California Drought Update

For February 4, 2016
by Patrick Ruckert

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A Note To Readers

As you will read below, today begins a 10 day dry spell, right in the middle of our "monster" El Nino, and the forecasters have no idea what will come after. So, welcome to the world of reality-- the uncertainty of what the future will bring. That is why we humans must not be subject to the whims of nature, but instead, create our own future by living, in our minds, in a future that we will create, beginning today. That is how those who built the Central Valley Project and the State Water Project lived. It is time we did the same. And, as you will read below, it is the creative power of mankind that produced the apparent irony that with more than 500,000 acres of the best farm land in the world fallowed, California farmers still bring a record harvest.

The last few issues of this newsletter has featured the proposals for building more water storage facilities, like the Sites Reservoir off the Sacramento River. But, no matter how enthusiastic the proponents may be, and how necessary it is, it will never happen unless there is, from the top down, a complete change in the leadership of the nation, and a total change in the way the people of the nation think.

Because, "We are standing at a unique and unprecedented turning-point in history; not in the current decades or the past few years, but in fact history has moved into a new phase in the past several days. No one yet knows what it will bring, whether for much better or for much worse; we must see to it that it is much better."

So reads the opening sentences of a new statement from LaRouche PAC. The statement then quotes Lyndon LaRouche, "The only things we can rely on to guide our actions in these unique days of destiny, are the most deeply-known and most fundamental truths. These are not what most of the falsely-educated would say they are,— what is known to each of us most intimately is the fundamental nature of man. Not the 'practical man,' but the man we meet only when man ventures out into space."

LaRouche goes on to say, "We reached out to try to understand what there is about mankind; what is mankind; why does mankind exist? What is the meaning of mankind's existence? And we find out that you have to go out into the galactic waters and places like that in order to discover and experience the meaning of the thing. Mankind has, long before, understood that mankind is a unique creature, a unique creation; the process has been to try to extend our insight into what that means. And that's exactly where we have to start on these issues under these present conditions."

One more quotation from that statement, and then I urge you all to read and forward it widely.

"John F. Kennedy once said, 'Man, in his quest for knowledge and progress, is determined and cannot

be deterred. The exploration of space will go ahead, whether we join it or not, and it is one of the greatest adventures of all times, and no nation which expects to be the leader of other nations can expect to stay behind in the race for space.'"

The progress John Kennedy fought and died for, must once again become the idea that guides the nation. While China announced this week that it will land a rover on the far side of the Moon, the United States, under Obama, has all but shut down its space program. Unless the nation is striving to master the frontiers of discovery, then it will never build even a reservoir.

Here is the link: **larouchepac.com**/20160204/unique-and-unprecedented-turning-point-human-history

While Water Pours Into the Bay From the Delta

On February 2, the State Water Board adopted an *Extended Emergency Water Conservation Regulation*. As reported by *mavensnotebook.com*, what follows are some excerpts.
http://mavensnotebook.com/2016/02/02/this-just-in-state-water-board-adopts-extended-emergency-water-conservation-regulation/

Extended Regulation Gives More Flexibility to Water Suppliers to Meet Conservation Targets

From the State Water Resources Control Board:

> *With California still experiencing severe drought despite recent rains, the State Water Resources Control Board (State Water Board) today adopted an extended and revised emergency regulation to ensure that urban water conservation continues in 2016.*
>
> *The regulation extends restrictions on urban water use through October 2016 while providing urban water suppliers more flexibility in meeting their conservation requirements.*
>
> *Due to the severity of the water deficits over the past four years, many of California's reservoirs and groundwater basins remain depleted, and the need for continued water conservation persists. Today's action serves as the fourth iteration of the emergency regulation since the State Water Board first instituted statewide conservation requirements in July 2014.*
>
> *This regulation should still allow this state to save more than 1 million acre-feet of water through October 2016 – which is enough water to serve an average of two million California families.*

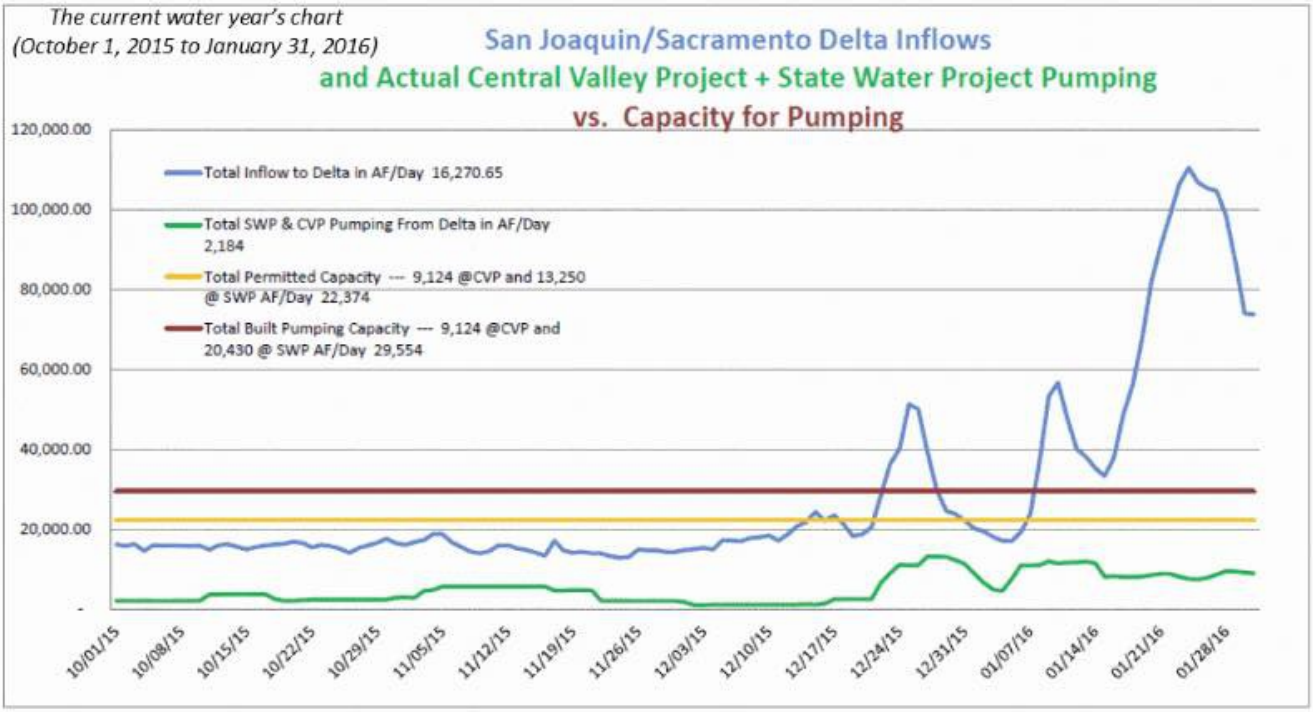
Why?

Very simply because the Water Board continues sending water to the Bay rather than pumping it to storage.

Mark Borba posted the following on the face book group *"My Job Depends on Ag:"*

From January 27 through February 2, 650,308 acre-feet have flowed into the San Joaquin River Delta due in large part to above average precipitation in Northern California. How much made it through to

San Luis Reservoir? 58,401AF, just under nine percent of inflow, and 37.3 percent of permitted capacity of 156,618 AF/week. (See the chart below for the current water year's inflows vs. pumping.) Liquid crumbs, my friends. Liquid crumbs . . .



Another complaint comes from the *State Water Contractors*, a statewide, non-profit association of 27 public agencies from Northern, Central and Southern California that purchase water under contract from the California State Water Project.

Under the title, "Water Losses Eclipse Gains from Winter Storms-- *Environmental Regulations Trigger Significant Cutbacks, Underscore Need for Modern Delivery System,"* their statement of January 28, has a brief excerpt below. http://www.swc.org/in-the-news/press-releases/222-water-losses-eclipse-gains-from-winter-storms

Sacramento, CA– The California Department of Water Resources (DWR) announced this week that public water agencies are now projected to receive 15 percent of contracted water supplies from the State Water Project (SWP) in 2016. While recent storms allowed DWR to increase the previous 10 percent allocation, environmental restrictions have triggered a loss of approximately 225,000 acre-feet of water in January alone, enough to serve more than one million people with water for an entire year.

And the Western Growers issued a statement on January 28, "We're Losing How Much El Nino Water?" https://www.wga.com/blog/we%E2%80%99re-losing-how-much-el-nino-water

Today, the Coalition for a Sustainable Delta released data indicating that 125,000 acre-feet of water has been flushed out to the ocean this week alone as a result of environmental regulations restricting operation of the Delta pumps. And for the month of January? The total amount of water lost so far is 208,000 acre feet and counting. This amount of water translates to nearly 70,000 acres of fallowed farmland and more than 1,600 lost jobs.

How's the Weather, the Drought, the Reservoirs?

We will start this section with El Nino. *Weatherwest.com* had an informative and interesting discussion of El Nino a couple of days ago, which demonstrates both that forecasting non-linear phenomenon is not an "exact science," and how, at least some forecasters are infected with the man-caused global warming disease. The article, which does give some interesting background, "**El Niño remains among strongest ever recorded, but California impacts (so far) a bit different than anticipated,**" by Daniel Swain on February 1, is excerpted below, can be found here: **http://www.weatherwest.com/**

Reminder: when it comes to El Niño, strength matters.

The prospect of an El Niño event in the Pacific Ocean always generates quite a bit of interest in California. This attention largely stems from the fact that two of California's wettest years on record—1982-1983 and 1997-1998—occurred during the strongest El Niño years in living memory. The popular perception that El Niño always brings a lot of water to the Golden State, though, is not particularly accurate. The reality is a bit more nuanced: particularly strong El Niño events exert a powerful influence upon the atmosphere over the northeastern Pacific Ocean, and really do have a tendency to enhance the storm track in a way that favors greatly enhanced precipitation across the entire state of California. But more middling weak to moderate events don't have nearly as pronounced an effect, and in many cases don't meaningfully affect the odds of seeing wetter or drier than average conditions in California. The main reason for this nonlinear effect is that other periodic oceanic and atmosphere oscillations (other than El Niño) still play a major role in California's winter weather, and unless El Niño is powerful enough to consistently outweigh all of them, the net effect can swing either way.

While the present El Niño is indeed among the strongest ever recorded, the atmospheric response to the warm ocean temperatures this year has been a bit different than we have observed during other big historical events.

While nearly all of California is expected to be above average in terms of season-to-date precipitation after this weekend's Southern California storm, only the northern 2/3 of the state is above average for the full season to date. (NOAA via WRCC)

The net effect so far in 2015-2016: Northern California and the Pacific Northwest have gotten soaked, while Southern California has been left pretty dry (with a few notable exceptions).

Another article with good background on El Nino was in the *Los Angeles Times* on January 30: "High-pressure mass above Southern California keeps brunt of El Niño away."
http://www.latimes.com/local/weather/la-me-el-nino-wimp-20160130-story.html

As the phrase goes, in regard to El Nino, "whatever." Jeffrey Kightlinger the general manager of the *Metropolitan Water District of Southern California*, discusses the "whatever" in a column in the *Orange County Register* on January 31, titled, "El Niño won't cure our water woes." Of note in his commentary, is the admission that the California State Aqueduct, built to deliver water to Southern California, no longer does so, and the region's water supply is potentially endangered. I have included extended remarks from this commentary because the background provided is useful, especially for those who might accuse Southern California of "stealing our water."
http://www.ocregister.com/articles/water-701957-california-wet.html

Just how far could a wet winter go toward replenishing Southern California's water reserves? Some. Maybe even a lot. But by itself that will not be enough to ensure we have the water for years ahead and inevitable droughts. Capturing and delivering sufficient supplies in a typical year is what really determines the reliability of a water system. And for that, today's system is not as effective as it needs to be.

Southern California, like much of our state, imports more than half of the water it needs. This imported supply from the Colorado River and Northern California sustains the Southland's trillion-dollar-plus economy. These supplies are stored in reservoirs and groundwater basins to help carry us through times of drought.

Going into this drought cycle, Metropolitan had amassed more than 3 million acre-feet of water in its network of reservoirs and groundwater banks. To give a sense of scale, the region overall uses nearly 4 million acre-feet in a typical year (one acre-foot is 326,000 gallons).

Over the last four years, about two-thirds of those reserves have been tapped to sustain our everyday needs at home and support our economy, leaving about 900,000 acre-feet of stored water.

In the wettest of scenarios, Metropolitan could add about 1 million acre-feet of water to storage. Put another way, it would take two historic El Niños to replenish Metropolitan's reserves to pre-drought levels, or three typical wet winters. Water agencies cannot plan on El Niño as a water reliability strategy. More effectively managing and capturing the rain and snow falls in the average to wet years is crucial.

This region invested billions of dollars to capture and move supplies from the Sierra Nevada through the Delta to the California Aqueduct. After more than 50 years, this system no longer reliably functions because of environmental conflicts in the southern Delta, where the pumping facilities that send water to much of the Central Valley and Southern California are located. In fact, the most severe pumping restrictions to protect fish species often are triggered when water flows are at their highest.

To really understand the California Water Management System, my report on its history is useful: http://amatterofmind.org/ca-drought-pdf/History-of-the-California-Water-Crisis.pdf

Reflecting the anxiety and confusion about El Nino, the article, "El Niño Is Here, So Why Is California Still in Drought?," from January 29 by Andrea Thompson from *climatecentral.org* is excerpted below. http://www.climatecentral.org/news/el-nino-is-here-so-why-is-california-still-in-drought-19975

A parade of El Niño-fueled storms has marched over California in the last few weeks, bringing bouts of much needed rain and snow to the parched state. But maps of drought conditions there have barely budged, with nearly two-thirds of the state still in the worst two categories of drought.

So what gives?

The issue for California comes down to this: there are short-term drought impacts and long-term ones.

"The good news is we are seeing the benefits of El Niño, but they are trying to climb out of a 4-year drought," Mark Svoboda, a climatologist with the National Drought Mitigation Center at the University of Nebraska-Lincoln, said in an email.

Long-term impacts like depleted groundwater, low reservoir levels and pitiful stream flows, "they're not responding much at all yet," Brian Fuchs, another NDMC climatologist, said. "The reservoir levels have hardly moved."

To name just a few examples (all in Northern California): Trinity Lake is at 27 percent of capacity and

38 percent of its historical average, Shasta Reservoir is at 49 percent of capacity and 73 percent of the historical average, and Lake Oroville is at 40 and 61 percent, respectively, according to DWR records.

The Drought and Reservoirs

The results of the Department of Water Resources second snow survey was released on February 2. Here is an excerpt from that release:

> *Results of the winter's second media-oriented manual snow survey by the Department of Water Resources (DWR) confirmed what Californians have been saying for weeks: It's raining and snowing much more this winter than last.*
>
> *Rainfall and the Sierra Nevada snowpack's water content are both markedly improved this water year, and storage in the state's major reservoirs also has increased significantly since January 1. Rainfall in the three regions tracked continuously by DWR was 123 percent of the historical average between October 1 and January 31.*

The U.S. Drought Monitor says exceptional drought was reduced in one area of the northern Sierra this week. That still leaves 39 percent of the state in "Exceptional Drought," a one percent reduction from last week.,

And as of today the National Weather Service is forecasting near record high temperatures and dry conditions for the next 10 days or so. Beyond that, who knows if we will get more precipitation this winter. At least the Weather Service won't say. Here is the statement from the National Weather Service:

"*After a January with well above normal precipitation, It appears the first portion of February will be mainly dry. High pressure building over the west coast will bring fair skies and well above normal temperatures over the next 7 to 10 days. The only real threat of precipitation looks like Friday night over the far north state as a weak weather system rides over the west coast ridge and into the Pacific Northwest. Near record high temperatures will be possible*."

As for the reservoirs, they continue to gradually fill, yet all but Folsom are still below the level considered to be normal for this time of the year. San Luis remains at just 44 percent of normal for this date, and New Melones is only at 28 percent of normal.

There is a lot of noise about Folsom this week, since not only was it at its lowest level in its history just a few months ago, but in recent weeks it has been refilling rapidly. Here is an excerpt from the *Sacramento Bee* of February 1, titled, "Buoyed by recent rains, Folsom Lake levels triple." http://www.sacbee.com/news/state/california/water-and-drought/article57713633.html

Since early December, a series of storms has added about 393,000 acre-feet, or 128 billion gallons, to Folsom reservoir. On Saturday alone, the lake gained about 71,000 acre-feet, the largest single-day increase in a decade. As of Monday, Folsom Lake was at 104 percent of average for this time of year and at 54 percent of total capacity. Two months earlier, it was at 14 percent of capacity.

Still, lots of water in Folsom Lake doesn't mean the drought is over. Folsom is the smallest of Northern California's major reservoirs, and so it fills up more quickly than others. No other major reservoir in the state has reached normal levels or is near flood-control stage. Most reservoirs aren't even close.

California Farmers Are Ever More Productive

The increased productivity of mankind is no better expressed than in American agriculture. With less than 2 percent of the American people on the farm, American farmers feed 320 million fellow countrymen and a good chunk of the rest of the world. So, with California now in the fifth year of its worst drought in history, and with more than 500,000 acres of crop land fallowed, the report published in the *San Jose Mercury News*, by Aaron Kinney on January 29, "Crop report: Good news, bad news for California farmers," demonstrates our point. Excerpts are below.

http://www.mercurynews.com/breaking-news/ci_29450916/crop-report-good-news-bad-news-california-farmers

SACRAMENTO -- Despite a historic drought, California farmers and ranchers are bringing in more money than ever, the state's latest crop report shows. But that doesn't mean they are living high on the hog.

The sales value of California's agricultural production in 2014 was a record $53.5 billion, up 5.1 percent from 2013, according to the Department of Food and Agriculture, which this week released an annual review of agricultural data. The increase in 2014, the latest year for which a statistical analysis is available, was driven by strong demand for milk, cattle, berries and lettuce, among other products.

Still, net farm income was down 11 percent to roughly $15 billion because of rising costs, including fuel, fertilizer and pesticides. Beyond those mundane expenditures, the drought has forced farmers who don't have enough water to purchase the precious resource on the open market or dig new wells in search of groundwater.

"In any business you're looking at revenues and expenses," said Dave Kranz, spokesman for the California Farm Bureau. "And expenses for California farmers went up at a much faster rate than the revenues did."

The state's 76,400 farms continued adapting to the drought by moving their limited water resources toward the most profitable crops. Raspberry production was up 65 percent, for instance, while corn grown for livestock feed was down 60 percent.

But farmers would be faring even better were it not for the drought, said UC Davis researchers Richard Howitt, who estimates, based upon NASA satellite images, that more than 400,000 acres of farm land were fallowed in 2014 in the Central Valley because of dwindling water supplies.

Regardless, The Drought Hurts

What follows are reports on Salmon, the overdrafting of the aquifers and almonds. Despite the resilience of our human species; our ability to use our creativity to solve virtually any problem thrown at us by man or nature, damage is done.

The *Associated Press* ran an item on February1, "2nd disastrous drought year for endangered California salmon," by Ellen Knickmeyer, which, while objectively reporting on the kill-off of salmon, promotes the desired aim of Governor Brown and others to divide the population. Nickmeyer highlights the conflict between farmers and fishermen. Excerpts follow. http://abcnews.go.com/US/wireStory/2nd-disastrous-drought-year-endangered-california-salmon-36651691

Endangered native salmon suffered a second straight disastrous year in California's drought, with all but 3 percent of the latest generation dying in too-shallow, too-hot rivers, federal officials said Monday.

Survival rates for California's endangered native fish regularly are a flashpoint in the disputes among fishermen, farmers and others about how federal and state authorities divvy up the state's water supplies.

Just 318,000 juvenile winter-run salmon survived last year, or 3 percent of nearly 10 million eggs, the National Oceanic and Atmospheric Administration's fisheries agency said Monday. That compares to just 5 percent survival the previous year — and 41 percent in 2011, just before California's drought set in.

"I think everyone tried to make it work and despite everybody's best efforts it still was too warm," said Maria Rea, a deputy regional administrator with NOAA fisheries.

However, a fishing industry official maintained the fish would have done better if water managers had released less water in the spring for farmers and other users.

The state *Department of Water Resources* on January 21 issued a report listing 21 groundwater basins and subbasins in the state that are overdrafted, causing land subsidence, chronically lowered groundwater levels and, in the case of the Salinas Valley, seawater intrusion.
http://www.fresnobee.com/news/local/article55875525.html

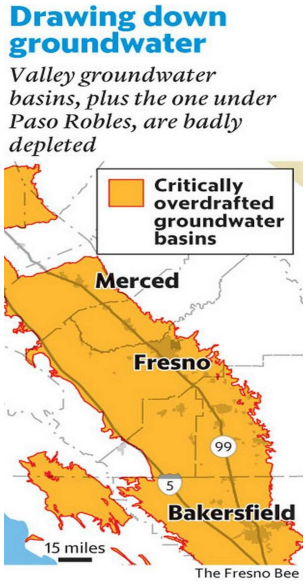
Here are excerpts:

"Most of San Joaquin Valley on state list of critically overdrafted groundwater basins"

The state Department of Water Resources on Thursday released a list of 21 groundwater basins and subbasins that are overdrafted, causing land subsidence, chronically lowered groundwater levels and, in the case of the Salinas Valley, seawater intrusion.

Eleven of the areas are in the San Joaquin Valley, the nation's leading farming region.

A map released by the state shows areas of overdraft extending from San Joaquin County to Kern County, with only two areas around Modesto and Turlock not included.



Earlier in January, the *Sacramento Bee* addressed the subsidence problem in an opinion column, dated January 10, "We need more urgency on sinking Valley." Excerpts below.
http://www.sacbee.com/opinion/editorials/article53765135.html, or

http://www.fresnobee.com/opinion/editorials/article53757750.html#storylink=cpy

We need more urgency on sinking Valley

Some parts of the Central Valley are sinking, and time is running out to make the hard choices to slow the overpumping of groundwater causing it.

During the 1920s, '30s and '40s, subsidence, which occurs when underground aquifers are emptied, was a huge problem. Farmers pumped with abandon, and parts of the San Joaquin Valley sank 30 feet. When the federal Central Valley Project started delivering water from the Sierra, subsidence ended.

The epic drought has brought it back, with a vengeance. Farmers have fired up their pumps, including those who have planted almonds and other thirsty tree crops.

Now, some areas in the southern part of the San Joaquin Valley are sinking an inch a month, says the U.S. Geological Survey. A NASA study*, based on satellite photos, also found significant subsidence.*

After listing three restrictions on pumping as ways to slow-down the subsidence, the editorial then states that more local supplies are required. But, not mentioned is the only solution: New sources of water. This requires new water supplies from more storage and the building of desalination plants, especially in the Bay. Such plants in the Bay could pump water directly into the aqueducts of the Central Valley Project and the State Water Project.

Finally, for this section, is the collapse of almond prices world-wide. As the almond farmers know the price for the nuts has fallen from nearly $5.00 per pound to less than $3.00 per pound.

"Almond prices crushed by demand slump and bumper harvest." So reads the headline of an article by Emiko Terazono at *ft.com* on January 19. This article and several others attribute to fall in prices to "market forces." But, the drought and the general and rapid decline in world trade, as reported over the last few weeks, is probably the more decisive factor-- we are in a new collapse.
http://www.ft.com/cms/s/0/253b49ae-be07-11e5-9fdb-87b8d15baec2.html#axzz3xpVIDr8e

Here are a few excerpts, followed by links to several other articles:

After several years of defying gravity, almond prices have been crushed.

The market for standard almonds, which hit a record high of $4.70 a pound last August, has almost halved to $2.60 as the market was taken by surprise by a larger than expected harvest last year.

Last year's surge in prices depressed demand, and buyers in China, the Middle East and India, who have led consumption over the past three to four years, have disappeared. Trading has ground to a halt as prices continue to decline and the number of rejected containers by buyers refusing to honour contracts has jumped.

"Prices falling for once high-flying nut crops"

January 22, 2016

http://www.fresnobee.com/news/business/agriculture/article56165910.html

“Almonds Are Getting Cheaper, But Here's the Catch”

January 27, 2016

http://www.motherjones.com/tom-philpott/2016/01/almond-boom-prices-falling-drought-exports

“The crazy sequence of events that's making almonds cheap again”

January 29, 2016

washingtonpost.com/news/wonk/wp/2016/01/29/too-many-almonds/

China Planning to Build Floating Nuclear Power Plants

On January 27, China announced that it would begin building floating nuclear powr plants. More than a year ago, the Russians began building the first of a fleet of such plants. Both nations are either considering or are installing desalination plants on these plants. As I proposed last year, one way to repair the damage to the U.S. relations with both nations, instigated by Obama, is for California to buy these plants from both nations and place them in the Bay to pump desalinated water directly into the aqueducts of the two major water projects.

http://www.straitstimes.com/asia/east-asia/china-planning-to-build-floating-nuclear-power-plant

Russian floating nuclear powerplant “Academic Lomonosov” under construction

(RIA Novosti/ Alexei Danichev)

Russian Deputy Prime Minister Dmitry Rogozin says the first floating nuclear powerplant built for use in the Arctic will be ready by October, 2016.