Are we slaves to Russian uranium processing?

written by Jack Lifton | August 29, 2022

I think that investors in an economy to be based on decarbonized energy sources have very limited choices. The best man-made addition to nature's hydroelectric and geothermal processes is nuclear. Quite a few who were skeptical are now seeing how to keep the lights on without burning fossil fuels by using the heat generated by controlled nuclear fission of uranium-235.

Japan has pulled back from its Fukushima tsunami-caused national shut down of its extensive civilian nuclear power fleet of reactors, and ordered the restart of its nuclear electric industry, France, the most nuclearized electricity generating nation in the world, has ordered 14 new reactors. Germany has postponed its shutdown of its nuclear-electric capacity, and the USA, with the world's largest fleet of civilian power reactors (96 operational), has licensed the test construction of small "modular" reactors (SMRs), which could built quickly and cost far less than the large scale reactors currently in use.

So, what's the problem? We've seen the light and are going to continue to use and even expand the use of carbon-free uranium fueled nuclear electric generators, right?

The problems are two-fold. First, the largest users of nuclear electric generation – the USA, China, and France – do not have, and cannot have, enough domestically mined uranium production in their respective countries to supply even a small fraction of their needs. Second, 60% (!) of the capability and capacity to enrich natural uranium into reactor fuel (zirconium coated pellets of enriched uranium 235) is located in Russia and China, with most of that today (nearly 50% of the world's total

capacity) being in Russia.

The United States has one operational plant that can produce less than a third of its annual domestic needs, and that plant is managed by its UK-Netherlands-Germany owners. China's China Nuclear Corporation is, of course, working to double its capacity to meet the needs of China's rapidly growing civilian nuclear reactor fleet, so that by 2030 China plans to have nearly one-third of global capacity, which when combined with Russia's capacity that year will give the two of them fully two-thirds of 2030's global capacity to enrich uranium for civilian power reactors.

The USA has no plans to develop or find sufficient enrichment capacity to become domestically self-sufficient by 2030 or any other future date.

And, to compound the problem, the USA today produces just a few percent of its mined uranium demand!

The world's largest fleet of civilian nuclear power reactors is totally dependent on the kindness of strangers for its continued operation and survival. The USA gets 20% of our national needs for fuel for (nuclear) electricity generation from malevolent dictatorships (Russia, China) and the rest from an energy-starved world that is becoming less interested in saving the world from climate change daily. Neither is likely to have America's domestic needs at the top of their lists.

As for the mined uranium, Kazakhstan, Canada, and Australia are the world's principal sources.

It is urgent that the USA mine, refine, and enrich all of the uranium it can from domestic sources as soon as possible.

A prominent American-based uranium miner/refiner told me last

week in regard to the above, “Once the US government dropped uranium as a national priority as it once was, things went to hell in a hand basket. Give me $5 billion and 10 years and this can change.”

Perhaps that sum can be obtained from the US Defense Departments’ programs to teach social justice issues like proper pronoun usage to our soldiers, sailors, and airmen.