California Water and Infrastructure Report

For October 3, 2019

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

patruckert@hotmail.com

"China's first 'secret,' he wrote, is that the Chinese government views infrastructure as the "bedrock" needed to sustain the country and make it powerful, 'as well as an essential step to break the bottleneck of development, improve social well-being, promote interconnectivity and achieve sustainable development.' The government therefore draws up national medium- and long-term infrastructure development plans. And because infrastructure uses money quickly, but only yields profits later, 'it is necessary for the government to play a guiding role and offer incentives for the participation of the market.' In 2018, he noted, China invested $2.44 trillion in infrastructure; in 2019, it surpassed $2.4 trillion in investment between January and July alone!"

Beijing Offers 'The Secrets of China's Infrastructure Success' to Mexico

A Note to Readers

October 1 was the 70th anniversary of the founding of the Peoples Republic of China. While huge and spectacular events were held in China, and the occasion was barely mentioned in the U.S. media, the **Feature** in our report this week provides a focused look at the incredible development of China's infrastructure over the past few decades. It shall be a limited look, highlighting the development of a 600 km per hour maglev system.

Our quote above shows that China's focus on infrastructure is also very deliberately being promoted to other countries all over the world. The article from which that quote originates will be found in the **Feature**, below.

China has done over the past few decades what the U.S. used to do-- and to understand. We used to know that building dams, railroads, roads, power systems, and much more, provided the foundation for an economy that would constantly uplift our entire population. Well, it appears we will have to relearn what we have forgotten-- and we will relearn it from China.

One more word on China, which underlines what I just wrote about how infrastructure uplifts entire populations. Here are a few changes in China over these past 70 years:

Life expectancy in China in 1949, when the People's Republic of China was founded, was only 35 years; by 2018, it had risen to 77 years.

Infant mortality, at 250 per 1,000 in 1949--that is, one quarter of all babies born died within their first year-- has been cut to 6 per 1,000 in 2018.

In 1949, 80% of the population was illiterate--could not read and write. By 2010, less than 1% of the young and middle-aged were illiterate.

The rest of this week's report

We begin with the *U.S. Drought Monitor* for California, which shows really no change from the past two weeks. That is followed by a report on California's water year that ended on September 30. The reservoirs are full summarizes things.

Last week we reported that Governor Newsom had said he would veto SB 1. Well he did do that, and of course pissed-off the environmentalists in the state and those suffering from TDS (Trump Derangement Syndrome). The content of the bill is covered in last week's report: http://www.californiadroughtupdate.org/20190926-California-Water-and-Infrastructure-Report.pdf?_t=1569601305

There have been interesting developments in desalination research and technologies in recent months and we report on those next. In that context the devastating drought in Australia has prompted the restarting of a desalination plant near Sydney and its expansion. Several articles are referenced in the coverage.

A short report on economic statistics newly released show the economy is shaky, to say the least. The continued bailout of the Fed of the REPO market will total several trillions of dollars before it is scheduled to end on October 10. Though, of course, the bailout of the speculative banks does nothing for the economy. A short item on that topic follows the first.

Next is the **Feature** for this week, discussed above.

This week's report concludes with the report on more than 500 prominent scientists, professionals, and researchers from around the world who have signed the European Climsate Declaration to UN Secretary General Antonio Guterres on Sept. 23, and are forming a “Global Climate Intelligence Group,” in order to coordinate an aggressive international campaign around the truth that “there is no climate emergency”

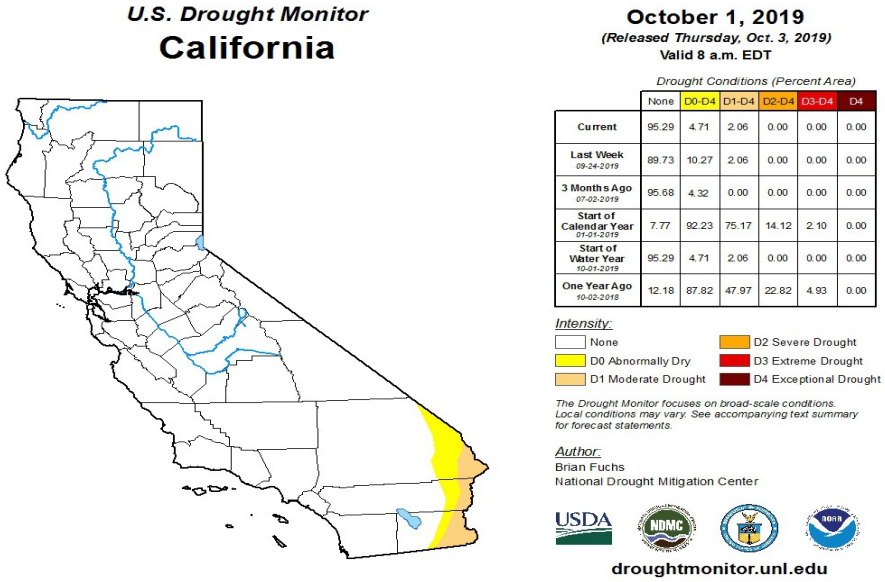
We shall let President Vladimir Putin of Russia have the final word on Greta Thunberg:

"Sure, Greta is kind, but emotions should not control this issue. Go and explain to developing countries why they should continue living in poverty and not be like Sweden." Putin added that it was deplorable how some groups are using Thunberg to achieve their own goals.

Notice: Publication of this report shall be suspended for two weeks beginning next week.

Drought, the End of the Water Year and Some Freak Weather

U.S. Drought Monitor



DWR Reports 'Good Water Year' for California

September 30, 2019
by Dennis Shanahan
https://fox40.com/2019/09/30/dwr-reports-good-water-year-for-california/

But from a Water Resources perspective, it was "a good water year," according to spokesman Chris Orrock.

Orrock said California had above-average precipitation, with around 30 atmospheric rivers during the 2018-2019 water year, which ends on the last day of September.

Many of those very wet storms came with cold air from the Gulf of Alaska.

"Which really impacted our snowpack. It made it very cold and very deep," Orrock said. "So, we had snow up in the upper elevations July into August. That snow usually melts by then."

Orrock pointed out it was the fifth best Sierra snowpack on record, sitting at 175% of average on April 1.

Snow accounts for about a third of California's freshwater supply. The rest of it is stored as groundwater and in reservoirs, which are fed by snow.

"Reservoirs are doing real well," Orrock told FOX40.

Folsom Lake is currently sitting at 129% of the historic average. Just to the north, Lake Oroville is at 102% and Shasta Lake is at 126%.

'Historic' winter storm dumps 3 feet of snow, smashes records in West

John Bacon
USA TODAY
Sept. 29, 2019
https://www.usatoday.com/story/news/nation/2019/09/29/snow-historic-storm-smashes-records-west/3812375002/

One week after summer's end, a "winter" storm began blasting parts of the West with up to 3 feet of snow, smashing records with low temperatures, heavy snow, strong winds and blizzard conditions forecast into Monday.

Snow was piling up across parts of California, Oregon, Washington, Montana, Idaho, Nevada and Utah. The National Weather Service, calling the storm "historic," said temperatures in some areas would drop as much as 30 degrees below normal.

"Many daily record low maximum temperature records are possible through Monday, especially across the Northern Great Basin, Rockies and Northern California," the weather service said.

"An unprecedented winter storm (is) throwing our state a surprise in September," said Montana Gov. Steve Bullock, who declared a winter storm emergency in his state.

Governor Newsom Does Something Right, and Pisses-off the Environmentalists

Newsom Vetoes SB 1 Environmental Bill Criticized as "Job Killer"

AP News
September 27, 2019
https://gvwire.com/2019/09/27/newsom-vetoes-sb-1-environmental-bill-criticized-as-job-killer/

Gov. Gavin Newsom angered some allies on Friday by vetoing a bill aimed at blunting federal rollbacks of clean air and endangered species regulations in the state. The governor's action comes two weeks after the passage of SB 1 in the final hours of the state's legislative session.

The bill would have made it easier for state regulators to counter the Trump administration's efforts to change enforcement of the federal Endangered Species Act and other environmental pillars — at least in California.

'Solution in Search of a Problem'

But Newsom called the bill "a solution in search of a problem." He agreed with critics who said the bill would force the state to rely on old science and would imperil complex negotiations between state and federal agencies over how to manage the state's water supply.

Water agencies, farming interests, and the California Chamber of Commerce were among the groups opposed to SB 1. The chamber described the legislation as a "Job Killer" bill.

Newsom defended his decision in his veto message. "No other state has fought harder to defeat Trump's environmental policies, and that will continue to be the case," the governor said.

Dems, Environmental Groups Frustrated

But Democratic lawmakers and environmental advocates said Newsom was wrong to veto a bill they said he did not understand.

"It's going to be harder to get good environmental policy out of him than we thought it was," said Kathryn Phillips, director of the Sierra Club of California.

Governor Gavin Newsom has vetoed Senate Bill 1 with the following message:

> *"I am returning Senate Bill 1 without my signature.*
>
> *The bill would enact the California Enviornmental, Public Health, and Workers Defense Act of 2019 with the intent of ensuring that protections afforded under federal environmental and labor laws and regulations as of January 2017, could remain in place in the event of regulatory changes.*
>
> *California is a leader in the fight for resource, environmental and worker protections. Since 2017, the federal government has repeatedly tried to override and invalidate these protections, and each time the state has aggressively countered – taking immediate legal action and deploying every tool at the state's disposal to safeguard our natural resources, environmental protections and workers. No other state has fought harder to defeat Trump's environmental policies, and that will continue to be the case.*
>
> *While I disagree about the efficacy and necessity of Senate Bill 1, I look forward to working with the Legislature in our shared fight against the weakening of California's environmental and worker protections."*

Desalination: New Developments and the Australian Drought Necessitates the Restarting of One Plant

$100 million desalination project to be led by Lawrence Berkeley National Lab

Research seeks to cut costs for ocean desalination, water recycling, cleaning water from oil wells and other sources

The Carlsbad, Calif. desalination plant, that borders Interstate 5 on one side and the Pacific Ocean on the other in Carlsbad, Calif. America's largest seawater desalination plant, shown here in 2015, produces 50 million gallons of drinking water for the San Diego area each day. (AP Photo/Lenny Ignelzi)

By Paul Rogers |
PUBLISHED: September 27, 2019 at 2:41 pm | UPDATED: September 27, 2019 at 3:05 pm

https://www.timesheraldonline.com/2019/09/27/100-million-desalination-project-to-be-led-by-lawrence-berkeley-national-lab/

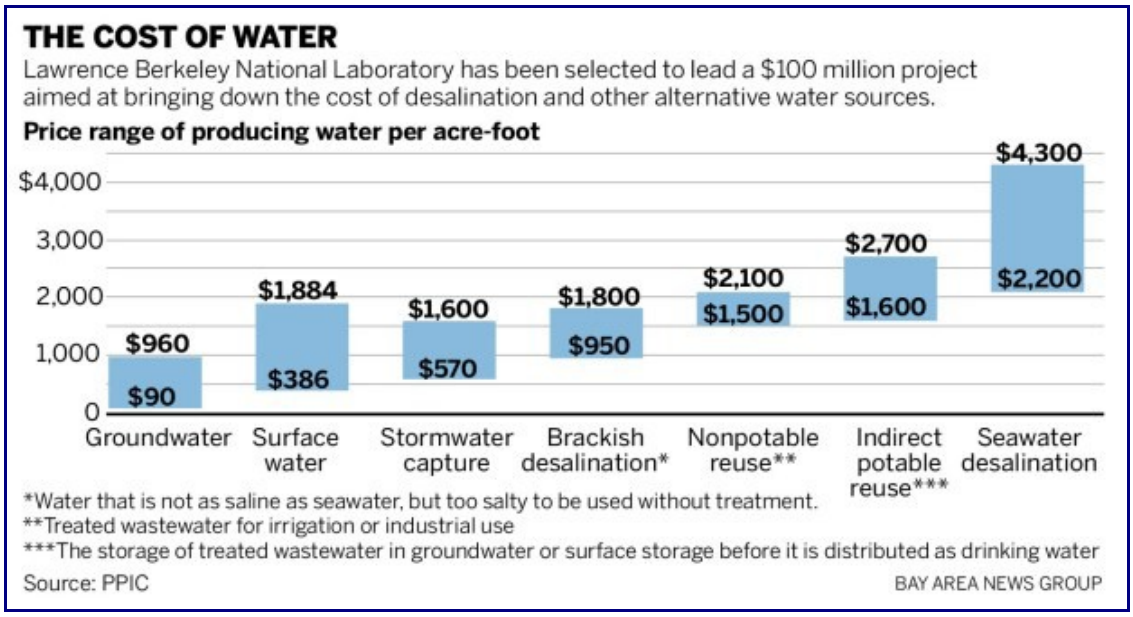
In a effort to widen the use of a nearly limitless — but expensive — source of water for California and other places worldwide that are prone to shortages, Lawrence Berkeley National Laboratory has been selected to lead a $100 million project aimed at bringing down the cost of desalination.

The money, announced this week and awarded by the U.S. Department of Energy, will fund a research consortium of 19 universities around that the country that include Stanford, UC-Berkeley, UCLA and others, along with 10 private industry partners and other Department of Energy institutions, like Oak Ridge National Lab in Tennessee.

The goal, organizers say, is to reduce the cost of removing salt from ocean water to make it a more viable drinking water source for California and other areas. Closely related, planners also hope to clean up other types of water that are being largely wasted or underused so they can provide a source for cities, farms and wildlife. Those include wastewater from sewage treatment plants, "produced water" that comes out of the ground during oil exploration, and brackish water, which is often found underground and contains about one-third of the salinity of the ocean.

"Our entire water systems in the 20th century were designed around using water once and throwing it away," said Peter Fiske, director of Berkeley Lab's Water-Energy Resilience Research Institute. "We need to use it more wisely by reducing, reusing and recycling it."

A chief aim of the project, called the National Alliance for Water Innovation, is to bring the costs down of the alternative water sources so that they are competitive with traditional sources in 10 years, Fiske said.



But because of the enormous amount of energy required to force massive amounts of salty water through extremely fine filters 24 hours a day, seven days a week — at higher pressure than water in a fire hose — so it is pure enough to drink, the cost of desalinated water can be five times more than water from other sources.

Water from the San Diego desalination plant costs roughly $2,100 an acre foot to produce, for

example. By comparison, water that the Santa Clara Valley Water District purchases from the Delta, via the state and federal government, costs about $400 to $500 an acre foot.

Moving Forward On Desalination

https://www.wateronline.com/doc/moving-forward-on-desalination-0001?vm_tId=2154430&user=b11e0b60-a0f4-4b8d-987f-87389f8500f7&vm_alias=Moving%20Forward%20On%20Desalination&utm_source=mkt_WOL&utm_medium=email&utm_campaign=WOL_09-03-2019-Best-Of-August&utm_term=b11e0b60-a0f4-4b8d-987f-87389f8500f7&utm_content=Moving%20Forward%20On%20Desalination&mkt_tok=eyJpIjoiTTJZd04yUmlPRGRrT1RBMSIsInQiOiI5V1pkVytQNmVJaGdaenY3MVNpVFJLME5wNzZ1akt1VHl1YzZ1dVIybTdkSG15bnNJclU1bFJpU05DeE1zdzBGZUFEYzBSeTVwS2djMnBkQThWdkRTY2wwTHlybjBPTWlraDAza1ZSS1U2ZTM3cG40ZWpjTWZuNjhjcU9Pd2VPZyJ9

A Q&A with scientist Jeff Urban, who explains forward osmosis and how Berkeley Lab is pushing the frontiers of this emerging technology

As global populations grow and water scarcity becomes an increasingly pressing issue, the number of desalination plants is growing. There are now more than 20,000 worldwide, and more than 300 million people around the world rely on desalination for some or all of their daily water needs, according to the International Desalination Association.

However, the dominant technology for seawater desalination — reverse osmosis — is now over 50 years old and has its drawbacks. Scientific innovation in this field is urgently needed to bring down the costs and energy intensity of treating water.

Scientists at Berkeley Lab have been exploring different approaches for efficiently separating out salt and other contaminants to generate water that's fit for drinking or other uses, such as agricultural irrigation. For example, they're looking at charge-based brackish water desalination, nanoconfinement of water, better membranes, and other advanced water treatment techniques.

Another desalination technology that has shown great promise is forward osmosis — it requires far less energy then reverse osmosis, but there are still barriers to wider adoption. Jeff Urban, a staff scientist who specializes in new materials for energy storage and conversion at Berkeley Lab's Molecular Foundry, a Department of Energy nanoscience research facility, explains what forward osmosis is and how Berkeley Lab is addressing the challenges.

Illinois engineer continues to make waves in water desalination

by Julia Stackler, University of Illinois at Urbana-Champaign

Assistant Professor Kyle Smith. Credit: University of Illinois.

August 30, 2019

https://phys.org/news/2019-08-illinois-desalination.html

For the past several years, University of Illinois researcher Kyle Smith has proven his growing expertise in the field of water desalination, with a range of research results that could address the immediate need to combat diminishing clean water sources around the world.

Now, with a new publication and new research project funded by the National Science Foundation, he continues to build on his highly praised work to develop new methods of deionizing saltwater.

The paper, "Effect of Conductive Additives on the Transport Properties of Porous Flow-Through Electrodes with Insulative Particles and their Optimization for Faradaic Deionization," published this week in Water Research, demonstrated promising results for energy-efficient desalination of alternative water resources. Smith's newest work, spear-headed by his doctoral student Erik Reale, involves deionization devices that can reversibly store and release cations using intercalation materials, a class of materials commonly used for rechargeable batteries. This work in particular addresses the challenge of cycling intercalation materials with fast rates of electron, ion, and fluid transport, features that are difficult to achieve simultaneously in a single system.

His team fabricated optimized electrodes containing insulative Prussian Blue analogue particles, and used them in an experimental cation intercalation desalination (CID) cell with symmetric electrodes. They witnessed results of a nearly 10-fold increase in the rate of salt removal at similar energy consumption levels to past CID demonstrations.

Drought-hit Australian towns prepare for 'unimaginable' water crisis

Jonathan Barrett

September 27, 2019

https://www.reuters.com/article/us-australia-drought/drought-hit-australian-towns-prepare-for-unimaginable-water-crisis-idUSKBN1WC2EP?feedType=RSS&feedName=environmentNews&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+reuters%2Fenvironment+%28News+%2F+US+%2F+Environment%29

Dead things everywhere': is Australia facing the summer from hell?

Just a week into September, authorities issued total fire bans in Queensland and parts of New South Wales, with extreme, and potentially catastrophic, conditions expected in some areas.

The outlook is grim, with low water storage levels and extreme temperatures forecast

by Lisa Cox

6 Sep 2019

https://www.theguardian.com/australia-news/2019/sep/06/dead-things-everywhere-is-australia-facing-the-summer-from-hell

Out in the Macquarie Marshes, about 1ookm north of Warren in the central west of New South Wales, large inland wetlands have become a place for the dead and dying.

"We went out last night and there was a little patch of water with dead and dying European carp," Richard Kingsford, the director of the Centre for Ecosystem Science at the University of NSW, says. "There's dead and dying things everywhere. Kangaroos dying and even foxes are dying.

"We were trying to trap for turtles but there doesn't seem to be enough water for turtles. I'm not sure where they've gone to."

There are large parts of the Macquarie River that have dried up completely as the state remains in the grip of one of the most severe droughts on record.

Valley water storages in the Macquarie are sitting at 11%. In the Namoi, in north-west NSW where water shortages have been acute, they're at 1.5%. The Border Rivers, in the region between the NSW and Queensland border, are at 6%. In Sydney, dam storages have dropped below 50% for the first time in more than a decade.

Sydney desalination plant to double in size as dams approach critical level

Exclusive: top water bureaucrat says planning has begun for plant to move from producing 15% of water to 30%

Anne Davies

Wed 25 Sep 2019

https://www.theguardian.com/environment/2019/sep/26/sydney-desalination-plant-to-double-in-size-as-dams-approach-critical-level

Planning has begun for expansion of Sydney's desalination plant. Photograph: Sydney Desalination Plant

Sydney's desalination plant will double in size as the city's water supply approaches the critical threshold in dam levels.

The top bureaucrat who oversees water in the NSW Department of Planning, Industry and Environment, Jim Bentley, told a Committee for the Economic Development of Australia (Ceda) lunch in Sydney, that planning for the expansion had now begun.

He also said Sydney and other cities needed to be having a discussion about when they would reach Day Zero – the day when they would run out of water, as Cape Town almost did – in order to understand what was happening and to motivate discussions about solutions.

He later clarified that he did not believe Sydney was on the verge of such a scenario.

"I don't want people to leave here thinking we are at a Cape Town situation, we are far from that. But we could be in that situation in the future," he said.

"But there are places in NSW that are somewhat more dire and the government is working with those councils."

For Sydney, the NSW government has opted for more desalination.

"We have taken the decision to begin the planning for the expansion of the desalination plant. There will be other schemes for Sydney, for the Hunter and other parts of NSW," Bentley said.

"I will say the D word", he said. "We will be investing in dams, we will be investing in desalination, but also we must work on the adaptive side of the equation: efficiency and using the great resource that is now called waste water."

The go-ahead for the expansion of the desalination plant in Sydney had been given "in anticipation that water shortages will become the norm in the expanding city," Bentley said.

The current desalination plant is now producing 15% of Sydney's water supply, or 250m litres a day. The plan is to double the plant, to provide 30% of Sydney's water.

The Economy and Financial System: Things Are Getting Shaky

Fourth Quarter Is Underway, with Big Trouble on Both the Physical Economy and Financial Sides

Oct. 2 (EIRNS)—On Oct. 1, the Institute for Supply Management (ISM) issued their purchasing managers' index for September U.S. manufacturing factory activity, which shrank to its lowest point in over a decade, since June 2009. The manufacturing index fell to 47.8 (anything under 50 indicates an absolute decline), which is worse than August's sharp contraction and which now makes six months in a row with a falling index.

The stock market tanked in response to the news. Deutsche Bank's chief economist Torsten Slok commented: "There is no end in sight to this slowdown, the recession risk is real." Financial media commentary are also alarmed, ascribing the situation to a) U.S.-China trade problems (the index for new overall export orders was 41%, the lowest since March 2009), with upcoming talks scheduled to begin on Oct. 10; and b) the looming Brexit on Oct. 31. The financial sector is also bracing for manufacturing payroll numbers which will be released this Friday, Oct. 4. Reuters reported that "the downturn in manufacturing in the U.S. mirrors similar patterns in the euro zone, Japan, the U.K. and China."

The ISM itself said the numbers "reflect a continuing decrease in business confidence," and "global trade remains the most significant issue." Reuters said that the new manufacturing numbers may force the Fed to lower interest rates at their October meeting. But Chicago Federal Reserve President Charles Evans, speaking in Frankfurt Oct. 1, said the Fed should keep rates as they are now.

Meanwhile, the Brexit deadline is looming. British Prime Minister Boris Johnson unveiled his final Brexit offer to the EU today, but it is not expected to change the fact that the whole situation is headed for a train wreck. As Reuters wrote, "more than three years after Britain voted to leave the EU in a 2016 referendum, Brexit talks are at an impasse."

The real problem, of course, is that the British establishment refuses to accept an election result they don't like (as they did with the French 2005 referendum against the EU "constitution"), and are working to reverse the Brexit vote come hell or high water—in much the same way they are trying to reverse the election of Donald Trump.

JPMorgan Chase and the Repo Crisis

Oct. 2 (EIRNS)—Everyone has been asking just which banks were so short on cash that the entire interbank lending market seized up at the end of September, forcing the Fed to jump in with their (ongoing) emergency repo operations. The Fed of course doesn't report which banks came knocking at their door. But Reuters published an article Oct. 1 which pointed at JPMorgan Chase as being at the center of the mess.

Reuters reported that "JPMorgan Chase & Co has become so big that some rival banks and analysts say changes to its $2.7 trillion balance sheet were a factor in a spike last month in the U.S. 'repo' market, which is crucial to many borrowers." What happened is that from January to June 2019, JPMorgan Chase reduced its cash on deposit at the Fed by 57%, or $158 billion. This accounted for about a third of the drop in all banking reserves at the Fed during this period. Bank of America reduced its balance sheet with the fed by 30%, or $29 billion.

Reuters quoted an unnamed "executive at a competing bank" who called the shift by JPMorgan Chase "massive." They ascribe it to JPMorgan Chase's need to meet "sudden demands by corporate depositors and to meet government requirements for reserves on checking account deposits."

Then Reuters did its de rigeur whistling past the graveyard: "While not seen as a sign of distress as it was during the collapse of Bear Stearns and Lehman Brothers in 2008, the spike [in repo rates] did prompt the U.S. Federal Reserve to promise to lend at least $75 billion each day until Oct. 10 to relieve the pressure.... Hedge funds, for example, use it [the repo market] to finance investments in U.S. Treasury securities and banks turn to it as option for raising suddenly-needed cash for clients."

Feature: The Principles of an Infrastructure Driven Economy

China without question has done what no nation or civilization has ever done. In just 30 years raised 800 million people out of poverty and transformed a non-industrialized nation into one of the most advanced in the world. Our first item below presents how China sees the principle of infrastructure building as the bedrock for developing the nation.

For those more familiar with my reports, recognizing the roots of China's policy in the tradition of the American System of our first Treasury Secretary Alexander Hamilton. And the policies of Abraham Lincoln and Franklin Roosevelt have always informed China's policy.

Limiting this Feature to the most recent and spectacular reports from China, two reports on China now building a 600 km per hour maglev system to potentially be ready for trial runs in 2020.

Beijing Offers 'The Secrets of China's Infrastructure Success' to Mexico

Sept. 28 (EIRNS)—China's Ambassador to Mexico Zhu Qingqiao shared the "three secrets of China's rapid development of infrastructure" with Mexicans, in an exciting opinion column published yesterday in the newspaper Milenio.

The ambassador reminded his Mexican readers of the great infrastructure development which China had achieved by the end of 2018, in terms of kilometers of highways and railways built and optical cables laid, increased installed electricity generation capacity, and record-setting "megaprojects characterized by 'Chinese speed, precision and quality,' " such as the world's longest over-sea bridge, the world's highest altitude railway, the first port to handle over a billion tons of cargo annually.

China's first "secret," he wrote, is that the Chinese government views infrastructure as the "bedrock" needed to sustain the country and make it powerful, "as well as an essential step to break the bottleneck of development, improve social well-being, promote interconnectivity and achieve sustainable development." The government therefore draws up national medium- and long-term infrastructure development plans. And because infrastructure uses money quickly, but only yields profits later, "it is necessary for the government to play a guiding role and offer incentives for the participation of the market." In 2018, he noted, China invested $2.44 trillion in infrastructure; in 2019, it surpassed $2.4 trillion in investment between January and July alone!

China's second "secret," is to develop strategies to overcome differences in development between the different regions, while integrating them economically—a problem the Ambassador is well aware Mexico also faces. "By developing interconnectivity and creating channels of transportation, energy and production infrastructure," industrial development is being equalized between the regions. Relatively backward areas were encouraged to form various metropolitan areas which are gradually becoming new poles of economic growth.

The third "secret," Ambassador Zhu wrote, is "the reciprocal boost that scientific and technological innovation and the development of infrastructure provide each other." He pointed to China's stunning

successes in developing the new technologies needed to overcome environmental and construction challenges: the 454 patents for new processes and materials for the Hong Kong-Zhuhai-Macao bridge; the innovations in welding and overcoming air-resistance required to build the world's fastest train, the Fuxing bullet train; etc.

Mexico has "a great development potential," and the López Obrador government seeks to increase infrastructure construction and interconnectivity; "China is ready to share its successful experiences in this area with Mexico," he offered.

High-Speed Maglev Rail Line Planned for Guangzhou-Wuhan Route

Oct. 2 (EIRNS)—Work on building a 1,000-km railway connecting Guangzhou and Wuhan for a super-fast maglev is to begin next year. The line will be built by the Wuhan-based China Railway Siyuan Survey and Design Group, a subsidiary of China Railway Construction Corporation, the Wuhan Evening News reported, according to the English-language China online publication That's.

Jing Shiyuan, an engineer with Siyuan, told the newspaper that the project was initiated in 2015 and a train model was readied for testing the following year. Work will start in Hubei province, in which Wuhan is the capital.

China's more ambitious maglev plans are taking shape. In May, China Railway Rolling Stock Corporation completed a factory to make maglev rolling stock in Qingdao, and the body of a prototype that could reach speeds of 600 kph was revealed to media. The company hopes to begin serial production of the unit some time in 2021. Engineers also work on a maglev model that can reach maximum speeds of 1,000 kph.

And last week a set of technical standards for maglev rail was released by the National Railway Administration, with a view to implementation at the beginning of next year. The standards unify basic technical requirements including track gauge and clarified main specifications of maglev trains.

China laying tracks for 1,000km/h maglev trains

If technology proves to be viable, a 2,200-km trip from Wuhan to Guangzhou could be reduced to around two hours.

At 30,000 kilometers, China already boasts the world's most extensive high-speed rail network. Photo: Xinhua

By KG Chan

October 2, 2019

https://www.asiatimes.com/2019/10/article/china-laying-tracks-for-1000km-h-maglev-trains/

China aims to again take the lead in the new global race to make bullet trains travel even faster. By harnessing the power of magnetic levitation, it is believed trains will be able to accelerate from the current 350km/h on conventional tracks to between 600 and 1,000km/h.

Changjiang Daily, the official mouthpiece of Wuhan, capital city of Hubei, reported at the end of last month that experimental maglev tracks would be laid in the central province early next year. It cited a key survey carried out by a design institute for the China Railway Group Limited. It was tasked with conducting a feasibility study for a sprawling new network stretching from Guangzhou to Beijing on which trains could travel at between 600km/h and 1,000km/h – if the concept of maglev trains swinging inside a vacuum tube can be put into practice.

The exceptionally high speed means that once operational, a 2,200-km journey from Wuhan to Guangzhou could be reduced to about two hours.

An aerial view of the Guangzhou South Station, one of China's largest high-speed-railway stations. Photo: Xinhua

It has also been reported that a 600km/h maglev train prototype will be ready for trial runs in 2020. Hubei will start work on a 200-km section made of vacuum tubes to conduct experiments to verify the cutting-edge, high-temperature superconducting maglev theory and ultimately push the speed limit to 1,000km/h.

What is propelling the ambitious new project is Beijing's latest policy paper on nationwide transportation developments promulgated last month. It contains a chapter on running new maglev lines between key urban centers to complement the existing network of high-speed railways.

The 350km/h high-speed trunk routes between Beijing and Shanghai and Beijing and Guangzhou have seen their average loading and occupancy rates soar to 82% in the decade since completion. Train cars are already packed prior to major holidays and during peak travel seasons, and marshaling and signaling constraints mean few extra trains can be added to alleviate congestion.

China is thus mulling building maglev lines in the next one to two decades in and between the affluent Yangtze River Delta and the Pearl River Delta, where the demand for high-speed intercity travel is expected to increase even further. It is believed that business travelers may choose to hop on maglev trains instead of planes if they can travel from one major city to another within an hour.

Also, a China Railway Group engineer told Changjiang Daily that Japan, Germany and the US were also competing against China, trialing their respective ultrafast maglev trains based on various models of the superconducting maglev technology.

He said that China's lead in conventional high-speed railways and rolling stocks would not necessarily give the nation a head start in the competitive world of "floating trains," referring to the maglev technology, which involves two sets of magnets repelling each other and lifting a train up off its tracks.

In 2002, China received a technology transfer from Germany for a 30-km maglev line between downtown Shanghai and the city's Pudong Airport that would allow trains to travel at 430km/h.

Trains on Shanghai's Maglev Line serving one of the city's airports can reach a speed of 430 km/h. Photos: Photos: WeChat

A Real Scientific Debate May Now Begin

Scientists Organizing against 'Manmade Climate Crisis' Lies

Sept. 28 (EIRNS)—The more than 500 prominent scientists, professionals, and researchers from around the world who have signed the European Climsate Declaration to UN Secretary General Antonio Guterres on Sept. 23, are forming a "Global Climate Intelligence Group," in order to coordinate an aggressive international campaign around the truth that "there is no climate emergency"

The group is the brainchild of Prof. Guus Berkhout, emeritus professor of Geophysics in the Delft University of Technology and a member of the Royal Netherlands Academy of Arts and Sciences, according to Lord Christopher Monckton of Brenchley. Monckton, a signer of the European declaration, posted a report today on the new Climate Group and the initiatives it plans to take, on Anthony Watts' climate truth website, "Watts Up With That."

Members are discussing publishing "an online, open-access Journal of Corrections to publish learned papers, peer-reviewed by qualified members of the Group, that will put right the often erroneous and unsound science published in the pal-review journals of climate science," as well as "hosting national and international scientific conferences, providing speakers and lecturers willing to balance the one-sided and militantly wrong pseudo-science that now holds sway, providing articles for those of the mainstream media who—unlike the unspeakable BBC—are willing to honor their obligation of giving both sides of every story." Planning is already underway on the first of a series of documentaries they intend to produce. Other ideas include setting up online universities and "an internet based home-schooling network for pupils aged 3 to 18."

The group is clear this fight will get nasty. Monckton reports that they are establishing "a legal defense fund to assist those, such as Prof. Peter Ridd of the Great Barrier Reef, who have been libeled, punished or dismissed for daring to do what scientists ought to do—to take no one's word for it and to go on asking questions until the truth emerges."

The group seeks to "establish friendly relations with other independent-minded entities worldwide that are dedicated to the advancement of true science," and invites new scientists to sign on.