THE ARCTIC

A Northern Vision for the 21st Century

Suggested contribution $20.

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The People and Governments of the North Responsability to the World

An October 25 Infographic published in the Financial Post entitled Electric Energy Consumed in the Territories by Generating Technology is a reminder that policies towards Northern Canada emanating from Ottawa, by and large, have not only suffered from chronic underfunding but those policies did not give the residents of the region the opportunity to choose the energy generating technologies which represent the high energy flux densities (Table 1) required to rapidly increase both the standard of living and productivity of the people living in the Territories.

As a consequence, Canada’s three Territories have not been permitted to attain their full potential relative population density.

We must exert political leadership and put forward a northern vision which prioritizes the dignity of man through the development of his cognitive abilities.

The North American Water and Power Alliance (NAWAPA XXI) represents a development pathway which utilizes the energy generating technologies which have the highest energy flux density. The time required to complete NAWAPA project will span one generation. This infrastructure endeavour will transform the North into a ‘college-work site’ where young people will be honing their skills and learning new ones. They will be able to operate with the most advanced technologies and become familiar with a scientific culture.

NAWAPA XXI must be studied and voted up in Yellowknife, Iqaluit, and Whitehorse. Then Ottawa must be persuaded to
sign a Treaty with the United States and Mexico, an event that would signal the official launching of the continental project which is uniquely capable of satisfying the present and future needs and aspirations of all inhabitants of Canada: Those First Nations, Inuits and all who have chosen to live and work North of 60, and those Canadians who, up until now, had pragmatically viewed Canada as contained between the 45th and 60th parallel of latitude.

Researcher Benjamin Deniston, one of the principal authors of the 54 page 21st Century Science & Technology Special Report: Nuclear NAWAPA XXI, Gateway To The Fusion Economy, argues in one of the report’s section entitled Maglev Through The Bering Strait, that the full NAWAPA XXI program will become a model and the locomotive for a worldwide economic recovery:

‘Integrating the NAWAPA XXI, Bering Strait, Arctic Development, and Pacific Corridor project will provide the needed economic leaps for the nations involved, creating a density of productive potential that will drive the growth of the entire world.’

With NAWAPA XXI, the People and Governments of the North will finally have their voice heard in the future of Northern development, but their voice will now also resonate across the world to insure a bright future for a large segment of Mankind!

<table>
<thead>
<tr>
<th>Table I: The Energy Density of Fuels</th>
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<tbody>
<tr>
<td><strong>FUEL SOURCE</strong></td>
<td><strong>ENERGY DENSITY (J/g)</strong></td>
</tr>
<tr>
<td>Combustion of Wood</td>
<td>$1.8 \times 10^4$</td>
</tr>
<tr>
<td>Combustion of Coal (Bituminous)</td>
<td>$2.7 \times 10^4$</td>
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<tr>
<td>Combustion of Petroleum (Diesel)</td>
<td>$4.6 \times 10^4$</td>
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<tr>
<td>Combustion of H2/O2</td>
<td>$1.3 \times 10^4$ (full mass considered)</td>
</tr>
<tr>
<td>Combustion of H2/O2</td>
<td>$1.2 \times 10^5$ (only H2 mass considered)</td>
</tr>
<tr>
<td>Typical Nuclear Fuel</td>
<td>$3.7 \times 10^9$</td>
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<tr>
<td>Direct Fission Energy of U-235</td>
<td>$8.2 \times 10^{10}$</td>
</tr>
<tr>
<td>Deuterium-Tritium Fusion</td>
<td>$3.2 \times 10^{11}$</td>
</tr>
<tr>
<td>Annihilation of Antimatter</td>
<td>$9.0 \times 10^{13}$</td>
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Fuel energy densities. The change from wood to matter-antimatter reactions is so great that progress must be counted in orders of magnitude, and the greatest single leap is seen in the transition from chemical to nuclear processes.

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The Pacific Development Corridor: Maglev Through The Bering Strait
The construction of the northern components of NAWAPA XXI in Alaska and Canada opens up development programs with massive international implications, linking the United States with East Asia in the creation of a high-technology, fusion and fission powered backbone for a new world economy.

A major geopolitical shift towards the Pacific is already underway, with a strong pro-growth orientation in Asia, centered around pro-development factions in China, Russia, South Korea, and Japan. This directionality stands in stark contrast with the stagnation and collapse of the trans-Atlantic sector. In-line with this Pacific orientation, Arctic development is increasingly becoming an area of focus, with major untapped resource deposits lying in wait, while the melting of Arctic ice is opening up northern shipping routes.

The development of the nuclear-thermonuclear NAWAPA XXI system links the United States, Canada, and Mexico into this Pacific/Arctic perspective. However, the critical factor must be continually emphasized and underscored: the success of the effort fully depends upon the highest levels of technology and energy flux density achievable.

The present physical-economic collapse of the United States is the result of four decades of stagnation and attrition. Living standards have collapsed, industry has been shut down, power per capita has gone backwards, and aging infrastructure systems are breaking down. The only way to overcome the accumulated physical collapse in the United States (let alone the entire world) is to create greater leaps to higher levels of progress.

The United States will already need to partner with these Asian nations for the development and implementation of the fourth generation nuclear requirements of the NAWAPA XXI system itself, but the implications of the construction and development of the project take the connection deeper, and connecting the North American and Eurasian landmasses across the Bering Straits with high speed magnetic levitation rail is a cornerstone.

The gap between Alaska and Siberia—the Bering Strait, stretching a mere 50 to 60 miles—can be connected by a set of tunnels, linking the transportation systems of both continents for the first time. To support the greatest leap in the productivity of the nations and people involved, the most advanced magnetic levitation (maglev) rail systems are required. Unlike trains with wheels, maglev trains float above the track, allowing for travel at well over 300 miles per hour, smoother rides, less wear on the track, and an improved ability to handle steep grades.

These maglev systems are a critical element of the new Pacific Development Corridor, connecting the United States with East Asia through a density of high-technology infrastructure, supporting the advanced development of the entire Pacific coastal basin, including resource development, new agricultural lands, new cities, and new agro-industrial complexes (nuplexes).

Because of the density of high-technology development, centered around advanced infrastructure and high density of power, this corridor can uniquely enable massive leaps in the productivity of the high-technology space, fusion, machine tool, and related industries and manufacturing centers needed to support the creation and implementation of a global fusion economy.

From this Pacific trunk line, development corridors can branch off to the rest of the world, completing the world landbridge as envisioned by Helga Zepp-LaRouche and Lyndon LaRouche. Thus the Pacific Corridor is now to be the start of a new global economy, both in geographical terms, but also in physical economic terms, because the growth factor provided to these Pacific Rim populations and territories is what will make the extensions physically possible.
The program starts with a focus on the development of the Pacific basin territory. This includes supporting and expanding the already extensive shipping routes, but the end goal of an initial generational investment cycle must guide the policy from day one.

On one end, the manufacturing centers of the Midwestern United States and the critical Pacific ports in California and Washington, can be connected north into the Canadian and Alaskan regions of NAWAPA XXI, and from there on to the Alaska side of the Bering Strait, all with maglev rail.

This is premised on the role of the Pacific ports in existing trade relations (and their physical economic implications), and the future role of the Midwest as a new high-technology industrial base in America.

At the other end, the high technology regions of China, South Korea, and Japan can be linked up on the Asian side, with maglev lines traveling from southern China to create a loop connecting China, North Korea, South Korea, Japan (through Hokkaido), Russia’s Sakhalin Island, the Russian mainland, and back down to China. From this, a connection runs north, through Eastern Russia, meeting the maglev Bering Strait connection from Siberia.

This East Asia side links the relevant ports, along with the high-technology and industrial centers of South Korea, Japan, and China, including the Russian plans for an advanced Space Industry complex (along the Svobodny-Komsomolsk corridor) in the region, centered around the new Cosmodrome Vostochny (see box, "Up 21st CENTURY SCIENCE & TECHNOLOGY Special September 2013 Offprint date on Russia’s Cosmodrome Vostochny and the Space Industry Cluster"). (4)

Taken together this defines an initial functional system, in which high-speed maglev rail and a nuclear-thermonuclear driver can support the development of the Pacific rim, connecting the high technology and industrial centers of the United States and East Asia, through the NAWAPA and Siberian territories.

However, the key is that the connecting route will not just be an empty transport line. Fast transportation, water, high densities of nuclear power, and abundant untapped resources enable the creation of the most advanced and productive strip of territory the Earth has ever seen New cities and industries can be constructed along the way, featuring upgraded nuplex systems designed to work with fourth generation fission reactors and thermonuclear fusion technologies (see "Nuclear Agro-Industrial Complexes for NAWAPA XXI"). The extensive resources available in the Arctic can be developed with the most advanced nuclear and thermonuclear technologies, and raw, semi-processed, and processed goods can be rapidly delivered to the high-technology industrial centers at each end in Asia and North America, radiating the effects of a higher level of productivity throughout the global economy.

The key is achieving the highest level of energy flux density accessible, integrated with the most advanced infrastructure systems, concentrated to create a revolutionary leap in the physical economic productive powers of labor throughout the region (see "A Call for An International Crash Program: Creating the Fusion Economy," by Benjamin Deniston, Megan Beets, and Creighton Jones).
As the world shifts to a Pacific orientation, the Pacific Development Corridor will be the ultra-high productivity backbone of the new world economy, and NAWAPA XXI with the Bering Strait connection can be the critical driver to initiate the entire program.

MagLev Systems

Both Germany and Japan have already developed magnetic levitation train systems, while other designs have been proposed by U.S. engineers. While there are variations in the designs, the general principle is to use the power of magnetism to create a continuous gap between the entire train and the track, allowing the floating train to be smoothly propelled electromagnetically at very high speeds. This is powered by the electrical grid (eliminating the need for separate engines and fuel supplies for each train), and because there is no direct contact on the track, there is no mechanical wear and tear, allowing for longer-lasting tracks with less maintenance, and difficult weather conditions (such as iced tracks) don’t pose a problem to electromagnetic breaking and acceleration.

Maglev can also travel up and down steeper grades than conventional rail, allowing for much easier travel through mountainous terrain (as encountered in the NAWAPA XXI regions and the Pacific Development Corridor).

The German system is called the Transrapid. Utilizing electromagnets to lift the train, Transrapid created a test facility back in 1987, but following years of successful demonstrations, the only construction of an operational line has been in China, with the Shanghai Transrapid running since 2004, achieving a maximum speed of 311 miles per hour. The more powerful superconducting magnets involved in the Japanese design can carry heavier loads, further increasing the possibilities for maglev freight transport. Again, the faster speeds and ability to handle steeper grades and cold climates make these systems far superior to existing wheel-based rail, especially for the terrain of NAWAPA XXI, accessing Arctic resource deposits, and traversing the length of the Pacific Development Corridor.

With maglev, the top speeds are not limited by the magnetic levitation technologies, but by wind resistance as speed increases. While it won’t be worthwhile for freight, ultra-fast passenger transport can take full advantage of the magnetic levitation capabilities by utilizing enclosed vacuum or semi-vacuum tubes, removing the air resistance factor (and trouble with sonic booms), and allowing for speeds into the thousands of miles per hour. Special ultra-fast passenger transport could bring people from American urban-industrial centers to those in East Asia in a matter of hours.
The Nuclear-Thermonuclear Driver

The highest levels of energy flux density are required to power this development corridor. While significant amounts of electricity will be needed to support the development of this entire territory, including the maglev lines and advanced industrial sectors on both ends, power sources with higher temperatures and greater heat densities have broad applications beyond electricity generation.

The decades old-concept of nuclear-powered agro-industrial complexes must be revived and upgraded. Fourth generation nuclear fission reactors provide higher levels of process heat allowing for direct applications to chemical, industrial, and agricultural requirements, ranging from the production of metals, to fertilizers, to synthetic fuels. Centralizing these processes in a dense cluster maximizes the productivity and efficiency (see "Nuclear Agro-Industrial Complexes for NAWAPA XXI").

Additionally, nuclear desalination and water purification can provide abundant water where needed along the corridor as well (see “The Nuclear NAWAPA XXI and the New Economy,” by Michael Kirsch).

Even more advanced options are available with fission-fusion hybrid systems, controlled high temperature plasma-based systems, and full-scale controlled thermonuclear fusion (see “A Call for An International Crash Program: Creating the Fusion Economy,” by Benjamin Deniston, Megan Beets, and Creighton Jones).

High energy flux density processing of raw materials closer to the extraction site enables the transportation of higher quality goods, translating to a greater value per ton transported—something made possible by the Pacific Development Corridor. It also enables the more efficient processing of ores, cheapening processing (in physical, rather than monetary terms), and making lower grade and lower concentration deposits more valuable and economically viable resources.

These considerations must be placed upfront when considering the development of the vast Arctic resource deposits, including the role of strategic Arctic fusion- fission nuplex power and processing systems along the Pacific Corridor.

For these reasons, it will be critical to locate demonstration and experimental fusion systems specifically along this corridor, with the goal of developing a broad range of fusion technologies. This includes high temperature controlled plasma technologies such as the plasma torch, capable of separating any substance (from nuclear “waste,” to chemical waste, to dirt, to basic city trash) into its constituent elements, turning virtually any input into useful material. The resulting resources can even be tuned to the isotopic level—providing higher quality materials than were possible before. Even transmutation, transforming one element into another, could become economical.

To maximize the benefits received from the surrounding infrastructure, and contributions delivered back to the integrated productive processes, the initial experimental investigation and development of high-temperature plasma and fusion related systems should be strategically constructed as part of the Pacific Development corridor, and within proximity to the advanced industry on both ends, and the resource development along the corridor when appropriate.
Bering Strait and The World Landbridge

The NAWAPA XXI–Bering Strait–Arctic Development–Pacific Corridor project will provide the needed economic leaps for the nations involved, creating a density of productive potential that will drive the growth of the entire world.

Done properly, this can literally be the physical-economic backbone of a new global economy.

Branching off the east Asian side, the northern, central, and southern corridors of the Eurasian landbridge can be upgraded to maglev and high energy flux density development corridors, reaching back into Europe, where the Paris-Berlin-Vienna productive triangle can become the high-technology center of western Eurasia.

Through Spain and the Middle East, two branches reach down into Africa, bringing the same density of development and advanced infrastructure throughout a continent still being murdered by genocidal neo-imperialism.

On the North American side, branches from the main Pacific Development Corridor can expand across the rest of continent, integrating national and international high-speed maglev rail grids throughout the United States, Canada, and Mexico. From Mexico, the lines continue into South America across the Darien Gap, connecting the tip of Argentina with the tip of South Africa in a single high speed maglev network.

The first stage is the development of the Pacific Development Corridor, with NAWAPA XXI and the Bering Strait connection being the critical driver. Done with a fusion-fission driver applied to the most advanced infrastructure, industry, and resource development, this high density of high-technology development is the only way to provide the needed physical-economic leaps, overcoming the past four and a half decades of attritional-collapse by reaching farther and faster into the future.

These are requirements, not nice options.

(1) The basic pumping requirements of the NAWAPA XXI system will require 52 gigawatts of power. Additional requirements for desalination systems (up to 42 systems) and power for industry increase the requirement, all in addition to the need to replace existing aging systems. When the requirements of the world population are considered, it becomes clear very quickly that mankind needs a lot of nuclear power, and fast. See "The Nuclear NAWAPA XXI and the New Economy," by Michael Kirsch

(2) This project has been discussed as far a back as the 19th Century railroad revolution. See "Origins of the Bering Strait Project," by Richard Freeman, EIR, May 4, 2007

(3) See "Nuclear Agro-Industrial Complexes for NAWAPA XXI" by Liana Fan Chiang.

(4) See "Space Industry Cluster in Russia’s Amur Region," submitted by Yuri V. Krupnov (then director of the Institute for Demography, Migration and Regional Development) and presented by his associate, Ilinr Batyrshin, at the September 15–16, 2007 conference held in Kiedrich, Germany, "Reconstruction After the Financial Crash." EIR September 28, 2007


(8) Ibid.
VIDEOS-

Breaking the Ice on Arctic Development

'North to the Future: Trans-Arctic Sea Routes'

NAWAPA’S Continental Implications
News:

- Canadian Energy and Mines Ministers Conference in Yellowknife envision hundreds of major resources projects over the next decade
- Under Canada’s chairmanship of the Arctic Council, China is finally granted permanent observer status
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Canadian Energy and Mines Ministers Conference in Yellowknife envision hundreds of major resources projects over the next decade

September 6, 2013 (CRC) - In his most recent annual summer tour of the Arctic, Prime Minister Harper promoted resources projects as an economic driver for northern aboriginal communities and Canada as a whole.

Canada’s Minister of Natural Resources, Joe Oliver, in a recent keynote speech at the 2013 Energy and Mines Ministers Conference in Yellowknife, N.W.T., on August 26, spoke of historical and future “nation building” efforts, that would involve Northern development as a key component, and hundreds of major resources projects across Canada over the next decade, worth $650-billion.

While the speech was better than most of what we have usually come to expect from a majority of today’s breed of politicians who cater to the Green’s genocidal agenda, it still fell short of what Canadians and the world require in a post-Glass-Steagall world. What was certainly lacking in Minister Oliver’s keynote was a vision of a future based on a higher technological platform, and the development and utilization of energy sources with much higher energy flux densities in the Northern and Arctic regions of Canada.

The most efficient and beneficial changes for the Arctic area as a whole is the implementation of the thermonuclear NAWAPA XXI development strategy elaborated by the LaRouche scientific research team extended to the Pacific regions of several continents by means of a Bering Strait tunnel. [GG]

Under Canada’s chairmanship of the Arctic Council, China is finally granted Permanent Observer Status

May 16, 2013 (CRC)—For the first time since the founding conference of the international council in Ottawa in 1996, Asian countries have been granted observer status in the circumpolar organization. The countries which have acceded to this special status on May 15 are China, India, Japan, Singapore, and South Korea.

Italy was also allowed to join with the same status but not the European Union whose bid was blocked by the Council’s new chairman, Canada’s Leona Aglukkaq, in light of Canadian concern over European protests against seal hunting and the EU ban on the import of seal products.

Xinhua press agency reports that the “move drew praise from the Inuit Tapiritt Kanatami, the national Inuit organization in Canada. Its president Terry Audla said the organization was provided ‘an opportunity to educate EU members on the sustainable hunting practices of Canadian Inuit, lessons sorely needed for a group who has clearly based past decisions on political pressures from animal rights groups rather than on more reasoned options and objective scientific facts.’”

Greenpeace was also denied observer status for the two years that Minister Aglukkaq will chair the Council.

Xinhua reports that “China Foreign Ministry spokesman Hong Lei said Wednesday that China appreciates and welcomes the Arctic Council’s decision to grant permanent observer status to China. ‘China has all along supported the purpose and objective of the Arctic Council,’ Hong said in a written statement.

…”The council’s decision will enhance the communication and cooperation between China and relevant parties on Arctic affairs, and it will allow China to make contributions to the council’s work and promote peace, stability and sustainable development in the Arctic region, he said.”

The Committee for the Republic of Canada had endorsed editorially the granting of permanent observer status to China on February 12, 2012 given the long-standing and serious commitment of China to scientific work in the Arctic and Antarctic regions, stressing that Canada’s relation with China must focus on initiating endeavours that fulfill the ‘common aims of mankind’: a Sino-Canadian alliance in the economy of the future in the Arctic as ‘mankind’s new window into space’. [GG]
Canada’s Aglukkaq Chairmanship of Arctic Council Means Business

May 14, 2013 (CRC)—Canadian minister of Health and the Canadian Northern Economic Development Agency Leona Aglukkaq is now in Kiruna, Sweden, where she is set to take over the two year rotating chairmanship of the eight countries Arctic Council organization tomorrow, May 15.

I Politics which interviewed minister Aglukkak on April 23 reports that “Canada will roll out a plan to further incorporate business in the Arctic Council”.

“…Aglukkaq’s stress on business comes at a time when interest in Northern natural resource extraction is booming… Speaking from Iqaluit, Aglukkaq said the people of the North want development. ‘If we are going to develop our people, we need jobs. The mining industry in the North is where the jobs are going to be,’ she said. ‘How do we insure that people benefit from that? Through training in partnership with industry’

“…Aglukkaq said the Council is ‘very open’ to a forum that would focus on ‘Arctic state business practices’ and bring key players to the table, such as shipping partners.”

In a week-long series that appeared in the National Post last week on Canada’s upcoming chairmanship of the Arctic Council, defence experts at the Canadian Defence and Foreign Affairs Institute “offered advice on what Canada should do with this opportunity”.

Noteworthy were the comments by Natalia Loukacheva, First Visiting Nansen Professor of Arctic Studies (Akureyri, Iceland) whose short article was entitled “Canada and Russia: Natural Partners” in which she wrote: “Canada and Russia, by far the largest Arctic nations, bear a shared responsibility for the state of affairs in the region, and must see each other as strategic partners. First, we need to develop, and initiate, more strategic collaborations in military and other security domains, including dealing with other non-Arctic players in the Arctic. To date the conventional capacities of the Arctic zones in Canada and Russia are limited. Growing economic activities, expanding navigation and cross-polar flights, and a rising demand for readiness in search and rescue capacities justify an increase in conventional military capabilities. Bearing in mind Russia’s historic suspicion of NATO, we are wiser to engage Russia, rather than ignore it.

“Transportation, both maritime and aeronautic, should be another obvious area of bilateral cooperation. Some initial steps taken in this area are the Churchill-Murmansk “Northern sea-bridge,” or discussions between Winnipeg and Krasnoyarsk on the “Northern air bridge”, that would connect North America with Eurasia. But the potential for a bilateral relationship can only be realized if both nations become physically closer through transportation links and build on the mutual advantages available through technological innovation. The two countries could play a leading role in assuring the navigation, communication and safety of the Arctic transportation system. For example, Canada could join Russia’s effort to modernize the Northern Sea Route by offering aid and working to develop the Northwest Passage. These new shipping routes could reshape shipping and have far reaching implications for social and economic development.” (GG)

Pacific Nations Take Advantage of Arctic Sea Routes

November 30, 2012-(LPAC) As the headlines today are dominated by shrieking reports over the rate of the melting Arctic Sea ice, several nations of the Pacific are taking advantage of this fact, in pursuit of new Arctic sea routes. While many immediately assume that this fact of melting Arctic ice means than human economic activity must be halted, these nations are not so easily fooled.

Japan’s NHK news service reports that cargo transport between Asia and Europe on the Northern Sea Route has increased nearly tenfold in the past 2 years.

Russian state firm Rosatomflot recently stated that more than one million tons of goods were shipped this year on this Arctic sea route. The figure for 2010 was about 110,000 tons. The firm said petroleum products and iron ore accounted for a large part of the shipments. Around 60 percent of the cargo was transported from Europe and Russia to Asia.

This is attracting attention as vessels could cut travel time between Europe and Asia to two-thirds compared to a route through the Suez Canal. It’s also regarded safer for avoiding pirate attacks off the Horn of Africa.
The increase in freight volume on the route is attributed to the sharp decline in Arctic ice. Recent moves by the Russian government of President Vladimir Putin to expand the country’s interests in the Arctic Ocean are believed to be another factor. The Russian Minister of Transportation announced that a new port would be built along the Northern Sea Route at Sabetta on the Ob Bay, which will begin to develop the extensive natural gas resources on the Yamal Peninsula. Major construction projects of new ice-breakers and all-weather craft to deal with the increased activity scheduled for the Arctic are planned.

In the past, large surface ships from Russia have ventured into this region only if accompanied by an icebreaker, but lower Arctic ice levels have allowed the Northern Sea Route to be used more freely. For decades, surface ships of Russia’s Northern Fleet have left Murmansk only to the west, into the Atlantic, never sailing eastward along the Arctic coast, but this is no longer the case. A Rosatomflot official said most Asian firms currently using the route are Chinese and South Korean. But the official expressed hope that Japanese companies would also make more use of the Arctic route.

The Chinese icebreaker Xuelong (Snow Dragon) is the first Chinese ship to have sailed from the Pacific to the Atlantic through the Arctic territory of Russia on the Northern Sea Route. The vessel docked in Reykjavik, Iceland Aug. 14, after having traversed the route through the Russian Arctic. Expedition leader Yang Huigen said that they had expected much more ice than they had encountered.

“To our astonishment, most of the Northern Sea Route is open,” Yang said. He indicated that Beijing was mightily interested in the “monumental change” in the polar environment. “It took only 10 days to sail from the East Siberian Sea to the Barents Sea, and during that time there was only real pack ice for only seven days,” said Egill Thor Nielssen, an Icelandic scientist who sailed aboard the Chinese vessel.

The Chinese are more interested in this route now, having found the passage so easy, Nielssen said. China has also applied to become a member of the Arctic Council. Although primarily utilized to support the Chinese research in Antarctica, the Xuelong has also made four trips to the Arctic via the Bering Strait.

South Korean President Lee Myung-bak and Norwegian Prime Minister Jens Stoltenberg held summit talks in Oslo, Norway, and signed a memorandum of understanding pledging to help shipping firms of their nations open new sea lanes over the Arctic. “Prime Minister Stoltenberg and I agreed to forge a future-oriented partnership aimed at tackling climate change and environment-friendly development and preservation of the Arctic, in order to proactively deal with tasks of the 21st Century,” Lee said. (South Korea is notable for talking “green”, but then going ahead with actual development.)

Stoltenberg said Norway actively supports Seoul’s Arctic initiative and hopes South Korea will assume permanent observer status in the Arctic Council. Lee said Norway promised to back Seoul’s bid for observer status at a council meeting next spring. The Arctic Council is an eight-member intergovernmental forum established to promote cooperation on common Arctic issues.

The two countries signed another MOU, calling for cooperation in environment-friendly shipbuilding. Shipbuilding is the main area of economic exchange between the two countries, accounting for half of their trade. Agreement was also made for boosting cooperation in exploration, development, and storage of oil.

Venturing into the Arctic with a real development perspective can and should absolutely be the policy of the United States. In addition to taking advantage of these Arctic sea routes, major components of the NAWAPA XXI project would require such physical economic development of the North American Arctic.

For more on U.S. operations in the Arctic, see this blog from one year ago on a US Senate hearing on Coast Guard Operations in the Arctic .

The broader vision of the Arctic as our “Window to Space” is also featured in the LPAC report from last year, entitled, “Self-Developing Systems and Arctic Development: Economics for the Future of Mankind”.

Russian scientists like Vladimir Vernadsky and Dmitri Mendeleev saw great promise for economic and scientific development in the Arctic. As Mendeleev wrote:

“Conquering the polar ice is especially desirable and necessary for man’s direct industrial use, at least as much as it is for the triumph of knowledge.”

written by Meghan Rouillard with contributions from EIR

The Port of Churchill set to increase oil exports

November 2, 2012—(CRC) Churchill Gateway Development Corp. (CGDC) and The Hudson Bay Route Association (HBRA) are hard at work to ensure that the northern trade corridor, an area between Manitoba and Nunavut and a vital link to Canada’s North, gets enhanced traffic.

Key to this northern trade route expansion is the Port of Churchill, in northern Manitoba’s Hudson Bay coast.

Present environmental opposition to the Northern Gateway pipeline to the Pacific and to the Keystone XL pipeline to the Gulf of Mexico is making Canadian oil producers give serious consideration to using the Port of Churchill as a back up option to ship oil to Europe, to the United States and possibly to China and India, by way of the Panama Canal. Shipping season on Hudson Bay is from July to October. To extend the season beyond the end of October requires the assistance of icebreakers.
The owners of the Port of Churchill and the Hudson Bay Railroad, OmniTRAX Canada, are looking to increasing both the rail traffic to Canada’s only arctic port and increasing cargo tonnage for ships carrying oil and grain shipments from the Hudson Bay port facility to various international destinations.

The Port of Churchill was being abandoned in 1994 when federal Liberal Minister from Manitoba Lloyd Axworthy commissioned the Churchill Task Force to chart a new future for the Northern transportation and grain handling system. "The Task Force recommended the creation of the Gateway North Marketing Agency, which Lloyd Axworthy established in 1995 to increase and diversify traffic flows through the port. The agency was successful in increasing trade volumes through the port and subsequently played a major role in the transfer of the rail line and port to OmniTRAX in 1997.” Lloyd Axworthy is presently the President and Vice-Chancellor of the University of Winnipeg and also is the Chairman of the Board of Churchill Gateway Development Corporation (CGDC).

In 2007 a Murmansk Shipping Company vessel, the Kapitan Sviridov, "was the first Russian ship to unload a shipment of fertilizer imported by Farmers of North America in 2007. The Port of Churchill successfully built on the success of 2007 and achieved two 9000 metric ton shipments of inbound fertilizer in 2008. These shipments originated in Kaliningrad, Russia purchased by Farmers of North America (FNA) of Saskatoon, Sk.

"The fertilizer has been sold throughout western and central Canada. The shipments once again clearly demonstrated the viability of the Arctic Bridge concept linking Churchill with Russian ports and are the result of extensive work to diversify the commodity base of the port.” (GGG)

Ashtons and the NDP attempt to sidetrack Northern development in Port of Churchill test case

21 September 2013 (CRC)—Steve Ashton, Minister of Infrastructure and Transportation in the Manitoba NDP government of Greg Selinger, is embroiled in a fight that would curtail rail freight being delivered to Canada’s only Arctic port, in Churchill. The outcome of this battle (presently restricted to a war of words in the media) will greatly affect the future development of Canada’s Northern economy.

By forbidding railroads to carry oil to the port on Hudson Bay, the Minister is siding with the back-to-nature agenda of the greenies who are generally against resource extraction of any kind and against the policy of transporting oil, either by pipelines or railroads. A viewpoint which is irrational and one that is certainly not shared by a majority of Manitobans and Canadians.

Most vocal at the moment in opposing the Minister are the owners of the Port of Churchill and the Hudson Bay Railroad, OmniTRAX Canada, who are looking to increasing both the rail traffic to the Port of Churchill and increasing cargo tonnage for ships carrying oil and grain shipments from the Hudson Bay port facility to various international destinations.

Any genuine growth in Canada’s North would have to include increased traffic on the northern trade corridor, an area between Manitoba and Nunavut, that constitutes a vital link to Canada’s North. The Port of Churchill itself was designed to play a large role in the Arctic Bridge sea route linking Churchill to Russian ports.

Ashton was formerly (1992) provincial Minister of Conservation and, in 1993, was named Minister of Water Stewardship for Manitoba, a first in Canada. It is not known if it was this background that has rendered the Minister inimical to any
genuine Northern development strategy that aims to bring about a scientific, technological and industrial culture to Canada’s Northern communities.

In the present national debate, Minister Ashton has stooped very low in his attempts to frighten Manitoba’s Northern communities by drawing an unwarranted parallel to the Lac Megantic rail tragedy, which has nothing to do with the case of the Omnitrax railroad to the Port of Churchill. But Lac Megantic has everything to do with the deregulation and cost cutting that Ed Burkhardt learned and practiced in England, during the Thatcher and John Major period, when he bought the remnants of the privatized British Rail and began cutting personnel and rail maintenance, as was exposed by prize-winning British filmmaker Ken Loach in his film The Navigators.

In point of fact, Steve Ashton’s position as provincial Minister of Infrastructure and Transport does not authorize him to stop rail shipments of oil to the port of Churchill, since the railroad operates under federal jurisdiction.

Niki Ashton, the daughter of Minister Steve Ashton and the NDP MP for Churchill, Man, put on Facebook yesterday the following presumptuous message: “As MP for Churchill, I stand with First Nations, Northern people and the Province in opposition to the Omnitrax plan”.

Will the NDP become Canada’s only political party that rejects actual progress for Northern communities? Where will the NDP stand when Canada and the United States eventually sign a treaty agreement to begin work on the NAWAPAXXI project? What will the NDP have to say when construction begins on the AL-CAN railroad that will eventually run in the Canadian Arctic and across the tunnel proposed by the Russian government to link the North American continent to Asia through the Bering Strait?

We are confident Manitobans, First Nations people, the Inuits and Canadians generally will all wish to adopt the NAWAPAXXI policy as a gateway to a brighter future rather than the present low technology, and the deadly low energy flux density policies being presently proposed by large segments of today’s political class.

With the irrigation and managed water flow of the NAWAPA design, both First Nations and Canadians will begin to transform Canada’s land area, including its climate and weather. This will set a scientific precedent for other nations and people to follow: a case of mankind’s conscious ability to rigourously manage a significant region of the Biosphere, while increasing the productivity of both mankind and the Biosphere itself.
Recapturing the Northern Vision of John G. Diefenbaker and William L. Morton

BERING STRAIT TUNNEL, ALASKA-CANADA RAIL
Infrastructure Corridors Will Transform Economy
Recapturing the Northern Vision of John G. Diefenbaker and William L. Morton

“We ask from you a Mandate: a new and stronger Mandate, to pursue the planning and to carry to fruition our New Development Programme for Canada. This National Development Policy will create a new sense of National purpose and National Destiny. One Canada! One Canada, wherein Canadians will have preserved to them the control of their own economic and political destiny. Sir John A. MacDonald gave his life to this Party. He opened the West. He saw Canada from East to West. I see a new Canada—a Canada of the North.

“…There is a new imagination now. The Arctic. We intend to carry out the Legislative Programme of Arctic research, to develop Arctic routes, to develop those vast hidden resources the last few years have revealed. Plans to improve the St. Lawrence and the Hudson Bay Route. Plans to increase Self-Government in the Yukon and Northwest Territories. We can see one or two provinces there…Completion of Confederation by developing a self-governing North…”

John G. Diefenbaker,
opening campaign speech,
Winnipeg, Feb. 12, 1958

This Diefenbaker vision of the North included “the development of the national resources for the opening of Canada’s northland (transportation, communications, hydro-electric power), affirming “Canadian sovereignty in the Arctic,” a new 50,000 people Arctic domed city at Frobisher Bay. A “Road to Resources” across Northern Canada to further the development of oil, gas and mineral resources. For Diefenbaker, Northern and Arctic development was not just a campaign promise but a mission he intended to carry to Ottawa and, as the new Prime Minister, attempt to convert Central Canada to adopt such a future vision of the country.

Diefenbaker found a powerful intellectual ally in Manitoba historian William L. Morton, the only historian of his generation to put forward a comprehensive study of Canadian history as a Northern Economy. “Canada, Morton wrote, is a northern country, with a northern economy, a northern way of life and a northern destiny.”

When elected President of the Canadian Historical Association (1960-1962), Morton delivered his CHA Presidential address before his peers assembled at Queen’s University on June 11, 1960. His paper titled The Relevance of Canadian History, was also included as the fourth and most significant section of The Canadian Identity published in 1961:

“…Canadian history is not a parody of Americans, as Canada is not a second-rate United States, still less a United States that failed. Canadian history is rather an important chapter in a distinct and even unique human endeavour, the civilization of the northern and arctic lands. From its deepest origins and remotest beginnings, Canadian history has been separate and distinct in America. The existence of large areas of common experience and territorial overlap no one would deny. History is neither neat nor categorical; it defines by what is central, not by what is peripheral. And because of this separate origin in the northern frontier, economy, and approach, Canadian life to this day is marked by a northern quality…”

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"...The relevance of Canadian history lies, then, in the morally defensible character of Canadian purpose in maintaining a northern nation in independence and vigour in the circumstances of the second half of the twentieth century. The first element of that purpose is to be found in the realization of the northern economy. For that Canada possesses the necessary land bases in the great river valleys of the south. It possesses also in ever increasing measure the industrial power by which to bring to bear on the Canadian Shield and the Arctic the technological skill and power to conquer the north. It possesses in its scientists and its universities the knowledge and the capabilities in research to fathom the deep secrets of the north and to measure the hair’s-breadth difference between disaster and success in northern development...."

Building NAWAPA and the Strategic Defence of Earth (SDE)

The Kennedy-Diefenbaker era was filled with optimism: In the United States, the young President toured the Southwest and gave speeches praising the past generations of Americans who had the vision and foresight to build large water infrastructure works to bring fresh water to the arid and desert areas of the United States, a policy that would culminate with the North American Water and Power Alliance (NAWAPA) project being endorsed by Presidential candidate Senator Robert Kennedy. JFK inspired a generation of Americans and people across the globe with his speech announcing that the United States would "put a man on the Moon before the end of the decade."

In 1962 Canada became the third nation with a space program with the launching of the Alouette satellite. In 1959 Canada and the United States opened the St. Lawrence Seaway, a unique endeavour in maritime history. And in 1958, people across Canada rallied in earnest to the northern Vision of John Diefenbaker. In the mid-sixties, as described by U.S. Senator Frank Moss’ correspondence, the continental NAWAPA project received enthusiastic support across Canada.

Canada and the United States must work together again to rekindle that era’s optimism as we marshal support to finally begin building the NAWAPA project in 2013 as part of a new 21st Century Vision for our Northern and Arctic regions and also revive our commitment to space through the building of a Strategic Defence of Earth (SDE) system.

As LaRouchePac leader Michelle Fuchs presciently wrote at the close of 2011:

"The Arctic “Earth’s window to space” becomes even truer than when that phrase was first coined. Initially it referred to the invisible northern and southern polar portals out of our atmosphere — an influx of extra-terrestrial radiation of which the aurora borealis and australis were only the beautifully visible fringe. Now, it signifies further that the Arctic is our window to space as a new and necessary frontier for humanity: the place where a new cultural renaissance will be fostered, much as the United States realized Nicholas of Cusa’s plan of building humanity’s first true republic on shores distant from the feudal backwardness of Europe. At the same time, here in the Arctic is where we will develop the technologies necessary to achieve that destiny in the stars.” [1]

Gilles Gervais

BERING STRAIT TUNNEL, ALASKA-CANADA RAIL
Infrastructure Corridors Will Transform Economy

by Richard Freeman and Dr. Hal Cooper

October 14, 2011- The adoption and construction of the Bering Strait rail and tunnel project is the focus of a Schiller Institute conference in Kiedrich, Germany on Sept. 15-16, bringing together international experts and political activists to mobilize for this program, which will bring about a technological upshift in the economy globally. The infrastructure corridors built around the rail lines will help generate, through their bills of materials, a renaissance in manufacturing and infrastructure in the United States, as well as Canada.

The Bering Strait project would link, by hoops of steel, the entirety of the Americas to the entirety of Eurasia, with the potential to connect to Africa. It would replace the world’s slow, outmoded, and vastly overburdened sea-rail routes with a geodesic high-speed-rail route. The system would use high-speed electric rail, and shift as quickly as possible to magnetic levitation rail. This would free the world forever from hundreds of billions of dollars spent on petroleum-driven transport, while doubling or tripling the speed of transport of people and freight. For example, goods produced in the American Midwest could be transported to China, or Russia, in 7-10 days, rather than the three weeks it presently takes by a combination of sea and rail.

As a leading vector for enabling a World Land-Bridge, the Bering Strait project would facilitate the proliferation of rail-spined development corridors of high economic growth, ending the Third World’s enforced backwardness and death. A critical feature of the overall Bering Strait project, would be the development of a 3,030-mile Alaska-Canada rail connector, which will contribute to moving the U.S. and Canadian physical economies from a deepening collapse process of several decades, onto an alternative path of growth. Building 3,030 miles of track—and double that amount if the system is double-tracked—demands a tremendous quantity of goods, expressed as a bill of materials. This is an ordered array of goods—steel for tracks and for railroad bridges; wood for ties and railroad structures; cement for culverts and other structures; aggregates for cement manufacture, but also for roadbed, etc. The bill of materials for the Alaska-Canada rail connector will require the production of tens of millions of tons of goods. This will create 35,000 to 50,000 jobs in the building of the railroad, plus workers in the factories producing the steel, cement, copper and aluminum wire, power plants, locomotives, and other necessary components.

But that is just the first phase. In the second phase, potentially, hundreds of thousands of jobs will be generated. On June 2, Fred Stakelbeck, of the Center for Security Studies, published a blistering attack on the project: “What do Russian President Vladimir Putin, spiritual leader the Dalai Lama, political activist Lyndon LaRouche, and former . . . Governor of Alaska Walter Hickel have in common? They are all supporters of the Bering Strait Tunnel Project.” The Wall Street Journal said the project would “soak the American taxpayer.” But economist LaRouche has shown just the opposite: Hamiltonian long-term, low-interest financing will bring the project into realization. The confluence of the project’s generation of technology and productivity worldwide, the development corridors, and the bill of materials will produce a several-fold increase of physical-economic activity, and an increase in tax revenue. It will pay for itself several times over. The adoption of LaRouche’s New Bretton Woods monetary system is the context in which the project would come into existence.

A Critical Rail Network

To appreciate what must be done, we can first look at the state of rail, and transportation in general, in the Great North region comprised of Alaska; the Yukon Territory of Canada; and the northern tier of British Columbia, Canada. To say that this area is underdeveloped, is like saying that the Sahara Desert is dry. Figure 1 shows the Alaska Railroad, which

Figure 1. The Alaska Railroad

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was built in 1914-23, by the U.S. government, and has been, since 1985, owned by the Alaska state government. The Alaska Railroad, which extends from Fairbanks to Anchorage, covers 544 miles (876 kilometers), counting spur lines. It is a small, isolated system in the vastness of Alaska’s 663,267 square miles (1,717,855 square kilometers). The map shows that, by rail, there is currently neither a passage to reach Fairbanks from the Lower 48 U.S. states, nor a way to get from that city to the Bering Strait.

The Alaska-Canada (Alcan) Highway, which was built under President Franklin Roosevelt’s direction in 1942, extends from the Lower 48 states to Fairbanks, but goes no further west. To reach the Bering Strait by overland passage, short of using a snowmobile fortified with extra cans of gasoline, one must resort to huskies pulling a dog sled!

The Yukon Territory has only a tiny rail line. The North American rail grid that joins Mexico, the United States, and Canada, comes to a dead-end stop at the northern tier of British Columbia.

The Arctic North region is underpopulated, and its development frozen in time.

The Alaska-Canada rail connector, with the construction of a development corridor extending 50 miles (80 km) on each side of the railroad, can transform the region in its entirety. Power lines, fiber-optic lines, and where necessary, freshwater pipes would be encased within the corridor. Cities, population, manufacturing, and scientific agriculture would be fertilized and harvested in this corridor as well. The Arctic North’s nearby abundant, but largely untapped, mineral and raw material resources would be made accessible, by rail link, out of the frigid ground for rational use in the Arctic North and the world.

**Overcoming a Transportation Dark Age**

Figure 2. shows the plan for an Alaska-Canada rail connector system, as developed by co-author Dr. Hal Cooper, a consulting engineer.# This proposed system starts off with two route-branches, each of which heads in a north-south direction. The first branch, called the westerly one, starts at Prince George, British Columbia, and proceeds to Chipmunk, B.C., to Dease Lake, B.C., to Jake’s Corner, Yukon Territory, and then to Whitehorse, Yukon Territory. The second branch, called the easterly one, starts at Prince George, also. It then heads to Dawson Creek, B.C., to Fort St. John, B.C., to Fort Nelson, B.C., to Watson Lake, Yukon Territory, to Jake’s Corner, and then to Whitehorse. Both branches should be built. The two branches join at Jake’s Corner, which is in proximity to the larger Whitehorse. The rail connector line would then extend, as a single route, northward to Beaver Creek in the Yukon Territory, at the Alaska-Canada border, and then to Fairbanks. From there it would proceed to Cape Prince of Wales, Alaska, which lies across the Bering Strait from Uelen, Russia. The Bering Strait tunnel would link Cape Prince of Wales to Uelen.

Spanning off from this main line, two spur lines would be constructed—the first heading toward Nome, the second toward Red Dog, and then to Point Lay. This second spur would be a critical route, linking existing and projected mines in Alaska to the main line. Red Dog is the site of a massive Alaskan mine, currently the world’s largest producer of zinc; it also produces sizeable amounts of lead and gold. This rail system has two features to be noted. First, Prince George is a location where the North American rail grid nearly comes to an end. Starting in Prince George, the rail routes have been built out to Chipmunk and to Fort Nelson on the westerly and easterly branches, respectively. Both rail sections are
owned by the Canadian National Railroad. But some of the rail line to Chipmunk has already been torn up, and both lines would require substantial repair and upgrade as part of the

Alaska-Canada rail connector plan.

Second, by building the Alaska-Canada rail connector, we create the ability to move goods from Russia and China, as well as from Central Asia, Southwest Asia, and Europe, directly to the North American rail grid, and thus to the United States. The westerly branch would extend the system’s reach due south to Vancouver, British Columbia; Seattle, Washington; and then to major cities in California. The easterly branch would enable goods to travel either from Fort Nelson to Chicago, or from Dawson Creek to North Dakota, and then to a projected rail corridor to Texas.

An Immense Bill of Materials

Keeping the physical topology, and size of the railroad in mind, we can work up an approximate bill of materials. There are two prerequisite steps in all rail construction, prior to laying a single mile of track. First, a comprehensive engineering survey must be conducted on the path and terrain on which the rail would be built, a process that Cooper and a few others have carried out. Second, the area must be graded, across mountains and low-lying areas. This would require bulldozers and earth-moving equipment, etc. Then building can begin.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Large-Volume Components for a New Advanced Nuclear Plant (1200-1500 MW range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>Number (Range)</td>
</tr>
<tr>
<td>Pumps, large</td>
<td>71-100</td>
</tr>
<tr>
<td>Pumps, small</td>
<td>80-484</td>
</tr>
<tr>
<td>Tanks</td>
<td>40-150</td>
</tr>
<tr>
<td>Heat exchangers</td>
<td>47-104</td>
</tr>
<tr>
<td>Compressors, vacuum pumps</td>
<td>12-26</td>
</tr>
<tr>
<td>Fans</td>
<td>61-123</td>
</tr>
<tr>
<td>Damper/louvers</td>
<td>790-1,170</td>
</tr>
<tr>
<td>Cranes and hoists</td>
<td>25-50</td>
</tr>
<tr>
<td>Diesel generators</td>
<td>2</td>
</tr>
<tr>
<td>Prefabricated equipment modules</td>
<td>64-133</td>
</tr>
<tr>
<td>Instruments of all kinds</td>
<td>1,852-3,440</td>
</tr>
<tr>
<td>Valves of all kinds</td>
<td>9,633-17,691</td>
</tr>
</tbody>
</table>


In assessing a bill of materials, what the industry calls “unit factors,” that is, how many tons of specific goods are needed, per mile of track to be constructed, must be considered. These factors are approximate: In any particular several-mile-stretch of track, one may need more special materials to build on permafrost; one may need more of certain materials for extra strengthening of the track or to build more culverts; or one may need more wood or concrete to build protective walls and sheds, to protect the line from Winter weather.

Table 1 gives the unit factors for building a single mile of railroad track that is double-tracked, and where electric locomotives will be used. “Double-tracking” means that trains can run in each direction at the same time. An electric locomotive uses no diesel fuel, and is powered 100% by electricity supplied by overhead wires. This requires construction of power plants, transmission lines, overhead wires, poles, etc. All of this must be accounted for in the bill of materials.

The total length of the Alaska-Canada rail corridor, including spur lines, as displayed in Figure 2, is approximately 3,030 miles.

Using four different unit factors, it was possible to determine an approximate bill of materials for four different types of rail line that would be constructed: a single-track diesel-electric-hybrid locomotive; a single-track electric locomotive; a double-track diesel-electric-hybrid locomotive; and a double-track electric locomotive. (On average, the “factor” for a double-track electric locomotive system is roughly double that for a single-track electric locomotive system, although there is some economy of scale.

The same holds for the comparable types of diesel-electric locomotive systems). Table 2 presents, for construction of each of the four types of system, the approximate tonnage required, by type of commodity. Notice that construction of a double-track electric locomotive system would require a huge bill of materials: more than 10 million tons of iron and steel; nearly 10 million tons of cement, aggregates, etc.; more than 1 million tons of copper, aluminum, and steel wire.

Cooper estimates that, at the beginning, because the total tonnage of freight to be carried by each train would be relatively smaller, the the Alaska-Canada rail corridor system may start out as a single-track diesel-electric hybrid.
locomotive system; but, as the Bering Strait tunnel is built, sending through a greater volume of freight traffic, a double-tracked electric locomotive system would be built. Engineers estimate that it would require 10 to 12 years to build the Bering Strait tunnel. However, with foresight and strong support by the United States government, the Alaska-Canada rail connector could start out as a double-tracked electric locomotive system. It would move as quickly as possible to a maglev system.

### An Expansion of Employment

The process of constructing and operating a double-tracked electric locomotive system would generate a significant number of new jobs. It would require 7,500 to 12,800 full-time equivalent jobs to construct the railroad itself, and 1,800 to 2,300 workers to operate and provide maintenance to the railroad, once it is constructed. There is also indirect employment: An additional 15,000 to 25,600 jobs would be created, to produce the steel, cement, copper and aluminum wire, specified in the bill of materials in Table 2. The project would also require engineering and other services. Adding together the direct and indirect jobs, the corridor project would create between 24,300 and 40,700 new jobs, a goodly percentage of them productive.

There is more to this process. The Alaska-Canada Railway connector corridor will ultimately employ electrified rail: first high-speed (electric locomotive) rail and then magnetic levitation. This will require huge amounts of electricity, and mandate construction of a series of regional power plants to supply electricity to the railroad operation itself, plus for regional economic and industrial development. The requirement would be, conservatively, 3,000-6,000 megawatts of new installed electricity-generating capacity by 2050. Nuclear power would be the optimal means to supply the power. The bill of materials presented in Table 2 was restricted primarily to the building phase of the railroad, and did not include that power requirement. Table 3 documents the bill of materials to produce a 1,200 MW power plant (construction of four paired 300 MW plants, such as four pebble bed modular reactors, would require roughly the same bill of materials). Now, think of all the workers who would be needed to build the hundreds of pumps, heat exchangers, compressors, reactor vessels, etc., and the inter-mediate goods and raw materials, such as steel (see Marsha Freeman, “The Auto Industry Can Help Build New Nuclear Plants,” EIR, Dec. 20, 2005).

This Alaska-Canada rail corridor would require the manufacture of a new fleet of thousands of electric locomotives, flat cars, hopper cars, and fuel transport cars. This engenders its own bill of materials, and the creation of new jobs. Given the collapsed condition of U.S. rail manufacture, we must immediately reopen and convert a number of closed auto factories, to produce rail capital goods. Laid-off skilled auto workers would be rehired.

In sum, adding up all the jobs cited above, the Alaska-Canada rail corridor would generate a new workforce of 35,000-50,000 workers, in largely productive jobs. But this is just the first phase.

### Global Development

The Alaska-Canada railroad corridor, contemporaneous with the construction of a rail corridor from the Baikal Amur Mainline to Uelen, Russia—both leading vectors of the Bering Strait project—would bring about a profound and enduring change in the world economy. This would generate a second, much larger phase of jobs.

The Bering Strait rail and tunnel project’s path is fast, both because it utilizes revolutionary high-speed/maglev technology, and because it operates along a least-action, geodesic Arctic Circle route. The shortest distance and fastest passage for goods from Beijing to Chicago is along this proposed route. Were the current mode of transport to be used to ship a product from Beijing to Chicago, it would go by train from Beijing to a Chinese port, broken down, and placed on a ship travelling at a much slower speed across the Pacific Ocean; be offloaded at the Port of Los Angeles/Long Beach, and placed upon a train for shipment to Chicago. That process takes up to three weeks. By the...
Bering Strait route, it would stay on high-speed train the whole way, travel along a much shorter route, and take 7 to 10 days.

A primary function of the Bering Strait rail system is to unlock of the vast treasure-house of varied elements of the Periodic Table trapped underneath the tundra and permafrost of the Arctic North, which consists of Russia’s Far East, Alaska, the Yukon Territory, and the northern two-thirds of British Columbia. These mineral resources can be used for world economic development. The rail project, as part of what will become the World Land-Bridge, would also build development corridors in underdeveloped regions of the world, including the Arctic North.

The case of Russia in this setting is developed by Rachel Douglas in “Russia: Contours of an Economic Policy to Save the Nation,” EIR, Sept. 7, 2007), so we will focus on the other regions of the Arctic North. The case of Alaska illustrates how the development of resources can contribute to igniting overall development. Alaska has almost no manufacturing: not a single steel plant, and only a few small machine-tool shops; it imports most of its industrial goods from the Lower 48 states or Asia. Sitting on a submerged mountain of raw materials, it has but seven mines of any significance in operation.

Yet, according to independent geologists and the U.S. Geological Survey, Alaska has a teeming resource base of iron ore, zinc, lead, copper, molybdenum, uranium, titanium, chromite, nickel, gold, platinum, and coal. (Russia’s Far East province has an equal or even greater supply of these and other raw materials.) A mining engineer told EIR, "Some financial people tell you that transportation has nothing to do with developing a mine, but they are totally wrong. If you don’t have transportation, you can’t ship the goods anywhere." According to a study by University of Alaska at Fairbanks mining and geological engineer Dr. Paul Metz, Alaska has more than 500 “mineral occurrences”—sites where deposits of specific minerals have been identified—which fall within 60 miles on either side of the center line of the proposed Alaska-Canada rail connector. With rail, he indicated, several of these occurrences, perhaps dozens if they are rich enough, would become operating mines.

The development of mines calls for capital equipment and other supplies, but that is just the first step. Many in Alaska want to develop a manufacturing base. There are already plans to construct a petroleum refining facility outside the city of Fairbanks, Alaska’s largest, not only for producing refined product, but also for feedstock. There is also discussion of building metal-ore-processing and -refining plants, such as for zinc and copper, and of building initially one steel plant that would utilize iron ore from Alaska and neighboring Yukon Territory. These plans require railroads to transport the goods.

The Alaska-Canada rail connector, with 50 miles on either side, would be a development corridor within which new cities would be built and existing small cities would grow, following the general trajectory of the 19th-Century Transcontinental Railroad in the United States. Right now, three-quarters of Alaska’s small population (670,000 people) is concentrated in just two areas: the metropolitan areas around Fairbanks and Anchorage, in the southern part of the state. The rest of the state is virtually empty. As cities spring up or enlarge, they will build manufacturing establishments, and require construction of school systems, electricity grids, water systems, health and hospital systems; this will of course require an expansion of the workforce. For the short-term future, Alaska would import a host of advanced goods, in particular machine tools, principally from the Lower 48 states.

Thus, as a second phase, over the next 20 to 25 years, this self-feeding process would create hundreds of thousands of jobs, most of them in Alaska and the continental United States, many of them productive.

Alaska’s population density of a mere 1.0 person per square mile (0.4 persons per square kilometer) is a measure of pitiful underdevelopment. Table 4 shows the population densities for some regions, illustrating the underdevelopment of the Arctic North. The construction of the Alaska-Canada rail connector corridor will foster an increase in potential relative
population density; that areas once thought to be barren—such as vast areas of snow and permafrost—will become fecund, through scientific agriculture (including the hot-house production of food), the technological- and capital-intensiveness of manufacturing, and the productive powers of labor. Through creativity, man will increase his productive power over the universe, per capita, and per square kilometer.

At a higher level, the movement of goods between Eurasia and the Americas, at previously unheard-of speeds, will transform world productive relations. It will cohere with an emerging isotope economy, and generate tens of millions of productive jobs in the United States, and hundreds of millions worldwide.

The regeneration of the world economy, which would be achieved through U.S.-Russian collaboration, would shift the relations between the two nations to a positive, war-avoidance footing.

The forceful implementation of Lyndon LaRouche's New Bretton Woods monetary system, as the present financial system blows to pieces, creates the unique historical moment to bring the Bering Strait project into existence.

<table>
<thead>
<tr>
<th>TABLE 4</th>
<th>Population Density*: The Backward Effect of Underdevelopment</th>
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<tbody>
<tr>
<td></td>
<td>Population per Square Mile</td>
</tr>
<tr>
<td>Arctic North</td>
<td></td>
</tr>
<tr>
<td>Alaska</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>1.23</td>
</tr>
<tr>
<td>Yukon Territory Northern Two-Thirds of British Columbia</td>
<td></td>
</tr>
<tr>
<td>Other Regions</td>
<td></td>
</tr>
<tr>
<td>Ohio, U.S.A.</td>
<td>277.0</td>
</tr>
<tr>
<td>Belgium</td>
<td>892.0</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1,034.0</td>
</tr>
</tbody>
</table>

* Most of the data is for 2005 or 2006. Sources: U.S. Department of Commerce, Census Bureau; several governments' statistical bureaus; EIR.
See also:

-Russia’s Council for the Study of Productive Forces - The Bering Strait Tunnel project

Read also:
- Bombardier Awarded a Contract for High Altitude Passenger Rail Cars in Tibet
- Technology required for railroad over permafrost and at altitude of 5000 meters
APPENDICES

I- Worse than ‘Weimar’!
   By Lyndon LaRouche

II- Appeal to Governments and Parliaments For Glass-Steagall Now!
Without the removal of President Barack Obama from office, the situation of our republic has now reached the point, D. Roosevelt, from being successfully presented for a vote of the Congress, now.

As long as the current U.S. President, Barack Obama, remains in office, that already onrushing calamity is virtually unstoppable. In the fewest words possible, either Obama and Wall Street are both put through an urgently needed moral as well as financial reform, or the deadly catastrophe is virtually certain for virtually the entirety of the trans-Atlantic region sometime very soon. At the present date, both this President and much of the Congress have each remained increasingly hysterically impotent, through their own cowardice in refusing to face a future for which immediate remedies do exist, rather than face their own presently systemic errors.

The necessary action at this moment, is to prevent the current President of the United States, Barack Obama, from relying form of depression from which our United States, could never recover in its present form.

Fortunately, our republic could still be rescued at this time. As many know, I have a record of being among the leading economic forecasters for our United States during the recent decades, as in my uniquely successful forecast of the 1971, Richard Nixon depression, and also the deep 1980 recession, the steep depressions launched by the George W. Bush, Jr. recession, and, now, the economic horror-show brought to you by the Barack Obama depression. Now, the violations of our U.S. Federal Constitution by the Obama government, are combined with Obama’s plunging our United States into a hyper-inflation for as long as the current U.S. President, Barack Obama remains as President of the United States; not only the United States itself, but also the trans-Atlantic region of western and central Europe is now being plunged ever more deeply into the worst economic collapse since the Fourteenth-century plunge into a new dark age, probably one even much worse than that of Fourteenth-century, medieval Europe.

The center of this crisis is not actually the United States’ present crisis as such. The trend which led the United States (and Europe) into this presently onrushing collapse, was all about Wall Street and London, back then, and right now. What caused it? The immediate cause was the margin of our foolish voters who elected Presidents George W. Bush, Jr., and Barack Obama into office, for which is now approaching a span of fourteen very ugly years.

During the recent weeks, the trans-Atlantic world has been plunging into a general economic breakdown-crisis of the present trans-Atlantic region of our planet. What we are presently experiencing on both sides of the Atlantic Ocean, is a hyper-inflation for as long as the current U.S. President, Barack Obama remains as President of the United States; not only the United States itself, but also the trans-Atlantic region of western and central Europe is now being plunged ever more deeply into the worst economic collapse since the Fourteenth-century plunge into a new dark age, probably one even much worse than that of Fourteenth-century, medieval Europe.

There is an alternative:

If the will is there to take the necessary action, there is an option, under our U.S. Federal Constitution, by which not only can our United States be brought into a genuine economic recovery, but our immediate action under our Constitution, taken now, could bring our republic into genuine recovery from the plunge into darkness which has been under way since the rejection of my July-August 2007 “Home Owners & Bank Protection Act” submitted for adoption by the Federal States of our Republic at that time.

Instead, the members of the U. S. Congress and the Federal Presidency had acted, at that time, and since that time later, to plunge our republic into a spiral downward into policies which have now dumped our republic into what has been the greatest economic crisis of the trans-Atlantic group of nations. Now, as of this past weekend, beginning this past Monday, the economy has fallen, thus far, into the steepest financial breakdown-crisis of modern trans-Atlantic history.

Fortunately, our republic could still be rescued at this time. As many know, I have a record of being among the leading economic forecasters for our United States during the recent decades, as in my uniquely successful forecast of the 1971, Richard Nixon depression, and also the deep 1980 recession, the steep depressions launched by the George W. Bush, Jr. recession, and, now, the economic horror-show brought to you by the Barack Obama depression. Now, the violations of our U.S. Federal Constitution by the Obama government, are combined with Obama’s plunging our United States into a form of depression from which our United States, could never recover in its present form.

The necessary action at this moment, is to prevent the current President of the United States, Barack Obama, from relying upon “dirty tricks” of the type already enjoyed by President Obama, to block that action, the revival of President Franklin D. Roosevelt, from being successfully presented for a vote of the Congress, now.

Without the removal of President Barack Obama from office, the situation of our republic has now reached the point,
that the continuation of President Obama in office, would mean the end of our United States under its present Federal Constitution.

Fortunately, there is an alternative, if we act very soon to adopt those needed Constitutional options. The remedy is available, and fully constitutional, if we find sufficient leaders among us with the guts to do what is constitutionally legal, and is already the only visible, constitutional course of action needed to save our nation from what is, now, virtually national economic suicide, unless we act immediately to save our nation. I am now putting myself on the block as one who has shown himself as leading among the leading economists and others of our republic, who is willing, and more than fully qualified to present that option, publicly, here and now.

Consider the following measures most urgently needed at this time.

There are two absolutely indispensable actions which must be adopted and urgently implemented, if our United States can be rescued from the presently accelerating plunge into a virtually hopeless plunge into a general economic breakdown-crisis.

First, we must expel President Barack Obama from office, immediately. There are chiefly two available options for doing so. The first of those two is the President’s impeachment on such available grounds as his violation of the war powers provisions. The second, is removal from office under existing Constitutional provisions of the U.S. Twenty-Fifth Amendment.

Only with the suspension of the President from office, were it likely that the United States could be rescued from what is already the careening into virtual economic death of our United States and its economy. However, the doubtful mental health of this President, and the sheer hatefulness of this ostensibly sick President, show both the case for the President’s urgent removal from office for reason of known impeachable offenses, and the arguably faulty mental health of that President, both of which were a just means for rendering him politically harmless to the general welfare of our republic.

Once we have considered these sources of available remedy as to be used for the rescue of our republic from what would be, otherwise, its virtually immediate political death at the hands of President Obama and his British imperial masters, we will have soon secured the measures needed to organize a process of general economic recovery of our republic.
Appeal to Governments and Parliaments For Glass-Steagall Now!

1. All nations of the Trans-Atlantic region must enact a law which would separate commercial banks from investment/speculative banking entities, based upon Franklin D. Roosevelt’s Glass-Steagall bill of June 16th, 1933. Up until the beginning of the 1980’s, the principles of Roosevelt’s reform were in place in most nations, in the form of strict regulation, and ensured that the banking sector mainly took on the character of commercial banks, and access to private accounts for risky speculative operations was impossible. As things stood before Glass-Steagall was dismantled in 1999 through the Gramm-Leach-Bliley Act, commercial banks must once again be completely separated from both investment banks and the insurance sector.

2. Commercial banks must be put under government protection, whilst the investment banks put their books in order without any help from taxpayers’ money, which in practice means that toxic paper must be written off in the trillions, even if this leads to the insolvency of the banks themselves.

3. A National Banking system in the tradition of Alexander Hamilton, within the framework of a new Credit System, must provide long-term credit with low interest rates for productive investments, which would in turn increase the productivity of the economy by promoting an increase in energy-flux density, and in scientific and technological progress.

4. The reconstruction of the real economy should be facilitated through long-term treaties of cooperation between sovereign nation-states, which would launch well-defined infrastructure and development projects in the context of the Mediterranean and North-american plan for an Economic Miracle, seen as a necessary extension of the Eurasian Land-Bridge. These contracts represent a de facto new credit system, a New Bretton Woods system, in the tradition of Franklin D. Roosevelt.

The purpose of re-enacting Glass-Steagall and implementing a Credit System is by no means only an improvement of technical details in banking, but rather, how the economy can ensure the survival of humanity over a period spanning many generations into the future, whilst increasing the productive powers from one generation to another. Human beings must once again be at the center, and the very purpose, of economics.

We, the undersigned, direct our urgent appeal to governments and parliaments, that they fulfill their constitutional duty and protect the general welfare of the populations they represent, by immediately enacting Glass-Steagall banking separation into law.

I support this Call for a Global Glass-Steagall

First name ____________________________________________________

Last name ____________________________________________________

Profession ____________________________________________________

Organisation __________________________________________________

City __________________________________________________________

Province ______________________________________________________

Phone number _________________________________________________

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With my signature, I agree that my name may eventually be made public.
**Organizing tools for yourself and your elected officials**

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