



**Unit 1-2 of Korea Shin-Kori Nuclear Power Plant. Taken on February 25, 2013.  
Photo Credit: Korea Shin-Kori NPP / IAEA / Attribution-ShareAlike 2.0 Generic**

# **California Water and Infrastructure Report (With expanded coverage of all the Western States)**

**For November 24, 2022**

**by Patrick Ruckert**

**Published weekly since July, 2014**

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## **A Note to Readers**

A happy Thanksgiving to everyone.

We shall take the occasion to put off for a week updates on the drought, the Colorado River disaster and related areas of interest.

So, this report features the Thanksgiving proclamation of President George Washington in 1789, and a piece on the topic by my colleague Robert Ingraham.

Finally, another of my colleagues, Brian Lantz, has authored a report on, ***“Project Prometheus: Building Hundreds of Nuclear Power Plants to Make America Great Again.”***

With that, once again, enjoy your Thanksgiving.

# George Washington's Thanksgiving Proclamation of 1789

By [LaRouchePAC Posts](#)

November 24, 2022

[https://www.larouchepac.com/george\\_washington\\_s\\_thanksgiving\\_proclamation\\_of\\_1789](https://www.larouchepac.com/george_washington_s_thanksgiving_proclamation_of_1789)



By the President of the United States of America, a Proclamation.

Whereas it is the duty of all Nations to acknowledge the providence of Almighty God, to obey his will, to be grateful for his benefits, and humbly to implore his protection and favor-- and whereas both Houses of Congress have by their joint Committee requested me to recommend to the People of the United States a day of public thanksgiving and prayer to be observed by acknowledging with grateful hearts the many signal favors of Almighty God especially by affording them an opportunity peaceably to establish a form of government for their safety and happiness.

Now therefore I do recommend and assign Thursday the 26th day of November next to be devoted by the People of these States to the service of that great and glorious Being, who is the beneficent Author of all the good that was, that is, or that will be-- That we may then all unite in rendering unto him our sincere and humble thanks--for his kind care and protection of the People of this Country previous to their becoming a Nation--for the signal and manifold mercies, and the favorable interpositions of his Providence which we experienced in the course and conclusion of the late war--for the great degree of tranquility, union, and plenty, which we have since enjoyed--for the peaceable and rational manner, in which we have been enabled to establish constitutions of government for our safety and happiness, and particularly the national One now lately instituted--for the civil and religious liberty with which we are blessed; and the means we have of acquiring and diffusing useful knowledge; and in general for all the great and various favors which he hath been pleased to confer upon us.

And also, that we may then unite in most humbly offering our prayers and supplications to the great Lord and Ruler of Nations and beseech him to pardon our national and other transgressions-- to enable us all, whether in public or private stations, to perform our several and relative duties properly and punctually--to render our national government a blessing to all the people, by constantly being a Government of wise, just, and constitutional laws, discreetly and faithfully executed and obeyed--to protect and guide all Sovereigns and Nations (especially such as have shewn kindness unto us) and to bless them with good government, peace, and concord--To promote the knowledge and practice of true religion and virtue, and the encrease of science among them and us--and generally to grant unto all Mankind such a degree of temporal prosperity as he alone knows to be best.

Given under my hand at the City of New York the third day of October in the year of our Lord 1789.  
Go. Washington

## On Thanksgiving: The Birth of Freedom, The Pilgrims and Our Founding



By [Robert Ingraham](#)  
November 24, 2022

[https://www.larouchepac.com/on\\_thanksgiving\\_the\\_birth\\_of\\_freedom\\_the\\_pilgrims\\_and\\_our\\_founding](https://www.larouchepac.com/on_thanksgiving_the_birth_of_freedom_the_pilgrims_and_our_founding)

“Reason is that wherein man goes before all other earthly creatures and comes after God only.... For whereas God and nature hath furnished other creatures, some with hoofs, others with other instruments, and weapons both defensive and offensive, man is left naked, and destitute of all these, but may comfort himself in that one endowment of reason, and providence, whereby he is able to govern them all.”  
**Rev. John Robinson, “Of Faith, Hope, and Love, Reason and Sense”**



Jennie Augusta Brownscombe, Thanksgiving at Plymouth, 1925; Oil on canvas, 30 x 39 1/8 in.;  
National Museum of Women in the Arts, Gift of Wallace and Wilhelmina Holladay

The single initiative, the single act of courage which made possible humanity’s escape from the omnipresence of oligarchical slavery was the 1620 voyage of those who became known as the Pilgrims, and the establishment of the Plymouth colony that same year. This was the act which proclaimed the determination of a people to live free, and it was the 1620-1776 developments in America which created—for the first time in human history—the possibility of eliminating oligarchical slave systems

worldwide. That 1620 voyage was perhaps the greatest blow against human slavery in the history of our species.

This year we mark the 400th anniversary of that voyage. Where are the celebrations? Where are the names and motivations of these heroes proclaimed? In 1920, on the tercentenary of the Pilgrim voyage, parades, conferences, and celebrations were held across America. Proclamations were issued. Special coins were minted, and special postage stamps were issued. Today, history is turned on its head, and a lying narrative is propagated that, somehow, this initiative by the Pilgrim Brethren ushered in a new era of slavery and genocide. It is time to reclaim the glory and the wondrous truth of what was accomplished.

Between 1585 and 1626, several attempts at colonization were made in North America, including at Roanoke (VA), Cuttyhawk (MA), St. Croix (Maine), Popham (Maine), Jamestown (VA) and New Amsterdam (NY). Of these, all but Jamestown and New Amsterdam failed. The most significant characteristic of all these colonies, however, is that they were commercial efforts, established primarily with the intention of returning financial profits to London. One telling feature is that all of these colonies consisted entirely of men, except for a small number of women in the second attempt at Roanoke in 1587.

When the Pilgrims arrived at Plymouth with 102 colonists, that number included 48 men, 24 women and 30 children. What the Pilgrims brought to Plymouth were *families*. Their intention was not to establish a colony which would transmit loot back to London, but to create an entirely new type of society, grounded in human freedom. This is identical in intent to John Winthrop's later proclamation for establishing a "City Upon a Hill" in Boston.

The Pilgrims, in fact, were escaping from two oligarchies. They had fled England for the Netherlands in 1608 to escape from the oligarchical nightmare which was descending upon England in the wake of the coronation of James I in 1603, dark developments explored profoundly by William Shakespeare. But by 1619 their situation in the Netherlands had become untenable. Amsterdam was becoming a clone of the Venetian paradigm of slavery, usury, and financial speculation; the maritime Dutch Empire was expanding, and Europe was descending into the murderous chaos of the Thirty Years War. The decision was made by the Pilgrim congregation to relocate to the New World,—not a light commitment, given the record of previous colonization attempts in North America.

What the Pilgrims brought to North America was the belief that all human beings, of whatever station, were endowed with reason, that the potential for productive creativity, in the image of a creative deity, exists within each one of us, regardless of race, religion or status. That was the foundation on which they determined to build a new society, and the guiding spirit of their efforts was a commitment to the *agapic* ideal of the Common Good.

As the Pilgrim pastor John Robinson declared in his essay, "Of Created Goodness":

First, We must do good in obedience to God's commandments.... Secondly, That we do it at all times, as we have opportunity.... Thirdly, We must do good readily.... Fourthly, According to our ability.... Fifthly, We must have respect to men's present wants; and not only consider what we can spare but withal what they stand most need of.... Sixthly, We must do good to all....

This dedication "to do Good" would later be enshrined by Cotton Mather in his work, *Bonifacius: An Essay upon the Good ... to do Good*.

Set into motion was a process of creating an anti-oligarchical culture, one coherent with the principle which Gottfried Leibniz later termed "Happiness." This effort proceeded through stages, with many reversals and crises, but in 1776 the call went forth—as a *self-evident truth*—that "All men are created equal," and in 1789 a new Republic was formed, pledged to defend the General Welfare and secure the "Blessings of Liberty" for future generations.

What we are discussing here is the “Idea of America,” the well-spring from which all later great developments flowed. Martin Luther King possessed a profound moral grasp of this issue, and Lyndon LaRouche battled for this ideal, this vision, throughout his life.

[You can read more about the Pilgrims and our founding by Robert Ingraham here.](#)

## Project Prometheus: Building Hundreds of Nuclear Power Plants to Make America Great Again

By [Brian Lantz](#)

November 24, 2022

[https://www.larouchepac.com/project\\_prometheus\\_building\\_hundreds\\_of\\_nuclear\\_power\\_plants\\_to\\_make\\_america\\_great\\_again?utm\\_campaign=20221124\\_nuclearpower&utm\\_medium=email&utm\\_source=larouchepac](https://www.larouchepac.com/project_prometheus_building_hundreds_of_nuclear_power_plants_to_make_america_great_again?utm_campaign=20221124_nuclearpower&utm_medium=email&utm_source=larouchepac)



Unit 1-2 of Korea Shin-Kori Nuclear Power Plant. Taken on February 25, 2013. Photo Credit: Korea Shin-Kori NPP / IAEA / Attribution-ShareAlike 2.0 Generic

We need on the order of 700 to 1,000 *gigawatts* of nuclear power to power our nation into the future. We can begin bringing new plants online over the course of the next five to ten years—transforming our entire economy by upshifting to a new scientific, industrial, and cultural platform. This will mean a transformation of our workforce—of upgraded pay scales, skill levels, and productivity. [Much of this was discussed in this presentation.](#)

We are going to need to produce hundreds of 1,000 megawatt (one gigawatt) nuclear power plants. To do this, producers of large reactors need the stability of large and consistent building programs and standardization of designs and the supply chains. This will also require the financing of a national bank, of public credit, [as LaRouche PAC has specified](#). The private and remaining public utilities, as they exist today, will not be able to finance an investment of trillions of dollars or more over the coming

decade or two. We must do this as a national mission.

As well, the new small modular reactors (SMRs), of 300 megawatts or less, also need to work out a range of designs and *have the scale of demand which comes with a crash national nuclear power program*, allowing costs to be reduced, so that they become efficient and effective in a range of applications, including desalination and process heat for heavy manufacturing and mining. The Trump presidency understood that these new SMR technologies, and the companies designing them, needed support to develop prototypes and to develop initial manufacturing capabilities to prove their undoubted potential. It also had to be shown that they have no technical flaws, and that their cost estimates are sound. That work is proceeding.

As will be outlined here, we are on the cusp of a nuclear energy breakout, with an insurgent new American Revolution afoot, led politically by President Donald Trump.

Do not be misled! The Uniparty inside the Beltway, the Biden collective, and the modern day British, “green/brown” Empire’s oligarchy that owns them, have another scheme. Their feudal drive would kill the construction of full-size ‘light water’ nuclear power plants altogether, and shackle SMRs to wind and solar. SMRs would merely serve as backstops, to add “resilience,” “when the wind don’t blow and the sun don’t shine.” Together with canceling fossil fuels, these feudal fascists would drive humankind down into Hell.

Instead, together with President Trump’s Artemis program to the Moon, Mars, and beyond, we must *fire* the imaginations of our younger generations, as one would fire up a forge! The colonization of space, together with *Project Prometheus* for nuclear power development, can be the context for training up our future productive workforce, utilizing a *Space CCC* program. See: [Section 8, “Educating Our Youth—A Space CCC.”](#)

## **Hundreds of American Nuclear Plants—Where and How?**

### **Full-Size Light Water Nuclear Reactors**

First, we must recognize what we have with the Westinghouse AP1000, the leading Generation III+ reactor in the world. With passive safety systems, a 60-year life span, up to 50% fewer safety-related valves, 35% fewer pumps, 80% less safety-related piping, 85% less control cable, and 45% less seismic building volume, the AP1000 design uses under a fifth of the concrete and rebar reinforcement of older designs. The AP1000 also has an 18-month fuel cycle for improved availability and reduced overall fuel cost. [The world is learning about it, and so should you!](#)

In April, China contracted for four more AP1000’s to be built in China. In May of 2022, Westinghouse Electric Company and South Korea’s Hyundai Engineering & Construction signed an agreement to “jointly participate in global AP1000 plant opportunities.” On Nov. 2, 2022, the Polish government announced that it had selected Westinghouse Electric Company’s AP1000 nuclear reactor technology to advance the country’s nuclear energy future. That could be for as many as six nuclear reactors. Besides the geopolitics of the Biden collective’s insane drive for war with Russia, what does this tell us?

Part of the Polish backstory is that in September, Westinghouse [announced](#) Memoranda of Understanding with 22 companies in Poland for cooperation on construction and labor force development to build AP1000 reactors in Poland *and at other potential projects in Central Europe*. “Westinghouse has committed to establishing a major engineering center and is planning various additional industrial investments to support training and development of Poland’s nuclear power talents and workforce. Westinghouse contemplates engaging on a broad scale both the U.S. and European supply chains on this exceptional project, in order to build a fleet of AP1000 reactors in the region.”

*Well, the same can be done, and must be done, here in America!* And these projects, engineering centers, and construction sites can be training grounds for our youth.

### **The Myth of Construction Costs**

The old saw is that nuclear power plant projects take almost 20 years, 8-10 years to plan and some 8-10 more years to construct. Not true. Faster construction has been underway in South Korea, *where standard designs were constructed sequentially on a limited number of sites and with a stable supply chain. The South Koreans have achieved nuclear plant builds of less than five years; we can too.*

A South Korean example of mass production methods that work is Doosan Enerbility's **integrated nuclear component manufacturing facility** in Changwon, South Korea, now being tapped by NuScale (see below). Doosan is proud of being the largest global supplier of *nuclear power plant components* for the past 40 years.

South Korea has shown the way in building a series of 900 and 1,000 MW reactors **of a standard design**. Ironically, their chosen design was licensed from Combustion Engineering (C-E), now headquartered in Stamford, Connecticut. Indeed Combustion Engineering has been building steam boilers since 1904, moving up to nuclear steam supply power systems. Beginning in 1995, with that C-E design, South Korean companies built a dozen C-E-derived reactors using the same elements in the supply chain. C-E's nuclear division is now part of Westinghouse. Beyond this, South Korea's Generation III APR1400 draws on C-E System 80+ innovations. Throughout, they minimized (though not eliminated) design change, reduced construction time, and reduced capital costs by some 30%.

Additional studies, as well as South Korea's results, have also shown that the real cost and complexity of nuclear construction is not in the heavy forging and high-tech vessel and turbine manufacturing costs, *but the site construction work (concrete structures, mechanical equipment and electrical systems) and related design (& redesign) and supervision overheads.*

"Green" anti-nuclear efforts, funded by Wall Street outfits like the Natural Resources Defense Council (NRDC) have added to the "red tape," in addition to construction constraints already varying widely from site to far-flung site. It is assessed in the US and Europe that around 50% of total project costs are in the nuclear site construction & design costs. These costs become even higher as a project takes more and more time to finish.

However, with standard designs, constructed sequentially on a limited number of sites and with integrated stable chains, these costs are overcome. One improves site productivity by learning lessons from one project and applying them to the next project.

**Standardization** is, after all, the precursor for successful modularization. We, as Americans, know how to do this. In many ways, we invented this approach, going back to Samuel Colt and Eli Whitney and successful standardized production of Colt revolvers beginning in the 1850's!

Such standardization allows for 'production learning.' That is, the mastery of, and improvements in, a production process which comes with the actual "scaling up" of physical production—thereby achieving "economies of scale" where costs fall progressively as manufacturing volume is increased. The inherent process of human discovery, including engineering and worker input, transforms the very production process itself.

As more than one specialist has asked, "Why does this not occur in nuclear?" The reasons are simple. Nuclear energy development has been systematically sabotaged. Nuclear projects are marred by frequent design change and therefore bureaucratization. In the process, supply chains are constantly in flux, with potential small- and medium-sized suppliers losing the benefits of experience.

Now we have a golden opportunity with the completion of the Vogtle nuclear plants #3 and #4 in Georgia, [the first new nuclear plants in 30 years](#). The frequency of nuclear production has been far too low for knowledge to be captured and shared. Now, another generation of skilled construction workers, engineers, and managers, numbering some seven to eight thousand, have been trained-up building the most advanced AP1000's. These skilled men and women can and must be rehired and “redeployed” to new, additional nuclear plant construction sites, training others. We can do it, through a multiplier effect!

We can, in short, build up the capacities, logistics, and manpower for advanced 1 gigawatt power plants—to go *nuclear*!

**[LaRouchePAC needs your financial support. Donate today and help grow our operations.](#)**

### **Small Modular Reactors (SMRs)**

Lets move on to SMRs, the new element in the big picture. In addition to Nuscale, Terra Power, X-energy, Rolls-Royce *SMR* Ltd., and many other companies are developing *factory*-built SMRs that will offer clean, affordable energy.

The small reactors are to be built in factories, with little or no in-field fabrication or construction. We are moving from standardization of full-sized plants and bringing the benefits of modularization to bear. What if it only took 12 months to produce a reactor pressure vessel? Which methods can we bring forward to accomplish this in the near-term? The Electric Power Research Institute (EPRI), in [a 2018-2019 advanced manufacturing program](#) done with companies including NuScale, has identified a host of new technologies that move us in that direction:

- Powder Metallurgy-Hot Isostatic Pressing (PM-HIP)
- Electron Beam Welding & Heat Treatment—one pass welding
- Diode Laser Cladding
- ATLAS—Advanced Large Scale HIP

You probably are not familiar with these technologies, but you can easily look them up online. They are technologies that are part of the transformation of advanced manufacturing, and can be applied to SMR nuclear reactor construction. As well, **modular construction** is not new. This is recognized in both ship building and in chemical plant construction. It has also been demonstrated in the construction of nuclear submarines. Combining a smaller power plant footprint, fewer components per power module, and a high percentage of modular factory-fabricated components and packages, reduces construction complexity and duration. Quality assurance, inspection, and testing activities are also more easily performed in a factory, and can work to insure an on-time construction schedule and improve cost certainty. However, in adopting modularization, it requires the development and use of contractors and suppliers that can work to the closer tolerances and higher quality standards that are required for success. Developing our workforce remains essential!

### **The Example of NuScale**

Let us turn to the example of [NuScale Power modular factory production](#)—not because it is the most scientifically and technologically advanced SMR builder, but because NuScale has been certified by the Nuclear Regulator Commission and its power module is in an advanced stage of development. Where are we in the process of bringing this modular factory production of nuclear reactors into being?

NuScale Power's first commercial 6-module VOYGR power plant is now planned to be built on a site at the Department of Energy's Idaho National Laboratory. It will be owned by the [Utah Associated](#)



[Municipal Power Systems \(UAMPS\)](#) and the first module of the NuScale VOYGR-6 power plant (462 MWe) will begin generating energy in mid-2029; the remaining modules will come online for full plant operation by 2030. NuScale hopes to have other plants in operation, for example in Eastern Europe, by 2026 or 2027.

Each NuScale Power Module (NPM) is to be *factory built*—including containment and reactor vessel. It may be assumed that an initial factory for production of these NPMs will be built in that vicinity of the Idaho National Laboratory. The development of this embryonic factory manufacturing process has been accomplished with the aid of the first Trump presidency, the Department of Energy, EPRI, research institutes, and universities.

Looking at NuScale’s current progress, we have a window onto the larger SMR factory-manufacturing process itself:

- In 2018, NuScale selected Virginia-based BWX Technologies to start the engineering work to manufacture NuScale’s SMR.
- Standard Plant Design activities are now in progress with support from Sargent & Lundy and Fluor Corporation. NuScale has a longstanding partnership with Fluor as both investor and engineering, procurement, and construction (EPC) service provider for NuScale’s NPM technology.
- On April 22 of this year, NuScale [signed a collaboration agreement](#) with the US Reactor Forging Consortium (RFC) “to leverage the existing robust forging supply chain in the US, to prepare NuScale to deploy its SMR technology to customers worldwide, and to support, retain, and expand US manufacturing jobs.” The RFC comprises three companies—North American Forgemasters (NAF), Scot Forge, and ATI Forged Products—which together are the only fully integrated American manufacturers of as-forged piece weights exceeding 160 tons. These include large alloy and stainless steel open die, seamless rolled ring, and large uniquely shaped forgings. NAF has its principal office in New Castle, Pennsylvania; Scot Forge is headquartered in Spring Grove, Illinois, and ATI Forged Products has its office in Cudahy, Wisconsin.

NAF is also partnering with the Pennsylvania-based Center for Advanced Nuclear Manufacturing (operated by Concurrent Technologies Corporation), on a full production size shell research project that will focus on the use of austenitic stainless steel for reactor and containment vessels in SMRs and advanced reactors.

This is the kind of work that must be expanded, through the use of national public credits, and replicated nationwide.

- NuScale then signed on April 24th with South Korea’s Doosan Enerbility, formerly Doosan Heavy Industries & Construction, and again with BWX This work begins with design for actual manufacture, assembly and transportation, of the NuScale Power Module. Doosan has begun production of forging materials with full-scale equipment manufacturing expected to begin by the latter half of 2023. *Manufacturing* will presumably take place at Doosan Enerbility's **integrated nuclear component manufacturing facility** in Changwon, South Korea. That facility has a range of manufacturing capabilities, from raw material production to final assembly of nuclear components. Doosan has manufactured and supplied 34 reactor vessels and 124 steam generators globally. These include reactor vessels and other main components for Hyundai Engineering & Construction’s build of the large [Barakah nuclear plant complex in the United Arab Emirates](#).
- In Canada, since 2019, [NuScale Power has also been advancing the manufacturing process development work at BWXT Canada Ltd.’s facility in Cambridge, Ontario](#) in preparation for the fabrication of the NuScale Power Module. BWXT Technologies, Inc is a leading global supplier

of nuclear components and fuel. BWXT is the only North American company to continuously manufacture nuclear steam generators for the commercial nuclear power industry since the 1950s. "... NuScale estimates that 80 percent of the content for the NuScale power plant could be sourced by the existing Canadian supply chain capabilities. This includes opportunities stemming from BWXT Canada as it plans to engage sub-tier suppliers related to the reactor pressure vessels such as forging, precision manufacturing and material supply, steam generator tube bending and specialty services."

### **In Conclusion**

So the work is on and ongoing. We are not starting from a dead stop. Hopefully, enough has been presented here to fuel the imagination. It will surely take President Trump and the American people to bring our *Project Prometheus* for a nuclear renaissance to the point of bearing fruit. It is a commitment to allow the future to once again guide our nation's course. It must fire the imaginations of our youth. It will require the mobilization of public credit made available through a National Bank. It will require the fulsome deliberations of the American people, befitting our Founding Fathers and our Constitutional republic. It will be a renewed national commitment to advancing science, technology, and humane culture, willed into being by all of our efforts.