

California Water and Infrastructure Report

Formerly, the “California Drought (and Flood) Update”



For July 26, 2018

by Patrick Ruckert

Published weekly since July, 2014

An archive of all these weekly reports can be found at both links below:

<http://www.californiadroughtupdate.org>

<https://www.facebook.com/CaliforniaDroughtUpdate>

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“This is becoming more and more like a Soviet-type of economy here: Commissars deciding who’s going to be granted waivers, commissars in the administration figuring out how they’re going to sprinkle around benefits.”

Sen. Ron Johnson (R-Wis.)

A Note To Readers

Republican Senator Ron Johnson represents not the American System of economics, but the British Free Trade system, and he demonstrated his Union Jack colors two days ago attacking the policy of President Trump as a “Soviet-type of economy.” The last section of our report this week provides us with the opportunity to once again explain the difference between the American System of Alexander Hamilton, Abraham Lincoln and Franklin Roosevelt and the British System we fought a revolution against.

And this is the crucial fight if we are going to bring the nation back to one that builds things-- you know, infrastructure, industry, nuclear power plants, explore the heavens and succeed making fusion a reality.

For the damn state of California is rapidly going to Hell. And the insanity of the water policy as demonstrated for years will make it a very dry Hell for everyone.

In This Week's Report

We begin with “Yes, It Is Hot! And Drought Spreads and Wildfires Burn.” What is in this section should be clear from the title.

Next, the Oroville Dam Update has both a video and a construction update from the Department of Water Resources.

And then, let the drum roll begin: The first dams to be built in California in more than 40 years were just allocated the funds to begin construction. Of course, because of other restrictions they will not be built in, say, the eight years it took to build Grand Coulee Dam during the 1930s, it will take a least a decade.

And then comes the negative side. Remember, the Department of Water Resources wants to let flow 60 percent of the natural flow of three Central Valley Rivers? Well there goes all the water the new dams were supposed to hold. And also remember, that is called the idiocy of California water management.

Then follows two short sections. The first on Orange County officials have given further approval to build the Poisiden desalination plant. And then, do you hear 2007-8 calling us back to the housing bubble collapse. Well, last month home prices in Southern California fell near 12% lower prices than one year ago.

The final regular section of the report is on nuclear power and features the new Russian plant that eats its own nuclear waste.

The Feature this week is mentioned in the first paragraph above. And includes excerpts from President Trump's speeches last year on the American System of Hamilton, Lincoln and Roosevelt.

Yes, It Is Hot! And Drought Spreads and Wildfires Burn

Heat to build, elevate fire danger in southwestern US next week

By [Renee Duff](#), AccuWeather meteorologist

July 21, 2018, 1:56:16 PM EDT

Near-record heat will set the stage for a heightened risk of wildfires in the southwestern United States, including Southern California, next week.

Another prolonged heatwave for southern & interior CA; hottest July on record statewide?

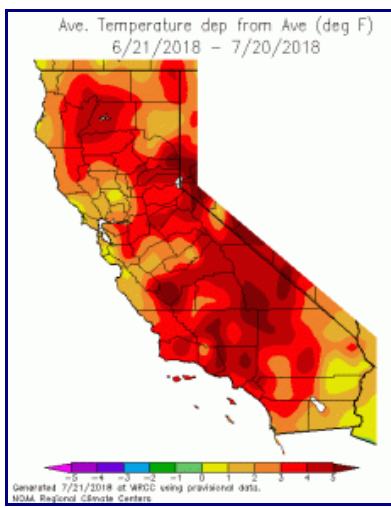
by [Daniel Swain](#) on July 22, 2018

<http://weatherwest.com/>

Hot, hot summer: all-time record heatwave in SoCal in early July, and more heat to come

The past 30 days have been extraordinarily warm essentially everywhere in California except the SF Bay Area coastal areas. (WRCC)

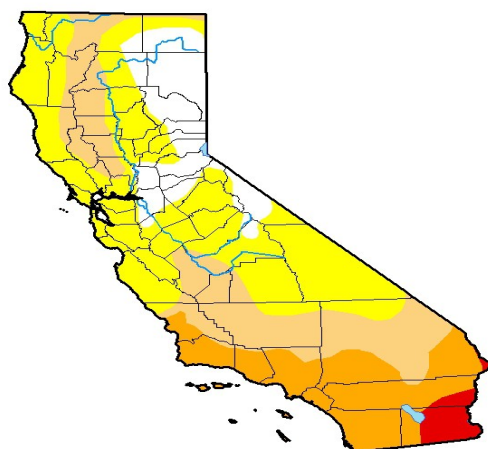
One of the most impressive heatwaves in recorded history brought truly blistering heat to Southern California earlier this month. Nearly every kind of temperature record was broken in at least a few locations, from all-time daily maximum to all-time overnight minimums, and a countless daily/monthly records.



Yet more heat is on the way, and it will affect most of the same areas that have been hardest hit so far this summer. While this event will almost certainly not feature temperatures as extreme as the early July event, numerous daily records could still fall in SoCal between Monday and Thursday of the upcoming week.

U.S. Drought Monitor

U.S. Drought Monitor California



July 24, 2018
(Released Thursday, Jul. 26, 2018)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	13.82	86.18	44.73	20.75	2.77	0.00
Last Week 07-17-2018	14.85	85.15	44.14	20.75	2.77	0.00
3 Months Ago 04-24-2018	34.10	65.90	37.10	13.77	2.55	0.00
Start of Calendar Year 01-02-2018	65.70	44.30	12.69	0.00	0.00	0.00
Start of Water Year 09-26-2017	77.88	22.12	8.24	0.00	0.00	0.00
One Year Ago 07-25-2017	75.73	24.27	8.24	1.06	0.00	0.00

Intensity:
■ D0 Abnormally Dry ■ D3 Extreme Drought
■ D1 Moderate Drought ■ D4 Exceptional Drought
■ D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Chris Feronore
NCEI/NESDIS/NOAA



<http://droughtmonitor.unl.edu/>

80 percent of Oregon now in drought, highest since 2015

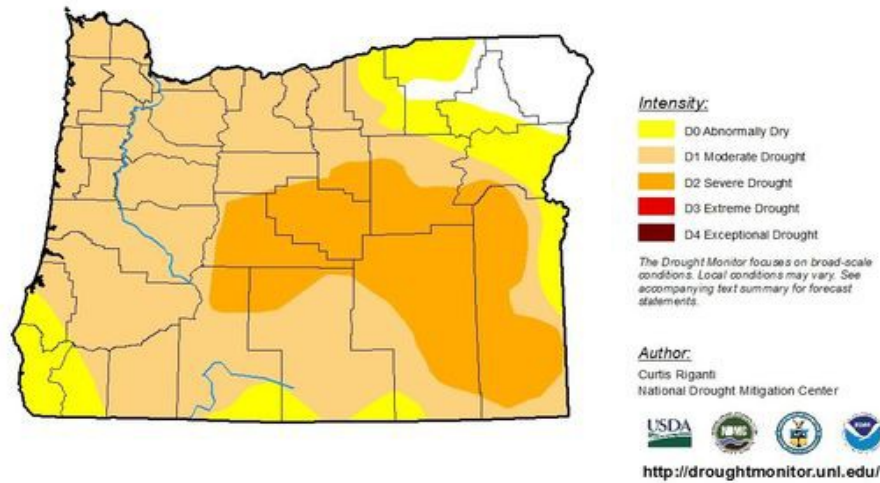
Zach Urness, Salem Statesman Journal

July 19, 2018

<https://www.statesmanjournal.com/story/news/2018/07/19/oregon-drought-wildfires-drought-highest-since-2015/804002002/>

**U.S. Drought Monitor
Oregon**

July 17, 2018
(Released Thursday, Jul. 19, 2018)
Valid 8 a.m. EDT



(Photo: US Drought Monitor)

Eighty-percent of Oregon is now in moderate drought, the most since the historically dry 2015 season, according to a new report from the U.S. Drought Monitor.

Even the Oregon Coast, one of the wettest places in the United States, has been moved into drought.

That Oregon has dropped into such widespread drought isn't surprising, according to meteorologists.

May and June were two of the hottest and driest months on record in the Willamette Valley, according to meteorologists at the National Weather Service.

July hasn't been much different. The average temperature in Salem has been 86 degrees this month, well above the average of 82.2, said NWS meteorologists.

As a result, 95 percent of Oregon is classified as "abnormally dry," 80 percent is in moderate drought and 25 percent is in severe drought, the Drought Monitor said.

One result of the abnormally hot and dry temperatures has been wildfire.

Oregon Gov. Kate Brown declared a statewide wildfire emergency on Wednesday due to the number of fires burning across the state.

Currently, there are nine large wildfires or complexes burning across the state, and more than 150 small ones, according to numbers from multiple agencies.

California Governor Declares State Of Emergency Over Wide-Ranging Fires

Fast-moving blazes have sprung up in Northern California as authorities battle others down south.

AP

Marcio Sanchez

https://www.huffingtonpost.com/entry/california-governor-declares-state-of-emergency-over-wide-ranging-fires_us_5b5a2593e4b0de86f494fec4

Persistent heat poses challenges as Ferguson Fire forces closures in Yosemite National Park

By Renee Duff, AccuWeather meteorologist

July 25, 2018

<https://www.accuweather.com/en/weather-news/persistent-heat-poses-challenges-as-ferguson-fire-shrouds-yosemite-national-park-in-smoke/70005581>

As the Ferguson Fire expands toward Yosemite National Park, unrelenting heat and poor air quality will continue to pose challenges into the weekend.

Since igniting on Friday, July 13, the blaze has consumed [38,500 acres](#) in California's Sierra and Stanislaus national forests, with close to 3,500 personnel working to contain the wildfire. During Wednesday morning, local time, mandatory evacuation orders were given for the Lushmeadows area.

Cal Fire Heavy Fire Equipment Operator Braden Varney was killed on July 14 while working on the fire.

Outside of the Ferguson Fire, dozens of other large blazes are charring hundreds of thousands of acres across the Western states, according to the [National Interagency Fire Center](#). Most of the fires are burning in Oregon.

The blazes in California and across the balance of the West have been fueled by intense heat and extremely dry brush, shrubs and trees that have become a tinderbox amid ongoing drought conditions.

Feinstein Secures Air Tankers to Fight California Wildfires

By [Senator Dianne Feinstein](#)-

July 24, 2018

<https://yubanet.com/california/feinstein-secures-air-tankers-to-fight-california-wildfires/>

Washington July 24, 2018 – Senator Dianne Feinstein (D-Calif.) today secured the transfer of seven C-130 air tankers for Cal Fire to use fighting wildfires. Senator Feinstein included a provision in the National Defense Authorization Act to transfer the aircraft from the federal government to California.

Cal Fire's current fleet consists of 50 aircraft, including 23 S2-T air tankers. Additional aircraft are needed because five years of historic drought has created conditions that are increasing the severity of wildfires in California.

Oroville Dam Update

Video: Oroville Spillways Phase 2 Update July 19, 2018

https://www.youtube.com/watch?time_continue=2&v=rqJ0Ba4Fo10
[California DWR](#)

Published on Jul 24, 2018

Crews lay roller-compacted concrete (RCC) on the southern half of the emergency spillway splashpad and workers load explosives into bored holes to blast rock near the emergency spillway concrete weir. Excavators clear the blasted material to allow for the placement of RCC to armor the hillside. Crews also continue placing leveling concrete on the upper chute of the main spillway and place a wall to

prepare for the placement of structural concrete on the middle chute.

OROVILLE DAM SPILLWAYS CONSTRUCTION: Update for July 25 (with photos and videos)

[July 25, 2018 Maven](https://mavensnotebook.com/2018/07/25/lake-oroville-spillways-construction-update-for-july-25/)

<https://mavensnotebook.com/2018/07/25/lake-oroville-spillways-construction-update-for-july-25/>



A drone provides a bird's-eye view of the Lake Oroville emergency spillway and the recently added roller compacted concrete (RCC) splashpad as crews start the second phase of construction on the RCC splashpad on the hillside above the secant pile wall at the Butte County, California site.

From the Department of Water Resources:

Today the Department of Water Resources (DWR) provided an update on construction-related activities for the Lake Oroville Spillways Emergency Recovery Project.

Construction on the Main Spillway

- Crews have completed foundation clean-up and placement of dental and leveling concrete on the uppermost 730 feet of the spillway chute. Slab formwork construction will begin next week, and placement of structural concrete slabs will start Monday, August 6.
- Placement of structural concrete slabs and walls continues on the middle chute. Crews have placed 66 of 228 slabs and 8 of 76 walls to date.
- Crews will complete the mechanical demolition of the energy dissipaters, or dentates, at the base of the main spillway by the end of the week. Crews will place reinforcing steel and concrete framework in the coming weeks. Placement of structural concrete is anticipated to start by the end of August.
- November 1, 2018 is a public safety construction milestone to complete placement of all structural concrete on the main spillway. Dry finishing, concrete curing, joint sealing, completing sidewall backfill and site clean-up will continue on the main spillway after November 1.

Construction on the Emergency Spillway

- Crews started placement of roller-compacted concrete on the southern half of the emergency spillway on Monday, July 16. The RCC buttress at the base of the emergency spillway weir will be built later this year.
- Work at the emergency spillway site is not dependent on the public safety construction milestone and will continue past November 1, 2018.

- **The latest pictures from Oroville ...** (Go to the link for more pictures)



A flood control gate frames the early morning work underway on the upper chute of the Lake Oroville main spillway during Phase 2 of the recovery effort in Butte County, California. Photo taken July 19, 2018. Kelly M. Grow/ California Department of Water Resources, FOR EDITORIAL USE ONLY



Work continues on the structural concrete on the middle chute of the Lake Oroville main spillway during Phase 2 of the recovery effort in Butte County, California. Photo taken July 23, 2018. Kelly M. Grow / California Department of Water Resources, FOR EDITORIAL USE ONLY

Oroville Dam committee has ‘historic’ meeting

An ad hoc committee made up of community representatives and state Department of Water Resources officials meets for the first time to discuss the comprehensive needs assessment for the Oroville Dam on July 18, 2018. Screenshot of video courtesy of DWR

By [Risa Johnson](#) | Chico Enterprise-Record

July 23, 2018

<https://www.oroillemr.com/2018/07/23/oroville-dam-committee-has-historic-meeting/>

OROVILLE — A historic first meeting between state Department of Water Resources officials and local leaders as a committee solidified that the community will have a say in the future of Oroville Dam operations.

First Dams To Be Built In More Than 40 Years In California

California funds new dams to protect against future drought

[Kurtis Alexander](#) July 24, 2018 Updated: July 24, 2018 8:26 p.m.

<https://www.sfchronicle.com/science/article/California-funds-new-dams-to-protect-against->

13101961.php

For the first time since California's dam-building boom ended nearly a half century ago, state officials on Tuesday approved a windfall of cash for new water storage projects, setting the stage for at least a mini-resurgence of reservoir construction.

The historic \$2.7 billion of voter-approved bond money will go to elevating two Bay Area dams, at Los Vaqueros Reservoir near Livermore and Pacheco Reservoir east of Gilroy, as well as to the development of two much larger dams in the Central Valley. Funds also will go to four less traditional endeavors that store water underground.

Collectively, the projects would add about 4.3 million acre feet of water storage across the state, the equivalent of about a dozen of San Francisco's Hetch Hetchy reservoirs. The new supply is intended to help California weather drought as longer, deeper dry spells are expected to take hold with climate change.

Although the larger dams, at the proposed 13-mile-long Sites Reservoir along the Sacramento River and 18-mile-long Temperance Flat Reservoir on the San Joaquin River, are still well short of the money they need to get off the ground, the Bay Area projects are now close to moving forward.



The state money comes four years after voters approved Proposition 1 in the throes of the recent drought. The \$7.5 billion bond measure committed funding for upgrading water infrastructure, restoring watersheds and developing new water storage, with more than a third of the money earmarked for reservoirs and underground water banks.

Tuesday's decision on storage projects was made by the California Water Commission, an independent advisory board appointed by the governor, following a years-long technical review in which about a dozen proposals were considered.

The biggest recipient of the Prop. 1 funding was the proposed Sites Reservoir, a \$5.2 billion venture slated for the west side of the Sacramento Valley in rural Colusa County. The project would store 500,000 acre feet of water piped in from the nearby Sacramento River.

Proponents of the proposed Temperance Flat Reservoir, near Fresno, said they, too, are having to look elsewhere for cash.

The \$3 billion project, which would add 1.3 million acre feet of water storage from the San Joaquin River, was awarded \$171 million. The public benefit of the project was also deemed low.

The Prop. 1 funding for water storage is the most the state has allocated since construction of the State Water Project, which consists of 21 dams and hundreds of miles of canals, built largely in the 1960s.

California's last major reservoir, New Melones Lake near Sonora (Tuolumne County), was constructed by the U.S. Bureau of Reclamation in the 1970s.

Meanwhile, the State Will Take the Water Away

The following commentary from *Agalert* is a good introduction to the articles that follow. As the State Water Board is determined to cut off large sections of California agriculture from a reliable water supply in order to, they claim, save Salmon, the question should, and must, be, what is the cost to human beings? And as asked, do the various sections of the water bureaucracy know what the others are doing? Some of the articles are worth reading in full and can be found at the links provided.

Commentary: In California, all water use must be reasonable

July 18, 2018

By Chris Scheuring

<http://agalert.com/story/?id=12019>

The headlines about a huge new regulatory proposal for the upper San Joaquin River have me thinking about all of California's rivers, the water rights Farm Bureau members hold and use on those rivers, and a concept called "reasonable use."

The requirement that water be used "reasonably" actually represents a constraint on the exercise of any water right. In other words, whatever the face value of any water right might be, it can be no greater than the amount of water that can be used in a reasonable manner.

In fact, that's a constitutional command.

In 1928, California voters amended the state Constitution to insert Article X, Section 2, which recognized that conditions prevailing in California require that "the water resources of the State be put to beneficial use to the fullest extent of which they are capable" as a matter of the general welfare.

That provision—Article X, Section 2—went on to provide in several places that water can only be used "reasonably," and that unreasonable use of water is to be prevented. The idea, of course, is that in a state governed by water scarcity, water used unreasonably can only subtract from someone else's reasonable use of water.

A colleague of mine recently wrote an article for a legal journal on this point, and he got me thinking about how this broad concept fits into our current water situation. The basic fact of our California hydrology has not changed since 1928—the basic fact of scarcity—but we certainly face new pressures on water rights.

More about those new pressures in a minute. First, it's instructive to remember, in a nutshell, how Article X, Section 2 got written into the California Constitution.

*It came in direct response to a decision of the California Supreme Court in 1926, in a case called *Herminghaus v. Southern California Edison Co.* In that case, landowners downstream from a proposed upstream storage project—a hydroelectric reservoir—maintained they had an absolute right to natural riparian flood-flows in whatever volume they existed, in order to water their pastures, regardless of whether that irrigation was reasonable in method. The court basically agreed, holding that the upstream project proponents had, therefore, no right to store some of the river's flow.*

Article X, Section 2 was the voters' repudiation of that ruling. The amendment set the stage for California's future development by making water—the winter snows and rains—available for storage to meet the needs of cities and farmers, as well as for power generation and flood control.

It remains the rule we live by today: Water can only be used "reasonably," and no one has a right to use water unreasonably at the expense of others.

And one more newspaper editorial calls the management of the state's water “idiocy,” though unlike the Orange Country Register last week, they did not use the term.

Editorial: ‘So what?’ attitude at root of water wars

By [Editorial Board](#) |
July 12, 2018

<https://www.chicoer.com/2018/07/12/editorial-so-what-attitude-at-root-of-water-wars/>

A sequence of events over that last week may explain why California is endlessly locked in water wars.

Last Friday, the State Water Resources Control Board released a final plan for the San Joaquin River and the framework for an upcoming plan on the Sacramento River, which will require less water be diverted from those waterways and their tributaries.

Four days later, the Metropolitan Water District in Southern California voted to spend \$11 billion — the bulk of the \$17 billion cost — to put two tunnels under the Sacramento-San Joaquin Delta.

The tunnels are supposed to make the water supply flowing from the north to the south more reliable, proponents would tell you.

Coming so soon after release of plans that would make less water available for the pipes, it would make you think the Met board hadn't been paying attention before it voted. That's a lot of money to spend to get less water, no matter how much more reliably.

But of course the Met board knew what the Water Board had done. It just didn't care. It would proceed with its initiative, and will support the inevitable legal battle against the Water Board's plans. And if the plans end up being upheld, you can bet there will be a new offensive mounted to see that the south gets the water it wants.

State water plan could hurt local economy, officials say

July 24 2018

<https://www.uniondemocrat.com/localnews/6401627-151/state-water-plan-could-hurt-local-economy-officials>

A state plan to require an average of 40 percent unimpaired flows on the Stanislaus, Tuolumne, and Merced rivers could have dire socio-economic consequences for the people of Tuolumne County,

according to local officials.

The so-called Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta seeks the increased flows to protect native salmon runs that have been driven nearly to the brink of extinction, triggering a water war between the state and agricultural districts in the Central Valley that hold California's oldest water rights.

Local officials are concerned about the increased flows to the Sacramento-San Joaquin River Delta, the primary source of drinking water for more than half of the state's population and irrigation for a third of its farmland, because that would also mean less water in New Melones and Don Pedro reservoirs for recreation and health and safety.

Commentary: Why a water board plan should worry the whole state

July 25, 2018

By Justin Frederickson

<http://agalert.com/story/?id=12042>

It's not just the northern San Joaquin Valley that should be concerned about the state water board's plan to redirect water away from farms and cities in a misguided bid to save fish. No matter where you live in California—and no matter your source of water—you should be worried.

For now, the focus rests on regions along the Stanislaus, Tuolumne and Merced rivers. From there, it moves to the Sacramento Valley and Sacramento-San Joaquin Delta, and from there, who knows where?

State Water Regulators' Plans To Impact New Melones

Tori James, MML News Reporter

<https://www.mymotherlode.com/news/local/376741/state-water-regulators-plans-to-impact-new-melones.html>

“They didn't listen to us – that's the bottom line – they didn't hear us...they took nothing of what we had provided...in the past six years into the document at all,” Knell says dejectedly. “It is very frustrating for people to consume so much time and efforts to get a good plan together...even develop alternative plans for consideration — and to have all of that rejected after all those years is just disheartening.”

Tri-Dam contrasts the estimated billions of dollars in annual economic losses just within Stanislaus, San Joaquin and Merced counties with the state's own estimate that increasing the unimpaired flows would generate just 1,100 in “new” salmon in the Stanislaus and other two involved rivers. The state's plan also acknowledges that it could result in what many call a “regulatory drought,” when supplies for people, agribusiness and recreation are limited — even in average rainfall and snowfall years.

Fighting the Board!

From: Families Protecting the Valley

July 18, 2018

<http://familiesprotectingthevalley.com/news.php?ax=v&n=5&id=10&nid=732>

We've been watching with great interest the State Water Resources Control Board's (SWRCB) proposal

for water flows on the Stanislaus, Toulumne and Merced Rivers. It's encouraging that so many in the Modesto area are unified to fight what they call a 'water grab' by the board and environmentalists. Farmers, local lawmakers, the Modesto Bee and ordinary people want to fight for what they see as a disastrous reduction of their water.

Time to make our stand, fight for our rivers

By The Merced Sun-Star Editorial Board

July 11, 2018

<https://www.mercedsunstar.com/opinion/editorials/article214727620.html>

River flows: Water agencies, farmers say plan would cause pain

July 18, 2018

By Christine Souza

<http://agalert.com/story/?id=12018>

Desalination

Orange County officials give early approval to Huntington Beach desalination plant contract



Workers paint the scaffolding for the roof that will cover the walls of filters used in desalination and are in place at Poseidon Water's desalination plant site in Carlsbad. (File photo)

By [Martin Wisckol](#)

Orange County Register

July 18, 2018

<https://www.ocregister.com/2018/07/18/poseidon-desalination-plant-okd-for-preliminary-contract-terms/>

Concerns over the [cost and environmental impacts of desalinated water](#) were overridden by the desire to fortify water supplies when the Orange County Water District board voted 6-2 Wednesday to approve non-binding contract terms with Poseidon, which has spent 20 years on the desalination plant proposal for Huntington Beach.

The board won't be giving final approval until Poseidon receives its other regulatory approvals.

The company still needs permits from the Regional Water Quality Control Board, which is scheduled to

consider the company's application in December, and the California Coastal Commission, which is expected to take up the issue next year.

But the term sheet approved Wednesday — updating a 2015 agreement — is a key step forward, given concerns expressed over cost, environmental impacts, whether there was a bona fide need for a new water source and whether other alternatives were being pursued aggressively enough.

A Return To 2007-2008?

Southern California home sales crash, a warning sign to the nation

- *Sales of both new and existing houses and condominiums dropped 11.8 percent year over year, as prices shot up to a record high, according to CoreLogic.*
- *The median price paid for all Southern California homes sold in June was a record \$536,250, according to CoreLogic, a 7.3 percent increase compared to June of 2017.*
- *In the past, California, one of the largest housing markets in the nation, has been a predictor for the rest of the country.*

By [Diana Olick](#)

CNBC.com

<https://www.cnn.com/2018/07/24/southern-california-home-sales-crash-a-warning-sign-to-the-nation.html>

Southern [California](#) home sales hit the brakes in June, falling to the lowest reading for the month in four years. Sales of both new and existing houses and condominiums dropped 11.8 percent year over year, as prices shot up to a record high, according to CoreLogic. The report covers Los Angeles, Riverside, San Diego, Ventura, San Bernardino and Orange counties.

Infrastructure: New Developments in Nuclear Power

The Controllable Energy

by Dr. Armin Azima

Dr. Armin Azima is a staff scientist at the University of Hamburg. He spoke on Panel III of the Schiller Institute conference, on July 1, 2018.

Dr. **Armin Azima** presented a concise and devastating attack on the shift to “renewable” energy by the EU, proposing instead that Germany must master fusion technology, which “will open up the gate to a new and wonderful world with possibilities which are currently unthinkable.” Nuclear waste from fission technologies can be addressed by a new reactor type now in use in Russia, the BN-800, he noted which can burn “nuclear waste” as if it were conventional nuclear fuel. He concluded by asking all that we would be able to do, if energy were extremely cheap and abundant, as it would be with the development of nuclear fusion.

His speech begins at 1 hour and 30 minute mark on this video:

<http://newparadigm.schillerinstitute.com/schiller-institute-conference-%e2%80%a2-bad-soden-%e2%80%a2-june-30-july-1-2018/>

What follows is an excerpt from Dr.Armina's speech:

Nuclear Power as Such Let's now concentrate on nuclear power in detail. As we have learned, the energy flux-density of nuclear fission power is currently the highest technologically available of all power sources today.

Despite that fact, the German federal government has decided to fully exit nuclear power technology in Germany by the year 2022. The question is, "Why?" From a rational standpoint there can only be the following three criticisms, three reasons: the problem of nuclear waste disposal, reactor safety, and the prevention of proliferation of nuclear weapons. Due to limited time I will concentrate on the first point.

First some fast basics. Our general nuclear reactors are light-water reactors, which work with thermal, hence "slow" neutrons. The chain reaction is then greatly improved, since the slow neutrons interact with the fuel much more efficiently. However, this has a price: the neutrons lose the ability to crack isotopes of even mass number, which significantly decreases the amount of possible fuel materials for these reactors.

Natural uranium consists mainly of the isotope U-238, with an even mass number, which cannot be fissioned by the thermal, slow neutrons. Hence U-238 is artificially enriched by the isotope U-235. After three years of operation, most of the U-235 is burned up, while the amount of U-238 is almost the same as at the beginning. But new materials have been created in the process, such as plutonium and other minor actinides, which we refer to as "nuclear waste."

Natural uranium becomes enriched, and then burned. The waste is separated and finally disposed of, and part of the fuel rod is recycled and reused in this process. The problem: The final repository must safely contain the waste.

The Russian 'Fast Burner,' BN-800 Russia has chosen another way. Since 2016, a new reactor type, called BN-800 has been brought on line. This reactor is called a "fast burner," not to be confused with a "fast breeder." The BN-800 is not a breeder reactor, it's a burner. It uses "fast" neutrons, and thus their neutrons can, with similar efficiency, fission all the heavy isotopes including those with even mass number! And that's the trick; this reactor is now capable of reusing its "waste" as new fuel in a long cycle, over and over again. The much smaller fraction of nuclear "waste" compared to conventional reactors, has an additional advantage, in that it decays way faster. After only 100 years, this "waste" can be taken out of storage. Thus, with this technology, a final disposal repository is no longer needed!

To make it perfectly clear, the BN-800 can burn "nuclear waste" as if it were conventional nuclear fuel. No final depository is needed for the end-products of this reactor. And this reactor is in operation now at this very moment! The BN-800 has de-defined the word "nuclear waste," because what is the waste now? Actually, it is exactly as Lyndon LaRouche predicted about ten years ago, when he said, "There exists no nuclear waste, only we currently do not have the technology to make use of the end products."

So, I delete this bullet point from the list of criticisms of nuclear power. Problem solved! Let's quickly move to another topic. I would like to show you some recent news concerning fusion research.

Feature: Tariffs, the American System, and Free-traders Show Their True Colors

What follows is really a fundamental lesson on the American System of economics, the system that created the U.S. as the once most advanced and productive economy in human history. That was the system of Alexander Hamilton, Abraham Lincoln and Franklin Roosevelt.

What we have witnessed this week as the President's tariff policy challenges the Wall Street and London controlled and dominated global trading system, is some negative fall-out and points to a fundamental mistake the President is making. The American System is not “all about” trade and tariffs, but about the increased productivity of the population and the economy through scientific and technological progress in a ruthlessly regulated financial system, centered on U.S. government issued credit for productive investment. Hamilton, Lincoln and Roosevelt understood how to do that. President Trump must learn that now. He must return to the theme of the American System he struck in speeches more than one year ago. And return to his campaign pledge given on October 26, 2016 to restore the Glass-Steagall banking law separating commercial from speculative banks. That first step is what will bust Wall Street, and must be done.

Today, that American System is best represented by Lyndon LaRouche issued in 2004 the three page document [The Four New Laws to Save the U.S.A. Now!](#) That document, whose Four Laws are grounded in the principles of [Public Credit and National Banking](#), as promulgated by Alexander Hamilton, remains, starkly, as the only viable solution to the banking and economic crisis facing the United States and the world today. *It defines the only possible strategy for fulfilling President Trump's promise to create a “new chapter of American Greatness”*—and in the process to lay the basis, in cooperation with friendly foreign nations, for the beginning of a new global economic and scientific Renaissance.

What follows is a statement on the President's announcement of \$12 to aid farmers, followed by the hysterical response of the free-trade traitors-- some of the Republicans in the Congress. This section is concluded by returning to the President's speeches on the American System he made last year.

Trump Intends \$12 Billion Farm Aid To Relieve Tariff Damage from China, Other Countries

July 24 (EIRNS)—President Trump will be in three farm belt states this week: today in Missouri, Thursday, July 26 in Iowa, and Friday, July 27 in Illinois. Besides backing Republican candidates and other purposes, his presence comes as a show of support for farmers, hard hit by years of low prices under the free trade regime, and now, the impact of tariff-feuding in loss of sales. Thousands of farmers face ruin.

The farm belt, like the rust belt, after years of de-structuring, needs rebuilding and growth, which requires taking down Wall Street, new credit, and deliberate development policies, including mutually beneficial trade. However, tariffs so far remain the fixation for economic action.

Agriculture Secretary Sonny Perdue today held a press conference, announcing help for farmers. His U.S. Agriculture Department statement called it, “a short-term solution to allow President Trump time to work on long-term trade deals to benefit agriculture and the entire U.S. economy.” He told reporters, “We’re formally announcing that the Trump Administration will be taking several actions to assist farmers in response to the trade damage caused by the illegal retaliatory tariffs that have been imposed on the United States in the past few months. The programs we’re announcing today are a firm statement that other nations cannot bully our agriculture producers to force the United States to cave in.”

The USDA release states, it “will authorize up to \$12 billion in programs, which is in line with the estimated \$11 billion impact of the unjustified retaliatory tariffs on U.S. agricultural goods.”

There are to be three actions, which come under the Commodity Credit Corp., formed under FDR in 1933 to stabilize prices and farm income, and in particular; Section 32 funding: 1) payments to farmers under what is called the Market Facilitation Program; 2) federal commodity buy-ups under the Food Purchase and Distribution Program, for donating to nutrition programs; 3) activation of the Trade Program (Foreign Agriculture Program) to boost sales of U.S. commodities to new markets.

Producers of the following commodities are to be covered: soybeans, sorghum, corn, wheat, cotton, dairy and hogs. The timing of payments is expected to follow harvests and the like, so the earliest might be in September for wheat, milk and pork. Details of how to sign up have yet to be worked out; they must be published in the Federal Register; etc.

The Executive branch has authority to conduct such support intervention without approval by Congress; rumors are flying that some funding will come out of the food aid program, the Supplemental Nutrition Assistance Program (SNAP), also run by the Agriculture Department.

Trump tweeted early this morning, "Tariffs are the greatest! Either a country which has treated the United States unfairly on Trade negotiates a fair deal, or it gets hit with Tariffs. It's as simple as that—and everybody's talking! Remember, we are the 'piggy bank' that's being robbed. All will be Great."

'Like a Soviet-type economy': GOP free traders unload on Trump

The president's \$12 billion farm bailout gets an ugly reception among many Republicans in Congress.

By [BURGESS EVERETT](#)

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<https://www.politico.com/story/2018/07/24/trump-farmers-bailout-reaction-republicans-congress-737517>

"I'm very exasperated. This is serious," Sen. Ron Johnson (R-Wis.) said amid President Donald Trump's response to send \$12 billion to farmers hurt by retaliatory tariffs. | Susan Walsh/AP Photo

President Donald Trump's bailout for the ag industry is driving his many Republican trade critics to exasperation.

Pro-free trade Republicans were already furious with Trump's escalation of tariffs against U.S. allies and China — a multi-front trade war they say is hurting U.S. farmers and manufacturers. But the administration's response Tuesday — sending \$12 billion to farmers hurt by retaliatory tariffs to ease the pain — is the precise anathema of conservative, free-trade orthodoxy, they said.

"This is becoming more and more like a Soviet-type of economy here: Commissars deciding who's going to be granted waivers, commissars in the administration figuring out how they're going to sprinkle around benefits," said Sen. Ron Johnson (R-Wis.). "I'm very exasperated. This is serious."

Trump Evokes American System, Abraham Lincoln, and Henry Clay at Louisville Rally

http://www.larouchepub.com/pr/2017/170321_trump_evokes_amer_sys.html

March 21, 2017 (EIRNS)—Addressing the packed stands at Freedom Hall in Louisville, Kentucky yesterday evening, President Donald Trump took a page out of American history, when he evoked Abraham Lincoln, Henry Clay, and Clay's belief in the "American System." Trump pointed out that

"Abraham Lincoln was born right here in Kentucky. The legendary pioneer Daniel Boone helped settle the Kentucky frontier, and the great 19th century American statesman Henry Clay represented Kentucky in the United States Congress."

He said, "Like Henry Clay, we want to put our own people to work." Further, "We believe in two simple rules: Buy American, and hire American."

Taking a swipe at free trade, Trump pointed out that

"Clay said very strongly, free trade, which would throw wide open our ports to foreign production without duties while theirs remain closed to us—that was his [Clay's] quote—Clay said trade must be fair, equal and reciprocal. I am talking about reciprocal trade. And explaining his American System, Clay argued that the sole object to the tariff is to tax the produce of foreign industry with the view of promoting American industry. For too long our government has abandoned the American System."

Trump drew one of the biggest cheers of the night when he promised to restore the nation's struggling coal industry, which has hit Kentucky especially hard with job losses. "We are going to put our coal miners back to work. The miners are coming back."

To GOP Activists, Trump Again Invokes American System Economics

http://www.larouchepub.com/pr/2017/170322_trump_amer_sys_again.html

March 22, 2017 (EIRNS)—Speaking to a dinner of the Republican National Congressional Committee yesterday, President Donald Trump fervently spoke of the "American System of economy" for a second day, following his evocation of Henry Clay, Abraham Lincoln, and the American System at a Kentucky mass rally on March 20. The last president to preach the American System may have been William McKinley; Trump's "whig" speeches have generated a freaked-out response from the Von Mises Society and similar British and "Austrian school" free traders and "libertarians."

"I called it the American model," said Trump, in a speech that had at first trod familiar ground of congratulations to fundraisers and Republicans present including himself.

"And this is the system our Founders wanted. Our greatest American leaders—including George Washington, Hamilton, Jackson, Lincoln—they all agreed that for America to be a strong nation it must also be a great manufacturing nation."

The President invoked McKinley:

"The Republican platform of 1896—more than a century ago—stated that 'Protection and reciprocity are twin measures of American policy and go hand in hand.... We renew and emphasize our allegiance to the policy of protection, as the bulwark of American industrial independence and the foundation of American development and prosperity."

Then Trump progressed to the American System's "internal improvements," or infrastructure projects in today's terms.

"Our first Republican President, Abraham Lincoln, ran his first campaign for public office in 1832—when he was only 23 years old. He began by imagining the benefits a railroad could bring to his port [part] of Illinois—without ever having seen a steam-powered train. He had no idea, and yet he knew what it could be. Thirty years later, as President, Lincoln signed the law that built the first Transcontinental Railroad, uniting our country from ocean to ocean...."

"Another great Republican President, Dwight Eisenhower, had a vision of a national infrastructure plan. As an officer in the Army after World War I, he joined a military convoy that trekked across the nation to the Pacific Coast. It traveled along the Lincoln Highway—called then the Lincoln Highway. Its journey began by the South Lawn of the White House, at a monument known today as Zero Milestone. Anybody know where that is? The journey made a great impression on then young Eisenhower. More than three decades later, as President, he signed the bill that created our great Interstate Highway System—once again uniting us as a nation."

"Now is time for a new Republican administration, working with our Republican Congress, to pass the next great infrastructure bill. Our party must dream as big and as bold as Lincoln and Eisenhower."

Trump continued to the American System subjects of invention, and foreign policy.

"Imagine the breakthroughs that will breathe fresh life into forgotten places. Picture the new roads that will carve pathways all across our land—and we need them. And think of the new inventions that will lift up the sights of our nation."

"Finally, as we imagine this new prosperity at home, let us also work to achieve real and enduring peace abroad.... The best Republican Presidents have not only been warfighters, but also peacemakers. We will never hesitate to do what we must to keep us safe today, but we will always seek a more peaceful tomorrow. We will, and we will succeed.... If we stand for these things—safety, prosperity and peace—then there is no limit to what we can achieve."

Quoth the very bothered Von Mises Society, "The economic policies of Whigs endure. Unfortunately, the dangers of Whig economic folly and fallacy do not diminish with time."

What "endure," are great nations built on the American System.