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NEWSLETTER

For a Sustainable Los Angeles



THE CONTROVERSY SURROUNDING THE DELTA - WHEN WILL IT BE RESOLVED?

ROBERT YOSHIMURA



LAKE OROVILLE, CALIFORNIA
PHOTO: CALIFORNIA DEPARTMENT OF WATER RESOURCES

The Sacramento-San Joaquin River Delta is the most critical part of California's water conveyance system and, as the largest estuary on the west coast, is a vitally important ecosystem for hundreds of species of fish and wildlife. Several factors, including the operation of the State Water Project (SWP) and the federal Central Valley Project (CVP), have caused an alarming decline in several such species. Furthermore, the Delta is vulnerable to earthquakes that may wipe out its ecosystem and halt the delivery of water to both the SWP and CVP. To solve these environmental problems while also restoring the reliability of water supply from the Delta, environmental agencies joined with the state's water users over 50 years ago to resolve the water and environmental issues therein without yet yielding an acceptable solution.

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BEN WONG

LUIS TING

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When the SWP was conceived in the 1950s, it was intended to transfer a portion of the surplus water available in northern California to the water-deficient regions of the Silicon Valley, Central Valley, and southern California to provide a reliable water supply to support the growth and economy of those regions. Construction of most of the facilities originally envisioned for the SWP were completed in the '60s and early '70s and water deliveries commenced at that time and have continued, at times sporadically, since then. However, the final link in the project has yet to be built and its absence has resulted in the need to curtail deliveries in most years to protect certain species of fish within the Delta. That final link was the Peripheral Canal, which has since been downsized and reconfigured over the last 50 years through drawn-out negotiations between politicians, environmentalists, and water users.

Those drawn-out negotiations resulted in the development of a multitude of alternative proposals, all of which have been rejected to date. The capacity of the project has been downsized from 22,000 cubic feet per second (cfs) to 6,000 cfs today. The most recent proposal now calls for a single tunnel located 150 feet below the Delta that would generally accomplish the same purpose as the Peripheral Canal. The tunnel will bypass the Delta and thus preserve the natural flows therein and deliver water directly to SWP and CVP pumps which lift the water into their respective aqueducts. While preserving the ecosystem of the Delta and enhancing the reliability of water supply, the tunnel will protect the SWP against earthquake damage to the fragile levees that keep water out of the Delta islands. A severe earthquake would inundate those islands, draw seawater into the Delta, and make the delivery of fresh water to the SWP and CVP impossible, perhaps for years. The Department of Water Resources reports there is a 72% chance of a quake of magnitude 6.7 or greater occurring by 2043.

The original Peripheral Canal was formally proposed to the electorate of California in a referendum that was defeated in the general election of 1982. The failure of the Peripheral Canal referendum was, predictably, a north vs. south phenomenon, with most of the no votes coming from northern California and most of the yes votes coming from the south. The same pattern was seen 50 years earlier when the CVP was proposed, and 22 years earlier when Proposition One providing bond funding for the SWP, was presented to the people of California. Those measures passed by slim margins and underscored the polarization in the state regarding water issues. In all three cases (Peripheral Canal, SWP, and CVP), opposition to those projects was based largely on two misperceptions about those projects that persist even to this day:

That water in northern California belongs to the people of northern California and should not be shipped south. This is both legally and logically incorrect because all the waters of the state belong to all the citizens of the state, and most of the flows in northern California rivers and streams tributary to the Delta flow out to the sea giving no benefit to anyone. The concerns that any of these projects would shortchange northern Californians were addressed in legislation passed in the '50s including the Burns-Porter Act, the Davis-Grunsky Act, and the Delta Protection Act. Those laws provide for water resources development in the north, protect the water rights of citizens in the counties of origin and watersheds of origin, and assure the water rights and quality for agricultural users in the Delta.

That the costs of those projects would be partially allocated to northern Californians who gain no benefit from the projects. The CVP, the SWP, and the Delta Conveyance Project facilities will be paid for exclusively by the water users who benefit from the projects.

(Continued on page 9)



Highlights



From the Desk of Jerry Gewe

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I want to welcome you to the first edition of the Water & Power Associates Newsletter for 2021.


With the development of the vaccine for Covid 19, 2021 should be a better year than last year. It also promises to be a year of important decisions regarding our water and energy future. In this issue, we feature articles on a wide range of topics ranging from issues surrounding the development of LA's water to the future changes in environmental policy that will affect water and energy reliability and their costs.

During 2021, important policy decisions regarding future supplies of both water and power will be made. With respect to water, a State of California required Urban Water Management Plan will be adopted that will guide the development of water for the next 25 years. Likewise, with respect to electricity, a LA 100 Plan will be issued to evaluate the cost and feasibility of the City moving to a 100% clean energy supply and decisions will be made regarding how to move towards that goal and how that can be financed. It is crucial that the City of Los Angeles make the investments required to develop a sustainable future, but it is also important that the decisions consider the economic impact to its residents and businesses.

Water & Power Associates will be there to give the input of its members' experience to the City Leaders as they establish these policies and to keep you, our members, informed on the issues.

I urge you to join or renew your membership for 2021 to enable us to carry out our mission of supporting sound water and energy policies for Los Angeles, Southern California, and the State of California.

Members and guests are invited to our monthly Board Meetings, via Zoom, at 10:00 am on the Second Wednesday of the month, except in February which will be our Annual Meeting on Saturday, February 13, 2021, at 10:00 am. Please send us a request at

comments@waterandpower.org to get the link. 

LOOKING AHEAD TO 2021 IMPLICATIONS OF A CHANGE IN ADMINISTRATION ON ENVIRONMENTAL POLICY

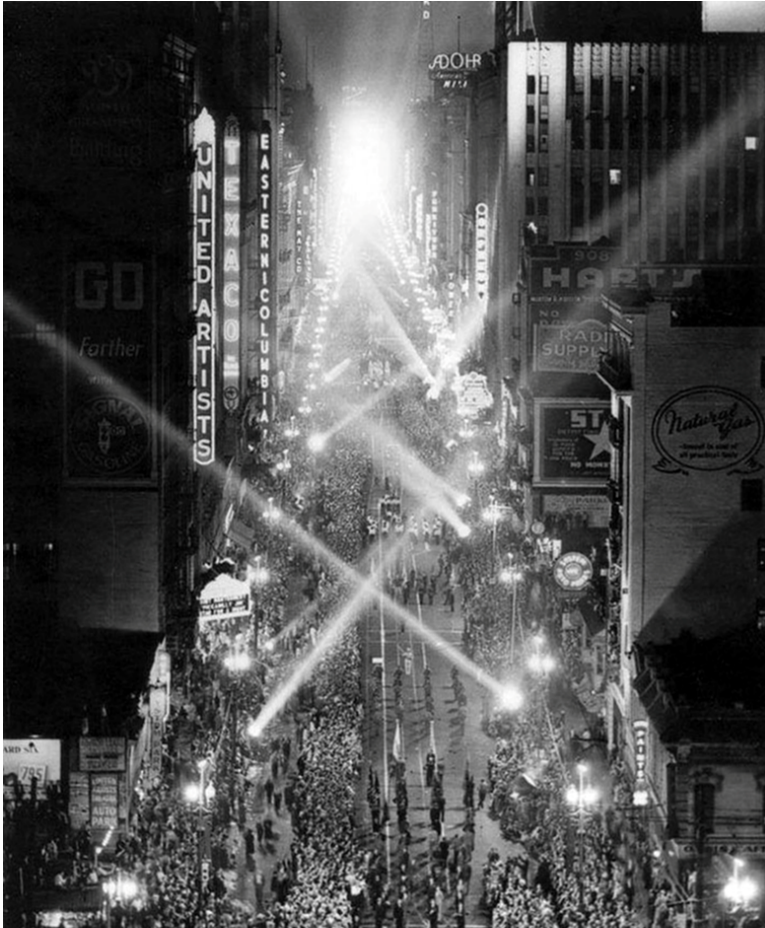
EXCERPTS FROM THE NATIONAL LAW REVIEW, DECEMBER 7, 2020*

BILL GLAUZ

The environmental policy agenda to be advanced by a Biden Administration will be a marked contrast to that of the Trump Administration. The Biden environmental policy agenda includes, at front and center: a Plan for a Clean Energy Revolution to reduce greenhouse gases; a greater focus on environmental justice and more significant enforcement; and the likely revisiting of the Trump Administration's executive orders and regulatory rollbacks. Addressing climate change at the federal level and reengaging with the global community to effect reductions in greenhouse gases will be a priority for the Biden Administration. Biden has released an ambitious agenda to address this "existential threat" that contemplates use of executive orders, legislative action, and global outreach in what he calls the Biden Plan for a Clean Energy Revolution. The plan contemplates full use of executive authority to significantly reduce greenhouse gas emissions, including, in part:

- Requiring aggressive methane emissions limits for new and existing oil and gas operations;
- Using the federal government procurement system to drive toward 100% clean energy and zero-emissions vehicles;
- Ensuring that all US government installations, buildings and facilities are more efficient and climate ready;
- Reducing greenhouse gas emissions from the transportation sector through the Clean Air Act, including the development of new fuel economy standards to ensure new light and medium duty vehicles will be electric;
- Adopting appliance and building-efficiency standards;
- Permanently protecting the Arctic National Wildlife Refuge, establishing national parks and monuments, banning new oil and gas permitting on public lands and waters, and developing renewables on federal lands and waters to double offshore wind capacity by 2030;
- Working with Congress to enact legislation to establish an "enforcement mechanism" to achieve economy-wide net-zero emissions by no later than 2050 and to invest \$400 billion over 10 years in energy and climate research and innovation;
- Establishing the Advanced Research Projects Agency to promote technology and innovation on climate change, including incentivizing the creation of new, sustainable fuels for aircraft and the development and deployment of carbon capture sequestration technology;
- Incentivizing the deployment of clean technology throughout the economy, including improving the energy efficiency of buildings and building a new resilient infrastructure economy; and
- Reengaging with the global community on climate change, including:
 - Rejoining the Paris Agreement, an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) to which 189 of the 193 members of UNFCCC have become parties, the long-term temperature goal of which is to keep the increase in global average temperature to well below 2°C (3.6°F) above pre-industrial levels;
 - Convening, within the first 100 days, a climate world summit of the leaders of the major greenhouse gas emitting nations of the world "to persuade them to join the United States in making more ambitious national pledges";
 - Making environmental justice a priority across all federal agencies "to develop solutions for environmental injustices affecting communities of color, low-income communities and indigenous communities"; and
 - Increasing enforcement of environmental laws and regulation and pursuing cases "to the fullest extent permitted by law" and "seek additional legislation as needed to hold corporate executives personally accountable."

*<https://www.natlawreview.com/article/looking-ahead-to-2021-implications-change-administration-environmental-policy>



This 1936 photo shows a parade down Broadway (aka "The Light on Parade") celebrating Los Angeles' new source of electricity after the completion of Hoover Dam. An article in the Los Angeles Times describes the scene as follows: "Astride the power of 115,000 horses, with burning plumes outspread, the Giant of Hoover Dam Electricity rode into Los Angeles last night, casting a heretofore unseen and magnificent glare on more than 1,000,000 persons who crowded the downtown district from end to end. A tumult of yelling and whistling and screaming greeted the giant with an exuberance and spontaneous feeling that has not been observed since the demonstration the day the World War ended...." - Los Angeles Times, October 10, 1936

When Hoover Dam began transmitting electricity to Los Angeles in 1936 it delivered 70% of Los Angeles' power. What percentage does it deliver today?

- A) 5% B) 10% C) 20% D) 30% E) 40%

***Answers on page 16**



NEWSLETTER TEAM

- Jack Feldman
- Jerry Gewe
- William Glauz
- David Oliphant
- Thomas McCarthy
- Robert Yoshimura
- Thu Pham - GRAPHICS

VISIT US AT

WATERANDPOWER.ORG

Do you know...?

During 2020, 175,928 visitors viewed 298,444 pages on our website.

Members and guests are invited to our monthly Board Meetings, via Zoom, at 10:00 am on the Second Wednesday of the month, except in February which will be our Annual Meeting on Saturday, February 13, 2021, at 10:00 am. Please send us a request at comments@waterandpower.org to get the link.

Interested in becoming a member? You can join via our website waterandpower.org or by returning the application on page 16.

The Los Angeles Water and Power Associates, Inc. is a nonprofit, 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, Southern California and the State of California. Our secondary mission is to preserve the regional history of water and electricity and show its role in the development and growth of the city of Los Angeles. Also, to disseminate knowledge of the rich and diverse multicultural history of the greater Los Angeles area; to serve as a resource of historical information; and to assist in the preservation of the city's historic records.



LA 100 Study Nearing Completion

BILL ENGELS

WIND, SOLAR, NATURAL GAS AND
HYDRO POWER - STOCK PHOTOS



Recent Water & Power Associates newsletters have reported on the on-going progress of the 100% Renewable Energy Study. This Los Angeles Mayor and City Council mandated analysis seeks to determine what investments need to be made by LADWP to achieve a 100% renewable energy supply for its customers by 2045, thereby allowing LADWP to meet the requirements of California Senate Bill (SB) 100, the landmark renewable energy and zero-carbon resources policy.

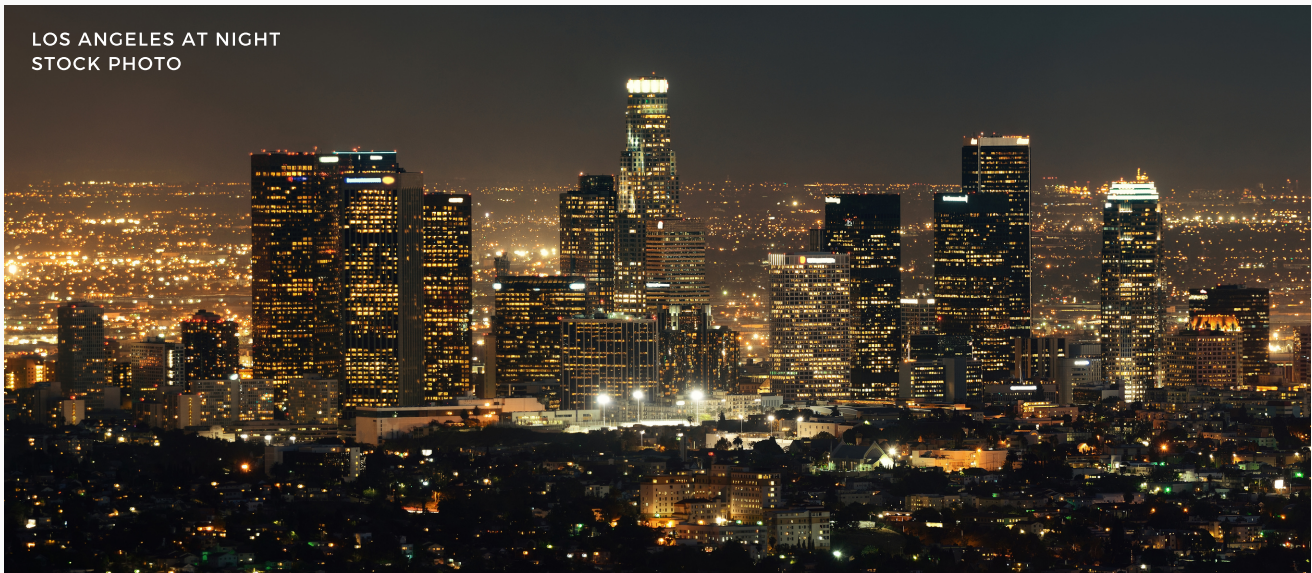
Commonly referred to as the LA 100 Study, its results will now be finalized and reported on in early 2021 in a series of stakeholder Advisory Group meetings and community outreach presentations.

Readers will recall that the National Renewable Energy Laboratory (NREL) is evaluating four future scenarios of renewable energy integration to equip Los Angeles City decision makers with answers to the following four key questions, among others:

- What are the pathways and capital costs to achieve a 100% renewable electricity supply while electrifying key end uses and maintaining LADWP's current high degree of reliability?
- What is the impact on the environment?
- How might the economy respond to such a change?
- How can environmental justice communities be part of the solution?


During the Advisory Group final meetings, NREL will report on such items as jobs and economic impacts; air quality; health; environmental justice; monetization of benefits; and synthesis across the study, having already reported on the plan's technical feasibility. Additionally, LADWP's Financial Services Organization and the Ratepayer Advocate will provide an analysis of the financial impact resulting from a 100% renewable energy supply and the effects on the electric power rates paid by LADWP customers.

LOS ANGELES AT NIGHT
STOCK PHOTO



Concurrently, the community outreach meetings will consist initially of a series of presentations by NREL explaining the objectives and scope of the LA 100 Study, including a description of the aforementioned four future scenarios. That initial effort will consist of five public meetings in late January and early February 2021 spanning morning, afternoon, evening and weekend times, with additional presentations made to Neighborhood Councils. Efforts to incorporate Los Angeles' Spanish-speaking population will be made when and where necessary.

Feedback from the community outreach meetings and LADWP's rates impact analysis will then be incorporated in the final analysis by NREL, which will then report back to the Advisory Group and to our customers and other interested parties through a second round of community outreach meetings, currently scheduled for March 2021. All public outreach meetings will be virtual on Webex and Facebook Live. To listen or participate yourself, you can contact Mr. Ashkan Nassiri, at Ashkan.Nassiri@ladwp.com for community outreach presentations dates and times.

As the study concludes in mid-Spring 2021, the NREL final study findings, along with the current study materials will be posted at www.ladwp.com/CleanEnergyFuture. 

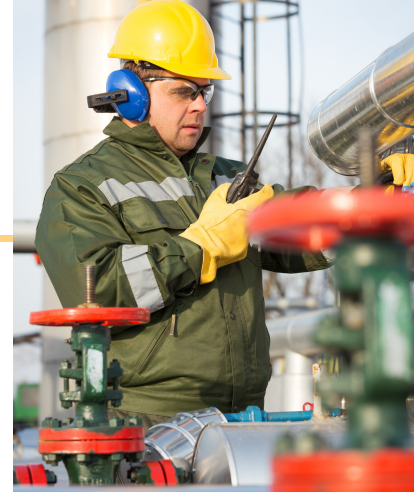
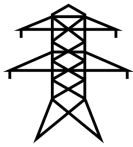
THE DATE
Save

2021 CALENDAR GUEST OF THE MONTH **2021 CALENDAR**

MARTY ADAMS GENERAL MANAGER, LOS ANGELES DEPARTMENT OF WATER AND POWER	FEBRUARY 13, 2021 LADWP UPCOMING ISSUES
MWD METROPOLITAN WATER DISTRICT	MARCH 10, 2021 UPDATE ON STATEWIDE WATER ISSUES
REIKO KERR & ANDREW KENDALL ASSIST. GENERAL MANAGER LOS ANGELES DEPARTMENT OF WATER AND POWER	APRIL 8, 2021 UPDATE ON POWER ISSUES

W
WATER & POWER
ASSOCIATES, INC.

P



STOCK PHOTO

Oil Giants Joining Electric Utilities in Pushing Federal Leaders to Strengthen GHG Emission Rules

POWER ENGINEERING MAGAZINE, NOVEMBER 25, 2020

In a renewed sign that energy companies are progressing beyond whipsawing U.S. government policy on environmental issues, three major oil companies are pushing for a reversal of the Trump Administration's rollback on methane emissions from natural gas operations.

Royal Dutch Shell announced it wants a future Biden Administration to reverse the Trump rollback on methane, according to a new story by Bloomberg. Meanwhile, ConocoPhillips and Occidental Petroleum also have revealed plans to target net-zero greenhouse emissions in the not-too-distant future.


This follows moves by most of the major U.S. utilities to reach net-zero carbon emissions by 2050. More than a dozen states also have announced net-zero goals in the same time frame.

Emerging Risks That Could Hamper Energy Transitions

At the virtual 2nd Global Ministerial Conference on System Integration of Renewables on Oct. 27, several high-ranking policymakers pointed to several localized challenges affecting their countries' distinctive power systems and clean energy transitions. But most agreed that overall, the biggest threats are ensuring reliability, affordability, and sustainability.

While the International Energy Agency (IEA), was established to ensure global oil security in the wake of the 1973 oil crisis, its mission has in the decades since expanded to gas security. But ministers had recently asked the IEA "to keep an eye on electricity security," because, though it accounts for one-fifth of global energy consumption today, "electricity is essential for the functioning of modern societies—as the COVID-19 crisis has highlighted—and for bringing down global emissions.


Electricity's role in future energy systems, meanwhile, is slated to play a much bigger role in heating, cooling, and transport, as well as for many digitally integrated sectors, such as communication, finance, and healthcare.

In its optimistic sustainable development scenario, the IEA projects that electricity could surpass oil as the world's largest energy source by 2040. Many countries already maintain a high level of electricity security. However, recent technology and policy developments are prompting a radical change within the electricity security model that has prevailed for the past century. Governments and utilities must recognize these emerging threats to reliability and update policies, regulations, and market designs to keep pace with change. 

CPUC Advocate and Sierra Club Agreement Questioned




Recent discovery of a “common interest agreement” to eliminate the use of natural gas exposed a “partnership” between the California Public Utilities Commission (CPUC) Public Advocate Office and the Sierra Club which calls for cooperation, confidentiality, and should discussions between these two entities break down, the destruction of documents, among other activities. It was called into question by Timothy Alan Simon CPUC commissioner emeritus and chair of the board of directors of the California African American Chamber of Commerce. In an opinion in the Los Angeles Daily News, on December 20, 2020, former commissioner Simon questioned the agreement as counter to the Public Advocate Office’s mission and put in jeopardy its revered role of ratepayer advocacy and protection in CPUC proceedings. The former commissioner stated, “It should concern all Californians because it places ratepayers at the severe risk of lacking the attention of the one entity created to monitor the utilities commission and limit California’s energy, water and telecommunications costs to consumers.”

In the above article, the commissioner emeritus cites a study by UCLA’s Institute of the Environment and Stability which shows that zero-carbon policy proposals, like natural gas bans, most adversely affect the poor. Such an agreement appears contrary to the Public Advocate’s duty to monitor public utility costs. The commissioner concludes the article by stating that the CPUC, the Legislature and others involved in securing the state’s sustainable energy future “need to remind the Public Advocate’s Office that its core responsibility is to focus on behalf of protecting ratepayers and keeping costs down. It’s too important a mission to abandon due to political pressure.” 

THE CONTROVERSY SURROUNDING THE DELTA - WHEN WILL IT BE RESOLVED? ...

(Continued from page 2)

Much of the opposition to the recent proposals for Delta conveyance facilities among the public in northern California is based upon these same misperceptions. Furthermore, many local legislators in the north reaffirm such misperceptions by promising to oppose the Delta water supply facilities on the same incorrect bases. In my opinion, much of the reason for the lack of progress on Delta issues is the result of a lack of concern about them among the general population in southern California. That lack of concern is reflected in the reluctance of southern California’s elected representatives (in local government, the Assembly, State Senate, and Congress) to voice their opinions about those issues and to proactively represent southern California’s interests. The current proposal for the Delta Conveyance Project has been downsized significantly and the urban and agricultural stakeholders have compromised mightily to accommodate the interests and concerns of the environmentalists. Yet the process drags on and on as it has for decades and is likely to do so for many more years or perhaps decades before the needed water facilities are constructed.

Perhaps we should keep in mind that the taxpayers of southern California have already paid for all the capital costs of the significant unused capacity of the SWP. The Delta-related controversy is adversely affecting more than 27 million people who receive at least a part of their water supply from the Delta, including residents and businesses in the Silicon Valley, the Central Valley, and southern California. These regions coincide with the three most productive economic centers of the state. Thus, the environmentally driven and north biased controversy adversely affects the economy of all of California. 

GUEST OF THE MONTH
DECEMBER 2020

SABRINA TSUI

MANAGER OF RESOURCE DEVELOPMENT

BEN WONG

SUPERVISOR OF STRATEGIC PLANNING & TECHNICAL ANALYSIS

UPDATE ON

THE 2020 URBAN WATER MANAGEMENT PLAN (UWMP)

LOS ANGELES DEPARTMENT OF WATER AND POWER


**PHOTO: CALIFORNIA DEPARTMENT OF WATER RESOURCES
URBAN WATER MANAGEMENT PLANS (CA.GOV)**

SUMMARY BY ROBERT YOSHIMURA



The California Water Code requires all urban water suppliers to prepare an UWMP every five years to assess the reliability of water sources over a 20-year timeline, define demand management measures for that timeframe, and develop water shortage contingency plans and scenarios. The last UWMP for Los Angeles was completed in 2015. The 2020 UWMP planning process began by first defining the following goals for reliability: 1) Develop local water supplies by increasing stormwater capture, maximizing groundwater production, and maximizing reuse; and 2) Improving water use efficiency through conservation programs to achieve a long-term per capita water use level of 100 gallons per capita per day (gpcd). By achieving those goals, LADWP expects to decrease imported water reliance to 30% of the total supply and increase local supplies to 70% of the total. The basis for the 2020 UWMP is a comprehensive water demand forecast to define the strategies needed to meet that demand through 2040. The primary drivers of future demand are changes in demographics, socioeconomic factors, weather, and water use efficiency. Based on forecasts developed by the Southern California Association of Governments (SCAG), population in the City is expected to grow from 4 million today to 4.8 million by 2045. The number of households is expected to proportionately increase from 1.5 million to 1.8 million in the same timeframe, mostly concentrated in multi-family residential units.

By inputting the above drivers of demand into a water demand forecast model, LADWP has forecasted future demands by sector (customer type). Not considering conservation, the initial demand forecast predicts a gross water demand of 710,000 AF in 2045 with most of the growth occurring in the multi-family residential sector. Continued investment in conservation programs is anticipated to reduce that demand to less than 600,000 AF in 2045 at a per capita consumption rate of 100 gpcd. The 2020 overall demand forecast is similar to the forecast made in 2015. However, the forecasted amounts of water from the various sources have changed significantly. Water conservation forecasts for the 2020 UWMP have been reduced slightly compared to the 2015 plan because the baseline was changed from 2015 to 2014, a year in which less conservation was achieved. Nevertheless, conservation is forecasted to increase through investments in conservation programs to a level of nearly 140,000 AF in savings by 2040. Per capita water use is forecasted to decline to 100 gpcd by 2035 and remain at that level throughout the planning period. Water supply from the Los Angeles Aqueduct (LAA) was forecasted from the 50-year median supply in 2015. In 2020, it will be based on a 30-year median, which reflects the reduced availability in recent years due to hydrologic trends. As such, the 2020 forecast for LAA is 100,000 AF/year less than in 2015. Groundwater availability is also reduced from the 2015 UWMP, however, the 2020 forecast predicts a gradually increasing supply due to ongoing remediation efforts and groundwater replenishment

from the Tillman Water Reclamation Plant and stormwater capture projects. Stormwater Capture projects currently being planned will increase the volume of stormwater availability from 64,000 AF/year today to 150,000 AF/year in 2035. The increase includes capture from public parks and other distributed capture projects. Compared to the 2015 UWMP, forecasted recycled water development has been reduced by including only potable reuse projects. Despite that change, the 2020 UWMP will show a significant increase over time in recycled water availability due to Operation NEXT which endeavors to reuse all the effluent from the City's Hyperion Water Reclamation Plant. The reduced availability of LAA water will increase the City's reliance on MWD water. The 2020 UWMP will show a 125,000 AF/year increase in MWD water usage compared to the 2015 plan. The final step in the development of the 2020 UWMP is a water shortage contingency plan (a new requirement added this year). Contingencies are to be based on six shortage levels defined as gaps between demand and supply of 10% to 50%. Response actions are then defined using strategies such as conservation ordinances, supply augmentation, and use of emergency supplies. A shortage evaluation procedure is being developed to guide the managers through the six levels of shortage using a flow chart that defines decision points for a variety of situations. The draft UWMP will be introduced to the public in January 2021 at scheduled public information meetings. A revised draft incorporating the input from the public meetings will be circulated in February. Public hearings will then be held in March followed by adoption and approval by the Board of Commissioners in May. Upon approval, the plan will be submitted to the California Department of Water Resources prior to the deadline on July 1, 2021. 

GUEST OF THE MONTH
OCTOBER 2020

LOUIS TING

**DIRECTOR, POWER PLANNING, DEVELOPMENT, AND ENGINEERING
DISTRIBUTION SYSTEM**

**CHALLENGES AND OPPORTUNITIES – EMERGING LANDSCAPE
OF CUSTOMER EXPECTATIONS
LOS ANGELES DEPARTMENT OF WATER AND POWER**

SUMMARY BY ROBERT YOSHIMURA



The organization headed by the guest speaker is responsible for getting the agency ready for a distributed energy future and the changing demands resulting from electric vehicles and diminishing use of gas. The LADWP Power System is consequently focused on transmission projects to accommodate the anticipated changes. Louis Ting's presentation included a summary of expected changes, the reasons for those changes, and the projects underway to address the changes.

LADWP has experienced a significant resource transformation in the last few years. Between 2007 and 2018, renewable energy has increased from 8% to 32% of its total energy portfolio and is on target to achieve 50% renewables by 2025. Greenhouse gases resulting from Power System operations have been reduced 49% since 1990. The changing mix of energy sources has been accompanied by reduced demand. In 2019, power sales were the lowest in recent history, due primarily to a cool summer. However, in 2020, sales were 5% less than 2019 despite the rash of heat waves and the Covid pandemic impacts.

LADWP currently owns 4,186 miles of transmission lines, 75% of which are outside the Los Angeles basin. New transmission projects recently completed or underway include the Barren Ridge Renewable Transmission Project consisting of 65 miles of new lines operating at 230 kV with a capacity of 2,200 MW and a cost of \$312 million. The Scattergood Cable A project includes 12 miles of new lines at 230 kV and a cost of \$100 million. Cable B, to be completed in 2024, includes Receiving Station X at Los Angeles International Airport (LAX) to provide redundant power to the entire airport. Another major project is the 138 kV oil-filled cable replacement project which will upgrade 71 miles of transmission lines to 230 kV and replace 34 miles of 230 kV oil-filled cables.

Another project focuses on enhancing the reliability of 177 receiving and distribution stations throughout the network and adding new stations for enhanced reliability. DS 144 was completed in 2012 and Beacon College Substation which accommodates 500 MW of solar power from Springbok and Beacon Solar projects was completed in 2015. Receiving Station X at LAX will be completed in 2024 and Receiving Station W at McArthur Park will be done in 2026. A project is also in planning to upgrade reliability at the Port of Los Angeles.

Between 2015 and 2020, a total of \$6.9 billion has been spent on the Power System Reliability Program (PSRP) and another \$1.07 billion has been allocated for 2020-2021. Distribution stations account for 50% of the PSRP budget and substations are targeted for 20% of the budget. Upgrades include replacement of equipment at each station to increase capacity and reliability.


As a result of the focus on renewable power, several newly developed distributed resources have recently come online. The Net Energy Metering and Solar Incentive programs of 1999 – 2018 resulted in solar panel installations by 50,000 customers of which 34,000 received \$334 million in incentives from the LADWP. These programs created 378 MW of behind-the-meter solar energy of which 278 MW is incentivized. 10.2 MW of behind-the-meter battery storage has been installed and another 11 MW are in queue. Solar energy from the Feed-In Tariff program amounts to 160 MW and 226 individual projects at a cost to LADWP of 14.5 cents/kWh.

There are currently over 60,000 electric vehicles (EV) in Los Angeles (44% plug-in hybrids and 56% battery electric vehicles). Average household electricity consumption without EVs is now about 500 kWh. That is expected to increase by 20 to 30 percent when all vehicles are electric.

There is thus a need to analyze the degree of overload EVs will impose on the existing system and whether the recent decline in energy demand should be factored into the analysis.

A number of commitments recently made by public and private organizations emphasize the need for LADWP to prepare for an all-electric future. General Motors has announced that it will begin producing batteries, signaling an intent to transition its production to all electric vehicles. Volkswagen has announced that it will stop making gasoline-powered vehicles by 2026.

Mercedes-Benz will transition to a carbon-neutral fleet by 2039 and have electric vehicles compose 50% of their production by 2030. The LA Metropolitan Transit Authority has pledged to produce zero emissions by 2030.

In addition to the efforts and initiatives already described, LADWP is also involved with the Electric Power Research Institute in a pilot study of distribution voltage upgrades in the West Valley and is studying the benefits of distribution automation and smart grids. Clearly, the LADWP is faced with a daunting challenge, but appears to be fully capable of meeting that challenge with the many efforts outlined herein. 



METROPOLITAN BOARD FUNDS NEXT PHASE OF DELTA CONVEYANCE PROJECT

PRESS RELEASE THE BUSINESS WIRE ON 12/8/2020



JERRY GEWE


On December 8, 2020, the Metropolitan Water District joined water agencies throughout the state in pledging its support for a project to modernize the increasingly vulnerable infrastructure that delivers water supplies from the northern Sierras through the Sacramento-San Joaquin Delta to Southern California. Metropolitan's Board of Directors unanimously voted to fund its share of the environmental planning and pre-construction costs for the Delta Conveyance Project initiative to increase the long-term reliability of the State Water Project and make it more resilient to climate extremes, sea level rise and earthquakes. This action calls for Metropolitan to fund 47.2 percent of the \$340.7 million in planning costs estimated over the next four years, amounting to an estimated share of \$160.8 million. The information produced by the environmental review process is essential for Metropolitan's board to make an informed decision on whether to support the project's construction. A draft Environmental Impact Report is expected in mid-2022.

WATER FUTURES SET TO JOIN THE LIKES OF GOLD AND OIL AND TRADE ON WALL STREET FOR FIRST TIME EVER

MARKET INSIDER, 12/7/20 AND THE CALIFORNIA DEPARTMENT OF
WATER RESOURCES CALIFORNIA WATER NEWS, 12/8/20



JERRY GEWE

The CME Group, a global marketing company, launched contracts tied to the spot price of water for the first time ever in December 2020. These contracts will allow investors and farmers alike to bet on the future price of water. The contracts are tied to the \$1.1 billion California spot water market. While water officially joined the likes of gold, oil, and other commodities in being traded on Wall Street, the contracts will be financially settled. This means buyers of the contracts who hold on through expiration will not be greeted by a delivery of millions of gallons of water like they would for other commodity based futures like oil and grain. The water contracts are tied to the Nasdaq Veles California Water Index which was launched two years ago. The index is driven by the volume-weighted average of the transaction prices in California's five largest and most actively traded water markets. Farmers will likely utilize the water contracts more than investors, as they look to hedge out their input costs amid an increasingly uncertain climate environment. 

BILL GLAUZ

THE AUTHOR'S STORY WHY BUY AN ELECTRIC CAR?




This is the third in the EV series of articles. I am a frugal engineer by nature. My wife and I have always bought mid-range priced sedans as our everyday around town cars. We usually own them well past 100,000 miles before we think about replacing them. However, in late 2016, we had two vehicle accidents where our cars were run into by distracted drivers. One of our cars was totaled and the other had significant damage, but could be repaired. We decided to repair the one car because it was only 4 years old. However the other car was over 8 years old and we decided to replace it. After attending the 2016 LA Auto Show, we stopped in at the Tesla exhibit, just for fun, never seriously considering purchasing a car that was way over our typical budget for a new car. Since I had worked on LADWP's electric vehicle program several years before, we thought maybe it was the right time to consider an EV. We decided to visit the local Tesla dealer in Pasadena, went for a test drive, including going to our house to see if the Model S could clear our driveway slope, and really liked what we saw. We looked at our financial situation, including tax credits, government and utility incentives and good financing terms, and decided we could splurge. At the end

of the year we put in our order for a 2017 Tesla Model S 60, the cheapest version available to us. It was still almost twice as much as we typically spent on cars in the past, over \$70,000! This model has a 75 kilowatt hour battery that is programmed down to 60 kWh, providing a little over 200 mile range. Getting the limited 60 kWh range also saved us about \$5,000. Later they offered us an upgrade to the 75 kWh for only \$2,000, but we still thought that was too much. Finally they stopped offering the S 60, and just gave us the 75 kWh free of charge. We could track the status of the manufacturing of our car on-line, and it was expected to be delivered to us in March 2017. That gave us time to do the electrical upgrade to our home electrical system allowing us to charge at a higher rate in our garage. We also qualified for a rebate to offset the costs of this upgrade. Another surprise was that our AAA Auto

If the U.S. transitioned all the light-duty vehicles to hybrids or plug-in electric vehicles, we could reduce our dependence on foreign oil by 30-60 percent, while lowering the carbon pollution from the transportation sector by as much as 20 percent.

The increased use of EVs in LA will improve local air quality, reduce greenhouse gas emissions, and increase primarily off-peak electric energy sales.

Insurance that we had used for decades was going to significantly increase our premium for the Tesla. We did some shopping around and found a more reasonable premium, and switched providers. However even this premium was quite a bit more than we have paid for insurance. I guess the price of the car and an aluminum body that most body shops won't touch, outweigh the technology for crash avoidance. However, we haven't fully tested out the automatic sensed braking. It does still shock us a bit when the warning sounds come on if we are approaching a stopped vehicle in front of us a little faster than our car would like. In March of 2017 we got our notice that our vehicle was being delivered and we would be able to pick it up on Saturday, March 25. We were told that an Uber would pick us up to take us to the designated pick up point that turned out to be a modified movie sound stage in Culver City. The whole delivery process was an orchestrated dog and pony show with about 8 new Tesla owners at a time going through an hour-long program before having our vehicles rolled into the makeshift show room, with lights and music. We were then given a 30 minute one on one overview of our vehicle before giving us our keys and driving off. One of the initial tasks to setup your vehicle's computer is to name your car. We chose Niki after one of my grandmother's pet cats from years ago and also to remind us of the manufacturer's namesake, Nikola Tesla, the father of alternating current. We have owned our Tesla for almost three years, have put over 25,000 miles on it, and enjoy many of its features. Since we were early purchasers, we qualified for unlimited lifetime supercharging. There are supercharging stations located throughout the country, staggered about every 50-100 miles, usually near a major freeway and oftentimes located in a shopping mall parking lot. This is handy as it still can take up to an hour to get a full charge on the batteries. We've driven Niki to Las Vegas a couple of times and to the central California coast where we have used supercharging stations along the route.

Although it is a little bit of a hassle to recharge every 2-3 hours, it does help break the trip up and allow for bathroom, food or shopping breaks. Those breaks completely offset any savings we see due to free charging! We do most of our charging at home overnight as we don't have a convenient supercharging station near our house. With our time of use electric rate, our current gasoline price equivalent is about \$1 per gallon. And with the only maintenance costs being wiper fluid replacement and tire rotation, operating costs are very low. Even though we have some gripes with some of Niki's internal design, we generally love the car. It has amazing performance, even though we are not really lead-footed drivers. They say our model can do 0-60 mph in about 5 seconds. The higher end Model S, with what they call Ludicrous mode, for about twice what we paid, is able to do 0-60mph in 2.3 seconds. The acceleration is nice to use on freeways or when passing on two lane highways. So why buy an electric car? For us it was not economics, but it has been a fun car, and perhaps we are supporting the development of a technology that will improve the environment. There are many car companies that are now catching up to Tesla in terms of offering all electric, battery powered vehicles. It seems the evolution of the electric car has made tremendous strides in the last ten years. It will be very interesting to see where the future of the automobile heads from here. 

Battery recharged at an underground parking structure at one of many convenient, free and easy-accessible charging stations throughout California enables long family trips.




Photo: Thu Pham



METROPOLITAN WATER DISTRICT, SOUTHERN NEVADA WATER AUTHORITY COLLABORATE TO EXPLORE DEVELOPMENT OF RECYCLED WATER PROJECT

PRESS RELEASE BY METROPOLITAN WATER DISTRICT AND SOUTHERN NEVADA WATER AUTHORITY ON DECEMBER 9, 2020
ROBERT YOSHIMURA

In a bold step toward a new kind of collaboration in the Colorado River Basin, the Metropolitan Water District of Southern California and Southern Nevada Water Authority are partnering to explore development of a drought-proof water supply that could reduce reliance on the over-stressed river. Under an agreement approved recently by the Boards of Directors of both agencies, SNWA will contribute up to \$6 million for environmental planning of the Regional Recycled Water Program, a proposed large-scale project to produce high quality water from purified wastewater. Metropolitan has been developing the RRWP for more than a decade in partnership with the Sanitation Districts of Los Angeles County. Last month, Metropolitan’s board voted to initiate environmental planning work for the project, at a cost of about \$30 million. SNWA’s contribution will help offset these costs. If this water recycling project is ultimately built, the initial investment by SNWA could lead to an interstate exchange of new locally produced water, increasing resiliency for both agencies. The project could help address an imbalance on the Colorado River, where demands from cities and farms outstrip supplies. This imbalance could increase as climate change is projected to reduce the river’s flows. The issue will be center stage when Colorado River Basin states begin renegotiating the river’s operating guidelines, set to expire in 2026. Coordination and collaboration among the basin states will be critical during these negotiations, including the potential of supply augmentation projects like the RRWP. 



Mystery History

Answers to **A) 5%**
mystery question

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