by Fred Eaton and he demanded an exorbitant price which William Mulholland was unwilling to pay. (Fred Eaton was the man who first developed the concept of the Los Angeles Aqueduct System and William Mulholland was the engineer who brought it into reality.) An additional reason for building the dam at this site was a desire to have more storage on the City side of the San Andreas Fault.

The dam collapsed on March 12, 1928, resulting in the most catastrophic dam failure in California's history. About 430 lives were lost in the resulting flood as a wall of water moved at an average speed of 10 mph. The water traveled a distance of 56 miles took about 5.5 hours to reach the Pacific Ocean near Ventura.

The dam was a concrete structure very similar to the structure at Hollywood Reservoir [built in 1924], which has served its purpose without issues. However, the geologic conditions at the two locations are very different. In 20/20 hindsight it is clear that the structure was not suitable for the Saint Francis site, however the understanding of geologic conditions at that time was much less than the knowledge we have today.

This is somewhat similar to the issues surrounding the current failure of the Oroville Dam (Construction was initiated in 1961, ready for use in 1968) spillway which appears to be in large part caused by the limited knowledge of and ability to determine the geologic conditions at that site when the spillway was designed 50 years ago.

William Mulholland took full responsibility for the St. Francis dam failure which essentially ended the career of this engineer who played such a key role in the development of the City of Los Angeles.

At the conclusion of his talk, Fred Barker recommended the following references on the Saint Francis Dam for those who desire additional information regarding **on** this subject:

1. Charles F. Outland, Man-Made Disaster, the Story of St. Francis Dam (2002, 2nd edition, Ventura County Museum of History and Art)
2. Jon Wilkman, Floodpath (Bloomsbury Press, 2016)
3. Norris Hundley jr. and Donald C. Jackson, Heavy Ground (UC Press, 2016)
4. J. David Rogers, A Man, A Dam and A Disaster, Mulholland and the St. Francis Dam (1995, Historical Society of Southern California, an article in The St. Francis Dam Disaster Revisited) ❖❖



Articles submitted by Thomas J. McCarthy

Utilities want to see a federal carbon policy

Most utility executives indicate they do not expect the election of Donald Trump to change the outlook for generation resources in their service areas, according to the report. But a significant minority indicated his election will have some effect.

This comes back again to coal. Nearly half of respondents indicated they now have a “more positive outlook” on the future of coal after the election, although few expect to deploy more coal capacity at their own utilities. This outlook reflects the view that existing coal plants will likely stay in operation longer without federal emissions regulations in place.

The outlook for other resources is expected to remain largely unchanged under President Trump. Interestingly, respondents from the South and Southeast indicated a more positive view on the future of nuclear power, very likely because this is the only region with new nuclear generating units slated to come online in the coming years. It’s unclear exactly how much this view has to do with Trump versus what’s already on the books, given that [nuclear is likely to suffer the most](#) with the rollback of the Clean Power Plan.

This leads to utility executives’ greatest concern when it comes to their fuel mix: regulatory and market uncertainty. “Whether it relates to federal emissions rules, state regulatory reforms or ongoing upheaval in wholesale electricity markets, increased uncertainty has become front of mind for utilities considering the future of their power mixes,” the report states.

While some utilities supported state-led lawsuits opposing the Clean Power Plan, and though the American Public Power Association, which represents community-owned utilities, came out in support of Trump’s executive order, three-quarters of survey respondents said they want some sort of federal carbon policy put in place. An economy-wide carbon tax was cited as the preferred approach.

Tom Kuhn, president of the Edison Electric Institute, which represents investor-owned utilities, offered a measured statement yesterday, calling Trump’s action to revamp the Clean Power Plan a “significant development.” He noted that EEI members would continue to reduce their emissions regardless of major policy initiatives, and that the organization looks forward to “working with the EPA, states, and other stakeholders as they revisit the Clean Power Plan and other clean energy and environmental initiatives.”

Source: The State of the Electric Utility 2017 ❖



Water Official Says Oroville Dam Spillway Will Be Rebuilt by November



The acting director of the state’s Department of Water Resources said a plan to rebuild the Oroville Dam’s roughly 3,000-foot spillway will be unveiled either this week or early next, and he pledged to have either a permanent or temporary structure in place by Nov. 1.

While Bill Croyle acknowledged that the timetable is tight, a panel of experts hired by the state said the work could require two years. The experts also warned that without substantial repairs by the next rainy season in November, the situation would pose a “very significant risk.”

Last week, the department gave FERC a schedule for the independent review team investigating the spillway failure that began in February. The schedule calls for the team to provide a list of potential causes to be factored into the design of interim spillways in the first week of May. ❖



The De-Electrification of the U.S. Economy

By [Justin Fox](#)

For more than a century after the [advent of commercial electrical power](#) in the late 1800s, electricity use in the U.S. rose and rose and rose. Sure, there were pauses during recessions, but the general trajectory was up. Until 2007, it appears:

The Electricity Plateau

U.S. annual net electricity generation, in terawatt hours

Source: U.S. Energy Information Administration

The initial drop in electricity use in 2008 and 2009 could be attributed partly to the economic downturn. But the economy grew again in 2010, and every year since. Electricity use in the U.S., meanwhile, is still below its 2007 level, and seemingly flatlining.

The change is even more dramatic if you measure on a per-capita basis:

Past the Peak, and Falling

U.S. annual per-capita electricity generation, in kilowatt hours

Source: U.S. Energy Information Administration

Per-capita electricity use has fallen for six years in a row. We're now back to the levels of the mid-1990s, and seemingly headed lower.

This is a really big deal! For one thing, it's yet another [explanation](#) -- along with tighter federal emissions rules, the natural gas fracking boom, and the rise of solar and wind power -- for why the past few years have been so tough on coal miners. It means that even a big pro-coal policy shift from Washington may not result in higher demand for thermal coal.

For another, it seems to settle a turn-of-the-millennium debate about the electricity demands of the digital economy. Businessman and technology analyst Mark P. Mills, now a senior fellow at the right-leaning Manhattan Institute, kicked things off in 1999 with [a report](#) stating that computers and the internet were already responsible for 13 percent of U.S. electricity demand and would be consuming 30 percent to 50 percent within two decades. In a subsequent op-ed

for Forbes, charmingly titled "[Dig More Coal -- the PCs are Coming](#)," he and fellow Manhattan Institutur Peter W. Huber argued that:

Yes, today's microprocessors are much more efficient than their forerunners at turning electricity into computations. But total demand for digital power is rising far faster than bit efficiencies are. We are using more chips -- and bigger ones -- and crunching more numbers. The bottom line: Taken all together, chips are running hotter, fans are whirring faster, and the power consumption of our disk drives and screens is rising. For the old thermoelectrical power complex, widely thought to be in senescent decline, the implications are staggering.

A group of scientists at Lawrence Berkeley National Laboratory who studied energy use were dubious of these claims, and published a [series of reports](#) calling them into question. One [2003 paper](#) concluded that direct power use by computers and other office and network equipment accounted for just 2 percent of electricity consumption in 1999 -- 3 percent if you counted the energy used in manufacturing them.

Since then, the digital takeover of the economy has continued apace. But it hasn't translated into an explosion in electricity demand. The "old thermoelectric power complex" was decidedly *not* on the cusp of a big boom in 1999. Instead, per-capita electricity use more or less stopped growing after then. Now it is falling.

Part of the reason is that a grim new economic era dawned in 2000 or 2001 that has been characterized by slow growth, declining labor-force participation and general malaise -- all of which tend to depress energy demand. But if you measure electricity use per dollar of real gross domestic product, the decline is just as pronounced, and it began much earlier than the fall in per-capita demand: (continued on page 5)

GUEST SPEAKERS



Martin Adams,
Chief Operating Officer,
Los Angeles Department
of Water and Power



Debra C. Mann
Assistant General
Manager and Chief
Operating Officer,
Metropolitan Water
District



Jim McDaniel
Senior Assistant
General Manager
Water System,
Los Angeles Department
of Water And Power,
Retired,



P.O.W.E.R

The De-Electrification of the U.S. Economy

By [Justin Fox](#)

Justin Fox is a Bloomberg View columnist. He was the editorial director of Harvard Business Review and wrote for Time, Fortune and American Banker. He is the author of "The Myth of the Rational Market."

(continued from page 4)

The Economy Decouples from Electricity Kilowatt hours per \$100 of real gross domestic product*

Sources: U.S. Energy Information Administration, U.S. Bureau of Economic Analysis *In 2009 dollars

In an article [published in the Electricity Journal in 2015](#), former Lawrence Berkeley energy researcher Jonathan G. Koomey, now a consultant and a lecturer at Stanford, and Virginia Tech historian of science Richard F. Hirsch offered five hypotheses for why electricity demand had decoupled from economic growth (which I've paraphrased here):

1. State and federal efficiency standards for buildings and appliances have enabled us to get by with less electricity.
2. Increased use of information and communications technologies have also allowed people to conduct business and communicate more efficiently.
3. Higher prices for electricity in some areas have depressed its use.
4. Structural changes in the economy have reduced demand.
5. Electricity use is being underestimated because of the lack of reliable data on how much energy is being produced by rooftop solar panels.

The Energy Information Administration actually started estimating power generation from small-scale solar installations [at the end of 2015](#), after Koomey and Hirsch's paper came out, and found that it accounted for only about 1 percent of U.S. electricity. That estimate could be off, and there's surely room for more study, but mismeasurement of solar generation doesn't seem to be the main explanation here.

Which leaves, mostly, the possibility that life in the U.S. is changing in ways that allow us to get by with less electricity. This still isn't necessarily good news -- those "structural changes in the economy" include a shift away from manufacturing toward sectors that may not provide the kinds of jobs or [competitive advantages](#) that factories do. When you look at electricity use by sector, in fact, it's the decline in industrial use since 2001 that stands out:

Who's Using the Juice

Annual electricity sales by sector, in terawatt hours

Source: U.S. Energy Information Administration

Still, some of that decline is surely due to efficiency gains. The corporate focus on costs has increasingly come to include energy costs, and parts of the corporate world have also reorganized themselves in ways that make saving energy more of a priority.

Consider the shift to cloud computing. From 2000 to 2005, electricity use by data centers in the U.S. increased 90 percent. From 2005 to 2010, the gain was 24 percent. As of 2014, data centers accounted for 1.8 percent of U.S. electricity use, according to a [2016 Lawrence Berkeley study](#), but their electricity demand growth had slowed to a crawl (4 percent from 2010 to 2014). What happened? The nation outsourced its computing needs to cloud providers, for whom cutting the massive electricity costs of their data centers became a competitive imperative. So [they innovated](#), with more-efficient cooling systems and new ways of scaling back electricity use when servers are less busy.

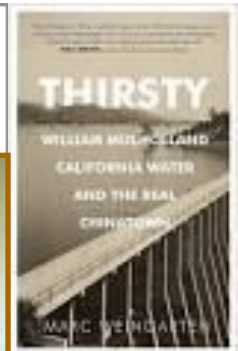
In much of the world, of course, [electricity demand](#) is still growing. In China, per-capita electricity use has more than quadrupled since 1999. Still, most other developed countries have experienced a plateauing or decline in electricity use similar to that in the U.S. over the past decade. And while the phenomenon has been most pronounced in countries such as the U.K. where the economy has been especially weak, it's also apparent in Australia, which hasn't experienced a recession since 1991.

So is electricity use in the developed world fated to decline for years to come? Well, not exactly *fated*. Check out that bottom line in the last chart. Transportation now accounts for just 0.3 percent of retail electricity use in the U.S. If the shift to electric vehicles ever picks up real momentum, that's going to start growing, and fast. Dig more coal (or drill for more natural gas, or build more nuclear reactors, or put up more windmills and solar panels) -- the Teslas are coming.

I know, I know: The chart measures electricity generation, not consumption. But the numbers are pretty similar, and the generation data is available for a longer period. *Source: The State of the Electric Utility 2017* ❖



THIRSTY: *California, Water, and the Real Chinatown*, by Marc Weingarten.
Vireo/Rare Bird Books, 2015.
308 pages. Endnotes. Hardcover, \$23.95.



Within the past ten years no fewer than five books, all heavily documented with extensive endnotes, have been published on the Owens Valley-Los Angeles water dispute and/or its tragic episode, the failure of the St. Francis Dam. These books are

- Floodpath* by Jon Wilkman;
- Heavy Ground*, by Norris Hundley jr. and Donald C. Jackson;
- Water to the Angels*, by Les Standiford,
- Owens Valley Revisited*, by Gary Libecap, and
- Beyond Chinatown*, by Steve Erie.

Go back a bit further in time and you find

- William Mulholland and the Rise of Los Angeles*, by Catherine Mulholland,
- Rivers in the Desert*, by Margaret Leslie Davis,
- Western Times and Water Wars*, by John Walton,
- The Lost Frontier*, by Robert Sauder,
- Water and Power*, by William Kahrl, and
- Vision or Villainy*, by this reviewer.

Add to the list

- The St. Francis Dam Revisited*, edited by Doyce Nunis as a special issue of *Southern California Quarterly* published also separately as a paperback book that included
- J. David Rogers' controversial article "A Man, a Dam, and a Disaster."

In conjunction with the Nunis work the Society also reprinted

- Man-Mamade Disaster*, Charles Outland's classic study of the failure of the St. Francis Dam. This list should also include
- Water & Politics* by Vincent Ostrom, and
- The Water Seekers* by Remi Nadeau, still useful for the author's interviews with people involved in the water controversy.

The books differ in interpretation but are generally well-researched and written.

With such a bookshelf heavy with research (and the list doesn't include articles on the topic—and omits poorly researched and biased books and articles), what new information and perspectives can be added to this bibliography? Marc Weingarten does this, relying on almost all of the books mentioned above, intending his book for a general reader who has no background on the Owens Valley-Los Angeles water controversy and, as such, it may serve as an appetizer for anyone looking for the main course offered by the many books mentioned above. His book thus retells what has already been told. Other than a few references to the Los Angeles City Archives, there isn't any archival research done for this book. (*Continued on page 7*)

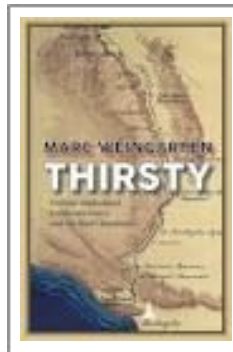


(Continued from page 6) Weingarten traces the origins of the water controversy through the lives of William Mulholland and Fred Eaton, plus business leaders who found economic opportunities in the city’s quest for a reliable water source to supply its rapidly growing population. With water rights secured through methods still argued about to this day, Los Angeles built an aqueduct connected the Owens River to the Cascades visible on Interstate 5 at the northern end of the San Fernando Valley. Mulholland’s triumph turned to ashes when the St Francis Dam collapsed on March 12, 1928, the flood taking more than 400 lives. California historians know the story well, but this book may attract an audience unfamiliar with the controversy and knowing Mulholland only as a street name or a middle school.

Unfortunately, Weingarten’s book has numerous problems that can’t be ignored, some not of his own making but the fault of his publisher. Unusual for a non-fiction work of history, there is no index; no bibliography; no table of contents; no maps; no photographs. The chapters aren’t numbered, instead bearing cryptic names: “The General,” “Rainmakers,” etc. However, the end notes have chapter numbers instead of the names, and the sources cited don’t tell the reader the pages where they can be found, as the notes are not numbered. Finding the passage on which a source is based becomes a tedious task. It’s also odd that the last page in a chapter and the first page in a new one are not numbered, e.g., no numbers for pages 29-32.

I would like to assume that Weingarten isn’t responsible for the poor layout and the numerous typographical and/or spelling errors, plus mistakes on dates, names, and factual errors. Such responsibility should belong to the publisher who apparently didn’t have a copy-editor or a proofreader. As a result, there are such errors as “naval” oranges, “immanent” instead of imminent, “depravation” instead of deprivation, “gulley” instead of gully, “regimen” instead of regiment, “Murrieta,” Ohio instead of Marietta, “Bill” Swing instead of Phil, “sighted” instead of sited, “Felix” instead of Feliz, “complied” instead of compiled.

Then there are the factual errors that any capable copy-editor could have caught: San Diego Mission founded in 1769, not 1771; the U.S.-Mexico War starting in 1846, not 1845; the Plaza Church not a mission; twenty Chinese murdered in the 1871 riot, not 39; railroad tracks being laid in the 1770s; mistaking the 18th century for the 19th century; placing the digging of the Culebra Cut in the Panama Canal in 1890, long before U.S. crews did the work; calling Leland Stanford a Whig instead of a Republican. Los Angeles had a population of 576,000 in the 1920 census and topped a million in the 1930 census —Weingarten offers no evidence that the population had “over one million residents by 1924” (p. 197).

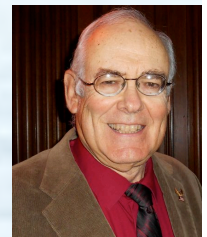


In discussing the failure of the St. Francis Dam, Weingarten repeatedly confuses the Santa Clara River Valley with the city of Santa Clara near San Jose. He says that Gold Rush era veterans worked as laborers on the aqueduct, built between 1907 and 1913—but it’s hardly likely for men to still be working as laborers more than fifty years after the Gold Rush era. He claims on page 108 that “no record” exists of Eaton’s public denial of his alleged intentions in the

Owens Valley, but Eaton did so in the *Inyo Independent* on August 4, 1905.

It may seem that this review is resulting in overkill on minutiae, but while a few typos may be forgiven, it seems fair to warn readers when a book has far too many such errors. In fairness to Weingarten, I suspect that somewhere in the process of publishing Vireo/Rain Bird Books did him a disservice in its failure to give the manuscript a critical reading that would have resulted in a better book. As noted above, appetizers may be tasty, but it’s the entrée that satisfies the hunger.

Abraham Hoffman teaches history at Los Angeles Valley College.

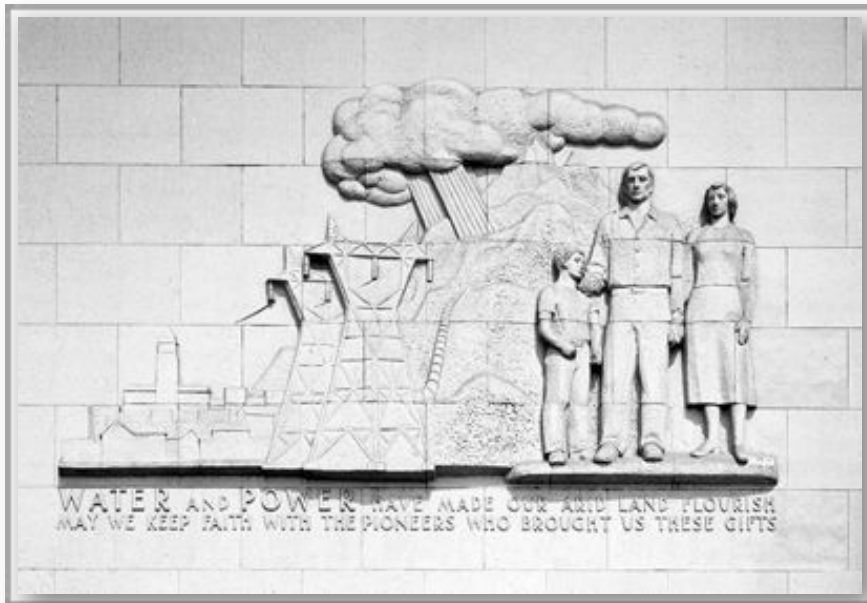




By Jack Feldman

View showing a life size bas-relief panel that honors the men and women who helped bring water and power to the southland. It is part of a larger monument honoring the pioneers that made it possible for the City of Los Angeles to flourish and become what it is today.

The inscription reads: "Water and Power have made our arid land flourish. May we keep faith with the pioneers who brought us these gifts."



What year was the monument dedicated?

- A) 1928 B) 1938 C) 1948 D) 1958 E) 1968

Where is the monument located?

Answers can be found in the

Mystery History Section of our website:

http://waterandpower.org/museum/Mystery_History.html



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P.O.W.E.R



LED KILLS THE EDISON STAR

Resistance by Steve Huntoon January 23, 2017

In 1879, Thomas Edison patented the incandescent light bulb. For more than a century, the incandescent bulb and its upscale offspring, the halogen bulb, have reigned supreme. Huntoon

EDISON The reign is ending. Light-emitting diode (LED) lighting is replacing Edison lighting.

Here's a question: How much more impact is rooftop solar having on retail electric sales than LED lighting?

It's a trick question. Rooftop solar has had *less* impact on retail electric sales. LED lighting already has reduced annual retail electric sales by 30 billion kWh. Rooftop solar has reduced annual retail electric sales by 14 billion kWh.



But it's the future that's really interesting. The U.S. Energy Information Administration's latest study forecasts LED lighting over the next 20 years to reduce annual retail electric sales by 300 billion kWh under a "current path" and by 435 billion kWh under a more aggressive path.[1] Rooftop solar over the next 20 years is expected to reach 100 billion kWh annually.

Let's think about that. For all the attention given rooftop solar as environmental boon, new age investment and regulatory flashpoint, the LED bulb is three times more significant.

And three times more significant for electric utilities. Lighting represents 15% of retail electric sales. Over the next 20 years, half of those lighting sales will disappear, perhaps three quarters under a more aggressive path. Those electric vehicles better show up soon.

And what if Hartz's Law — the LED parallel to Moore's Law — continues, such that the cost per lumen keeps falling by a factor of 10 every 10 years? The LED is just another form of semiconductor. The substitution could be even more rapid.

Even at today's cost per lumen, Edison lighting is much more expensive on a life-cycle basis than LED lighting. Much, much more expensive.



A General Electric soft white 60-W Edison bulb can be had in quantity purchase for \$1.30, and rated to last for 1.4 years based on an average use of three hours per day. A GE soft white 60-W equivalent LED bulb can be had in quantity purchase for \$3, use 10 W and last for 13 years based on the same average. So over 13 years, Edison lighting would cost an extra \$9 for the bulbs and an extra \$78 for the electricity (at 11 cents/kWh).

Bottom line: Rooftop solar may be all the rage, but just changing light bulbs makes a bigger dent in emissions from combusting fossil fuels. And saves money to boot. Doing good and doing well.



Watt's in your socket? ❖

Steve Huntoon is a former president of the Energy Bar Association, with more than 30 years of experience advising and representing energy companies and institutions. He received a B.A. in economics and a J.D. from the University of Virginia. He is the principal of [Energy Counsel LLP](#).



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Germany's Green Energy Policy Disaster

Panos Mourdoukoutas, Contributor ~
I cover global markets, business and investment strategy.
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KEYSTONE XL PIPELINE

Trump has promised to ask TransCanada Corp to resubmit its application to build the Keystone XL pipeline, a project to pipe more Canadian oil sands crude into the United States that was rejected by the Obama administration after years of environmental lobbying against it. While the invitation to resubmit could come fast, it is unclear whether TransCanada would seek to revive the project given that oil prices are far lower now than they were when the company initially pursued it.



Trump may also seek to issue an order to undo a guidance issued last August by the White House Council on Environmental Quality that requires federal agencies to quantify greenhouse gas emissions and factor in impacts on climate change while evaluating projects like pipelines. The council had updated the decades-old National Environmental Policy Act to include the greenhouse gas update. [...]



SOCIAL COST OF CARBON

One little-known tool used by the Obama administration to support its regulations curbing carbon emissions is the "Social Cost of Carbon," a calculation made by a panel of technical experts to place a dollar value on the public harm caused by carbon dioxide emissions. The calculation is used in the rule-making cost/benefit analysis.



The current cost of carbon determined by the group is \$36 per tonne, a level that will rise to \$50 by 2030.

The American Energy Alliance believes that Trump could immediately order government agencies to end the use of the Social Cost of Carbon, a move that could help it unravel a number of Obama's other anti-carbon regulations.



FEDERAL COAL MORATORIUM

Trump could immediately lift the Department of Interior's moratorium on coal leasing on federal land - a move the department made last year as it sought to review the program and evaluate whether the government adequately priced the value of coal extracted from public land on behalf of the taxpayer. Lifting the moratorium would improve industry access to vast coal deposits remaining in the Powder River Basin.



Reversing some of Obama's more recent moves to put federal acreage off-limits to drilling could be more complicated. Obama designated around 1.6 million acres of federal lands in Utah and Nevada as monuments, using a tough-to-overturn law called the Antiquities Act. He also permanently protected areas of the offshore Arctic and Atlantic using another law that legal experts say would be a challenge to overturn.



PARIS CLIMATE AGREEMENT

During his campaign for the White House, Trump said he would pull the United States out of the Paris Climate Agreement within 100 days of taking office. The accord, signed by nearly 200 countries last year, is intended to curb global warming by slashing emissions of carbon dioxide and other greenhouse gases. Since his election, Trump has softened his stance slightly, telling the New York Times that he would keep an open mind about the deal. Nonetheless, the mercurial former New York businessman has been advised by his team about swift options he could take to end U.S. participation in the accord, including issuing a presidential order simply deleting the U.S. signature from the Paris accord.



RWE had a sound business model that produced cheap energy from nuclear factories. That's how the two companies could be kind to investors, workers, and taxpayers.

For investors, E.on and RWE stocks were better than money in the bank. They could count on good dividend payouts and steady capital appreciation.



For workers, E.on and RWE provided stable and good paying jobs, while taxpayers didn't have to subsidize either of the two companies.

Then the green revolution caught up with the utility sector, as German government decided to abandon nuclear for green energy. "In the aftermath of the Fukushima catastrophe, the German government has resorted to an overhasted exit from nuclear energy until 2022," explains investment analyst Martin Burdenski. "This decision was in stark contrast to a lifetime extension of existing nuclear plants in 2010," continues Martin Burdenski.

(Continued on page 11)

Quick Executive Orders Trump Could Take On Energy And Climate Policy

Donald Trump - a big supporter of the U.S. oil, gas and coal industries - has promised to get to work quickly after being sworn in as president of the United States, raising expectations that he will sign a slew of executive orders.

Here are some of the executive actions and other maneuvers that could come quickly, related to energy, the environment, and climate change:

CLEAN POWER PLAN

Trump, a Republican, has promised to kill Democratic predecessor Barack Obama's Clean Power Plan, a rule that requires states to cut carbon dioxide emissions from power plants. He has a few options to do so, some simpler than others.

The plan is being challenged by 27 of the 50 states in court, so one option is to order the Justice Department to stop defending it - effectively giving the plaintiffs a win. Trump could also seek a "voluntary remand" asking the

court to send the rule back to the Environmental Protection Agency for review. The problem is that attorneys general from states like New York and California, as well as environmental groups, would likely step into the gap and defend the rule.

Another possibility would be to order the EPA not to enforce the rule. But that, too, could open the door to lawsuits.

A third option would be for Trump's administration to try to issue a new regulation "withdrawing" the Clean Power Plan, even if it is upheld in the courts, according to the American Energy Alliance, an industry group that helped advise Trump's energy transition team. That move may not be a fast one.

The Clean Power Plan, finalized in 2015, is the centerpiece of [former] President Obama's broader climate change strategy. ❖

Reuters, 20 January 2017 Valerie Volcovici | WASHINGTON

Germany's Green Energy Policy Disaster

(Continued from page 10)

The trouble is that Germany isn't an ideal place for solar and wind power. So to cover any shortfalls in energy production, the nation would have to be able to rely on energy imports from neighboring countries.

But that was a minor issue for the German government obsessed with the green energy revolution. German energy giants like RWE and E.ON were required to close eight nuclear power plants immediately in March 2011.



"Obviously, the loss of profits was immense," adds Burdinski. "The companies sued the German government for redress. Just a few weeks ago, the Federal Constitutional Court judged in favor of E.on, RWE and

Vattenfall in a first ruling. Further lawsuits are still outstanding. The companies will now receive compensation for investments made between the lifetime extension in fall 2010 and the abandonment of nuclear energy in 2011."

Now investors, workers, and taxpayers are counting their losses from the green energy disaster. E.on's and RWE's stocks have lost 80 percent of their value from the old time highs, as the two companies have had to adjust their business model to the green policies. Workers have been losing their jobs, and taxpayers are in for billions of euros to cover the write off of nuclear plants —E.on and RWE have won lawsuits against government.

As of German consumers, they pay one of the highest electricity rates in the developed world.

"Clearly, nuclear energy creates risks for many years when it comes to permanent disposal," says Burdinski. "The Energiewende, however, turned out to be very expensive in financial terms."



I couldn't agree more. ❖