As Eurasia Advances, Will the United States Get on Board?

Meghan Rouillard: I want to start by restating the quote that Jason read at the beginning: that any part of the world right now is faced with the choice between two systems. One, as outlined by Ben, would move in a direction of increasing energy-flux density and physical productivity; and the other, which is a decaying and dying system, is the trans-Atlantic system of monetarism, and it's represented best by the policies, of late, of the Obama Administration, and also of the EU.

Now, this is not really much of a choice. If anything, this is a choice between life and death.

In some nations in Asia right now, we do see a real impulse to develop in the direction of a system that would correspond to the standard defined by Ben. Now, it's not the case that any of these nations individually, or even as a whole, meet any absolute standard that we could set, of where should we be, in terms of global energy per capita. But, what's important is that they're moving in that direction. The trajectory is correct, and the trajectory is in line with the standard that Ben has outlined.

There has been a recent flurry of bilateral meetings of some of the heads of state in Asia to this effect, talking about nuclear power development, etc. And we'll get into some of the substance of what they're talking about.

What's very important to reflect upon is that, ironically, many of these Asian countries are actually moving in a direction which corresponds to a past standard for scientific and technological progress which had actually been set by the United States, which we've abandoned, in many cases, decades ago. So this is really something to reflect upon. Not only the fact that these nations are moving forward, but why is it that the leadership of the United States, but also the population, agreed to, or went along with, abandoning this identity of pioneering in scientific and technological progress? This is really something to think about. And it will become clear, I think, from some of the examples.

Most notably, the first example, when we look at

fusion, this shows the real contrast between the trans-Asian perspective, and what you're getting from the trans-Atlantic.

These are comments from Barack Obama, and Xi Jinping, the President of China, on fusion. This should make the contrast in outlook pretty clear.

So Obama, speaking to a group of voters in Virginia on the economy, in September 2010, said the following: "We wouldn't need new technologies. We wouldn't need to invent some fancy fusion energy or anything. If we just took our existing building stock and homes and insulated them, had new windows, schools, hospitals, a lot of big institutions, we could squeeze huge efficiencies out of that."

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Meghan Rouillard posed the question: Why has the United States surrendered its pioneering leadership in science and technology? And, what must be done to reverse the decline?

Not very inspiring.

Now, in contrast, President Xi, during an April 2011 visit to China's EAST superconducting Tokamak, said the following: "Fusion is a grand conception. Humankind cannot do without energy for its existence and development, and energy utilization won't be sustainable without science and technology. Fusion research will pave a bright way for humankind in energy alternatives."

A pretty clear difference in view with respect to that power source which actually defines moving towards the most advanced system of energy-flux density, which could be applied to the economy.

Fission and Fusion

Now, let's explore this question of fusion even more. The only nations with super-conducting tokamaks, which are very important if you're trying to achieve magnetic fusion, are China, South Korea, and Japan. In a sense, relatively speaking, the United States has been, and is, a leader in fusion. This is the laser bay at the National Ignition Facility at Lawrence Livermore Laboratory, near San Francisco (**Figure 1**). The U.S. is definitely a leader in that respect, in terms of inertial fusion.

But if you look at all of the nations which have fusion experimental designs, we have the distinction of having shut down, or not having funded, some of our designs. One of these cases has occurred during the administration of Obama. The Alcator C-Mod, which is a tokamak at MIT, has the highest plasma pressure in the world; under Obama's budget, this is going to be shut down.

So, we're definitely the only nation—we're set apart in this respect—that is actually shutting down some of its fusion reactors.

FIGURE 1

Lawrence Livermore Laboratory's National Ignition Facility: The Laser Bay

LLNL

The ITER project, which Ben referred to: Very recently, officials from Japan and Russia met and said, we have to work together to do everything we can to accelerate the progress of this program; it's not moving fast enough.

Let's look next at fission. Who is leading? And again, what's important here is not the absolute number, i.e., who has the greatest absolute number of fission plants; but rather, who has the trajectory of actually progressing? Europe is moving to shut down all of its nuclear power plants. The United States certainly doesn't have a plan to build many more fission plants. China has the most significant plans for expansion. They only have 16 power plants, but they're actually building 30 right now, and they have even greater plans for expansion.

China is planning to build a high-temperature gas-cooled reactor, and this is considered an advanced, fourth-generation nuclear plant. But here again, we have a case: Which country developed one of the first high-temperature gas-cooled reactors? You wouldn't know it, looking around today, but it was the United States. This is the Fort Saint Vrain generating complex, in Colorado, a view inside (**Figure 2**). This operated as a high-temperature gas-cooled reactor from 1979 to 1989. It was then shut down, and we didn't build any more. And now China is planning to build these.

Look at Russia. Russia has pioneered and intends to pioneer in the area of building floating nuclear power plants. Who developed the first floating nuclear power plant? The United States. In 1968, under the U.S. Army nuclear program—this is a power plant named MH 1A (**Figure 3**); it was the first floating nuclear power plant developed in the world, by the United States, and now we don't have any. And Russia is planning to build seven of these floating nuclear vessels by 2015.

As is outlined in-depth in the NAWAPA pamphlet ["NAWAPA XXI: Gateway to a Fusion Economy"], it's very clear from our studies that had we moved forward with the orientation, the intention, of President John F. Kennedy, we would have fully implemented a fission platform economy in the United States: fission reactors, nuclear desalination; this, of course, did not happen.

Increasing the applied energy-flux density to a given territory allowed us to in-

FIGURE 2
Refueling Floor, Fort Saint Vrain Nuclear Power Plant

NARA/Bruce McAllister

FIGURE 3
MH 1A Sturgis, The World's First Floating Nuclear Power Plant

Wikimedia Commons

FIGURE 4

Schiller Institute

Helga Zepp-LaRouche at Lianyungang, China, the eastern terminal of the Eurasian Land-Bridge, October 1998.

crease the potential habitability of that territory. It's like applying the Promethean power of fire to uninhabitable areas of the planet, and making them habitable for man.

The Eurasian Land-Bridge

So, in this respect, I want to look at what is occurring across the entirety of the Eurasian land-mass, because they're actually intending to do this. Especially China and Russia, are actually looking at fully developing, in different ways, the interior of this vast Eurasian land-mass, much of which is very harsh terrain, including the Arctic, but they have a perspective for developing this.

This has historically been known as the Eurasian Land-Bridge. This is Helga Zepp-LaRouche in China (**Figure 4**), at the eastern terminal of the Eurasian land-Bridge. She had done a lot of organizing for this in the 1990s, but now we see today, the new President of China actively moving forward with this conception, which is also referred to as the idea of building a new Silk Road, as he called it, "an unobstructed route from the Baltic to the Pacific."

In this next image (**Figure 5**), we can see an outline of some of the rail routes, some of the transportation routes which define the idea of a Eurasian Land-Bridge, of a New Silk Road, spanning mainly those areas where the routes don't currently exist, across central and southern Asia. So, China is actively moving with this idea of building more of the components of the Eurasian Land-Bridge.

Now, ideally, what would we use for something like this? We would use transportation methods at the frontiers of technology, such as magnetically levitated rail (maglev). Here we have another case: The only nations with maglev rail are China, Japan, and South Korea. Interestingly, a concept which could have been implemented for maglev was developed by someone from Brookhaven National Lab in 1968, in the United States. Nothing ever happened with maglev here, of course. You can say similar things about Germany: Maglev technologies developed in Germany are now being employed in China.

Let's even look at high-speed rail. China is really leading here. Its high-speed-rail system has only existed since

FIGURE 5

Eurasia: Main Routes and Selected Routes of the Eurasian Land-Bridge

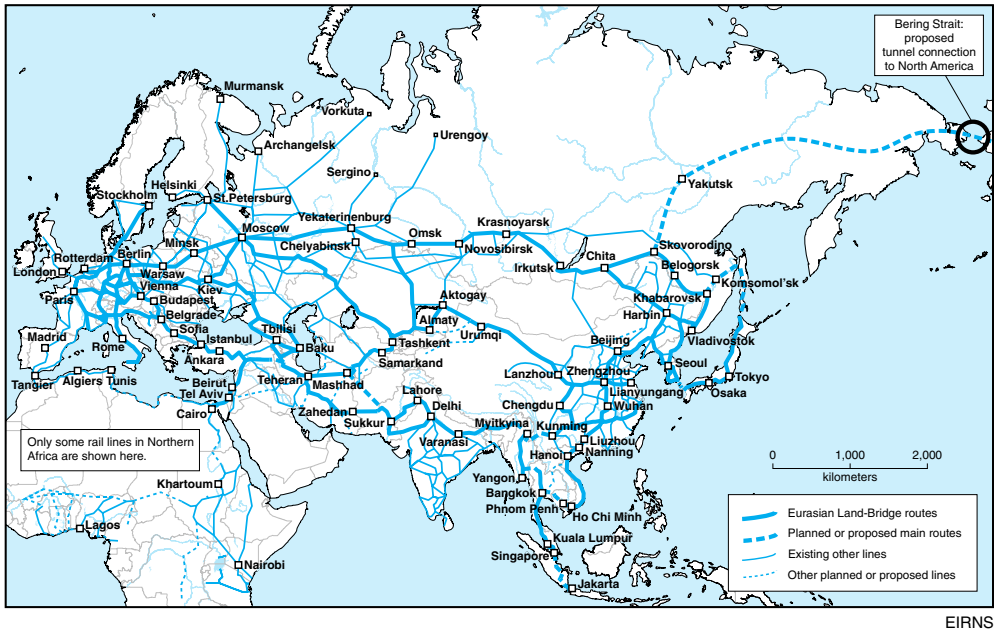

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FIGURE 6

Planned Russian Railroad Development to 2030

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2007. By 2010, it covered 5,000 miles of Chinese territory, and by 2020, it is expected to cover 10,000 miles.

A portion of China's high-speed rail system covers the distance from D.C. to Houston in eight hours. In contrast, many people may have had experience with the Amtrak system in the United States. It takes 30 hours to go from New York to Miami on an Amtrak train.

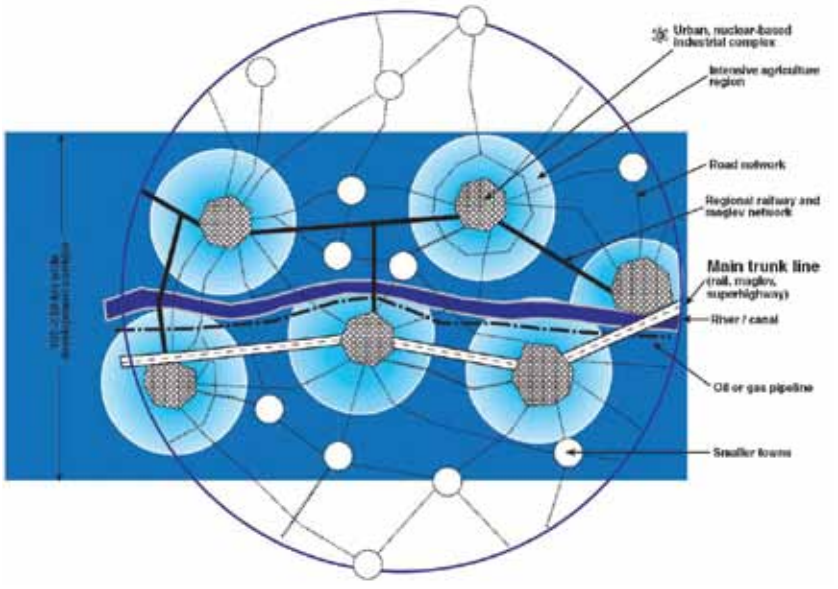
In terms of rail development and also Arctic development, we can look to Russia's plans for rail expansion, as we see in **Figure 6**. This is the Russian railroad development plan until 2030. A couple of years ago, the government agreed to extend rail in far-eastern Siberia, approaching the Bering Strait, such that by 2020, I believe, they should complete a rail link from Yakutsk to Magadan. This is not yet at the Bering Strait, but it's moving in that direction, and what's significant is that it was stated as the plan in these terms: to build this by this date.

In contrast, there are plans for developing rail in the northern United States, in the American Arctic, in Alaska: There are plans, they're on the books, but we certainly don't have a government commitment to build that rail by any particular date.

The significance of high-speed rail, of maglev, is dramatically increased, and the investment is made worthwhile, when the productivity of the territory in which the rail in situated is increased. In **Figure 7**, which we've featured in our material on the Eurasian Land-Bridge, you have a transportation system, but it's surrounded by agricultural development, urban nuclear complexes, etc. And that of course increases the value and the contribution made by high-speed rail or maglev.

In the Russian Far East, in Siberia, they're looking at developing the Vostochny Cosmodrome, a new space port. And we can imagine applying fusion power, the power of the fusion torch, to mining the riches of Siberia, its vast mineral resources, in the areas where this

FIGURE 7
Development Corridor



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new rail is planned. This is some of the richest territory on the planet. Palladium, tantalum: Siberia has 80-90% of the world's supply of these elements. And there are many other cases.

China's Great Water Project

Continuing with this idea of increasing the productivity of the land, as we've seen with development corridors, and overall what is planned for developing the Eurasian land-mass, let's look at an example, because this also deals with the issue of agriculture.

This is a major water project currently being built by China (**Figure 8**). It's called the China South-to-North Water Project. This project will transfer 25 million acre feet [MAFY] from the Yangtze to the Yellow River. There's much more to say about it, of course, but this is the largest project, and it's being built. They're testing parts of it. There are very challenging components which could be built in the West. It's really the largest such transfer project on the planet.

Now, imagine, if you will, a mirror image reflected across the Bering Strait (**Figure 9**), where you have this vast Eurasian land-mass on the other side, and you have the vast American Arctic completely undeveloped. And, as we've gone through, there are plans to develop the Eurasian land-mass, leading into the Arctic. The mirror image on the other side: We have a project, which Ben has referred to, on the books, to do just this for North America. We can jump right on board. This is the North American Water and Power Alliance, as we see in the next image.

This will involve the construction of a new Pacific transportation corridor through the Bering Strait (**Figure 10**).

Just to discuss briefly some of the elements of NAWAPA that we haven't covered so far: This is a continental water-management project. We've updated

FIGURE 8
China South-to-North Water Project

FIGURE 9
The Eurasian Land-Bridge and Bering Strait

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it, but it was developed decades ago, during the era when—and this may seem shocking to our audience—we had a President, a Democratic President, who said, in a speech, that the idea of any drop of water running to the ocean unused was a waste. That's how people used to think, decades ago, when we were actually a very productive country.

We're going to take roughly 20% of the water from rivers in British Columbia, Yukon, and Alaska, bring it down to the Great American Desert, through the Rocky Mountain Trench, pumping over the Sawtooth Mountains. **Figure 11** is an updated image of the North American Water and Power Alliance. It's very detailed. You're transporting water from one basin, where there's 1.3 billion acre-feet of runoff, to one where there's 30 million acre-feet, clearly a discrepancy. This will bring 50 million acre feet down to the U.S., the High Plains, and Mexico.

FIGURE 10
The New Pacific Transport Corridor

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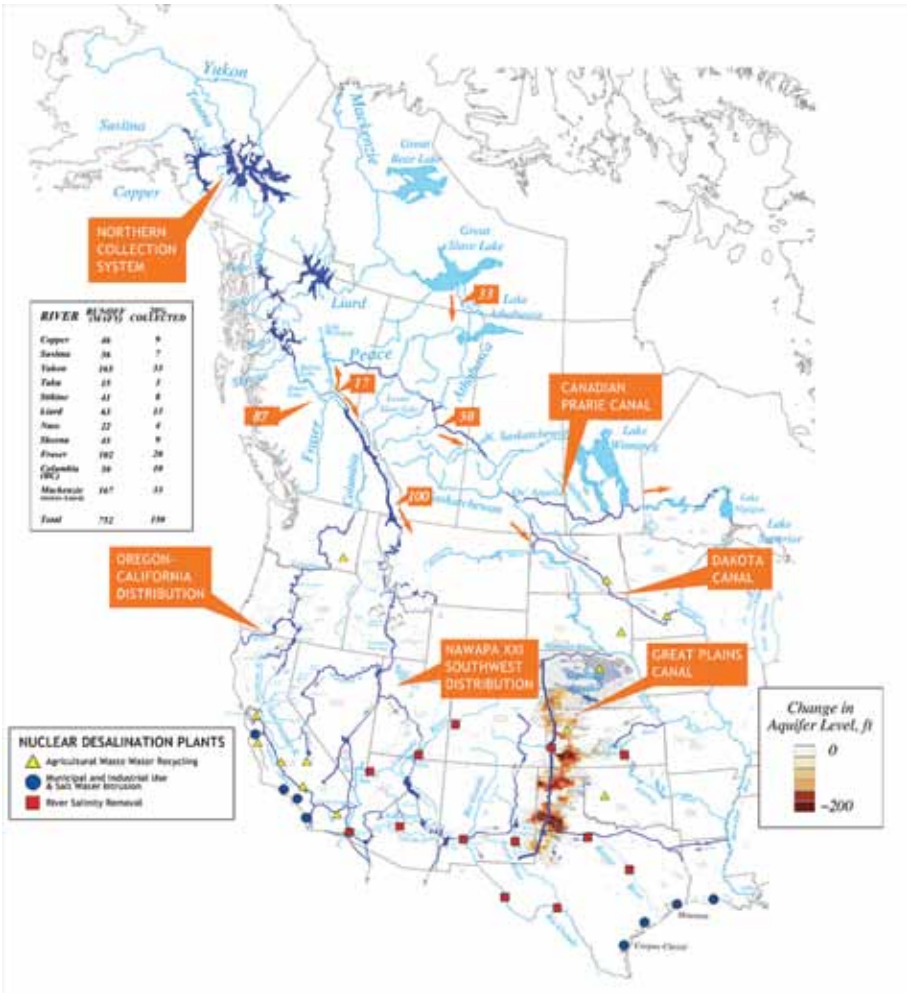
And we've discussed the need to do this from a nuclear platform, to reduce the need for hydro for the pumping. This map features one thing that's totally new, indicating where you can have desalination stations, a specific vision John F. Kennedy had for the Western United States.

And importantly, in terms of what we were just talking about, it will require the development of rail into Alaska and Canada, because a lot of the components of this system

FIGURE 11

Proposed North American Water and Power Alliance (NAWAPA)



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American audience knows, where the United States used to provide the vision for the rest of the world, and this is space. Of course, what [the Mars rover] Curiosity achieved was very exciting, but I think you could say that Curiosity's success occurred despite the lack of funding and the lack of vision from the U.S. space program. And I want to look briefly at the case of the Moon.

As you know, President Obama said that we shouldn't go back to the Moon, because, and I think he said something like: "I hate to break it to you, but we've already been there." Most of us know that! But serious nations pursuing a serious program of space colonization don't have that view. They're saying: "Yes, we've been to the Moon, the United States has been to the Moon, but we want to develop it. We want to develop bases, and think of developing an infrastructure capability on the Moon." Which nations are doing this? Which have a serious program to return to the Moon? Russia, China, South Korea, and India.

Just the other day, a Chinese lander [Chang'e 3] left, and, if successful, it will be the first soft landing on the Moon in 40 years.[2] It departed the day after the launch of an Indian Mars probe. There are other Mars missions from which the U.S. has pulled out: The European Space Agency (ESA) has a program called ExoMars. The United States pulled out, saying we didn't want to pay for this, and the ESA was forced to go to Russia, to ask Russia to help them move forward with this.

And people are probably well aware of the crisis with the International Space Station (ISS). The United States is currently dependent on Russia to get our astronauts up to the ISS. I've even seen reference to the fact

are up there, and there's currently no functional transportation to get there, no rail. So that would be required by this project: actually developing the American Arctic, the Alaskan Arctic. Just completing rail from where it currently ends in British Columbia, to Fairbanks, Alaska, which is not even quite at the Bering Strait, would require 2,000 miles of new rail, and building the NAWAPA system would require that. The project as a whole, we've estimated, would create 7 million jobs in construction, manufacturing, engineering, and science in the United States.

Does the U.S. Have a Future in Space?

I'm going to end with one more example of a frontier of science and technology where Asian nations are currently leading, but also an area, as many of our

2. For an update on the Chinese program, see "China's Lunar Exploration Program Moves to the Next Level," *EIR,* Dec. 13, 2013.

that as the ISS is coming to the end of its life, China's will be being completed. Maybe theirs will become the new international space station.

I want to refer briefly to the case of Ukraine, an example of how Ukraine could fit into this orientation. I read something very interesting, which was that SpaceX, which is a private space company in the United States, actually purchases booster rockets from Ukraine, and they have stated that the quality of these rockets couldn't be duplicated by the United States, which is sort of shocking, but gives a sense of the real scientific and technological knowledge and wealth which exists in that country, which could orient towards this kind of development.

I think the need for all of these nations, including the U.S., to cooperate as part of a global alliance, with this kind of of a commitment to increasing energy-flux density—this case is made clear by the question of asteroid defense. Many people's attention was focussed on this, more so recently, especially this year, as Russia was hit by the meteorite in Chelyabinsk in February.

But in October of 2011, Russia had made an offer to the U.S. to collaborate specifically in this area: in planetary defense. They called this the Strategic Defense of Earth, hearkening back to the idea of the Strategic Defense Initiative, which was a proposal worked on by Mr. LaRouche, initiated by him, to collaborate with Russia along similar lines, with a slightly different emphasis. And it's also very clear, that in this area, where you're talking about not having a very long lead time to deal with a threat, applying an increased level of energy-flux density to the given challenge is the only thing which would be effective.

So it's clear that a global alliance, with a commitment to increasing energy-flux density, in the case of asteroid defense, is an issue of survival, but it also represents the only option for an inspirational and actually meaningful future (let alone *any* future), a vision for coming generations.

I think we actually have a glimpse of this. It's not perfect, but we have a glimpse of what this trajectory looks like, coming out of Asia; and it's clear that it's the *only* option for the United States to get back on the track of progress, which we've unfortunately left behind, about 50 years ago.