

**ALASKA STATE LEGISLATURE  
HOUSE SPECIAL COMMITTEE ON ENERGY**

February 22, 2013  
8:02 a.m.

**MEMBERS PRESENT**

Representative Doug Isaacson, Co-Chair  
Representative Charisse Millett, Co-Chair  
Representative Neal Foster  
Representative Shelley Hughes  
Representative Andy Josephson  
Representative Benjamin Nageak

**MEMBERS ABSENT**

Representative Pete Higgins

**COMMITTEE CALENDAR**

OVERVIEW(S): LESSONS LEARNED IN ICELAND BY INSTITUTE OF THE NORTH

- HEARD

**PREVIOUS COMMITTEE ACTION**

No previous action to record

**WITNESS REGISTER**

COUNSEL GENERAL STEN ROSNES  
Royal Norwegian Consulate General  
Chancellery  
San Francisco, California

**POSITION STATEMENT:** Gave short remarks related to his visit to Alaska.

NILS ANDREASSEN, Executive Director  
Institute of the North  
Anchorage, Alaska

**POSITION STATEMENT:** Provided a PowerPoint presentation entitled, "Report of Lessons Learned in Iceland and around the Circumpolar North."

IRA PERMAN, Member  
Board of Directors

Institute of the North  
Anchorage, Alaska

**POSITION STATEMENT:** Participated in the presentation by  
Institute of the North.

**ACTION NARRATIVE**

[8:02:31 AM](#)

**CO-CHAIR DOUG ISAACSON** called the House Special Committee on Energy meeting to order at 8:02 a.m. Representatives Hughes, Nageak, Foster, Millett, and Isaacson were present at the call to order. Representative Josephson arrived as the meeting was in progress.

**OVERVIEW(S): LESSONS LEARNED IN ICELAND BY INSTITUTE OF THE  
NORTH**

[8:03:29 AM](#)

**CO-CHAIR ISAACSON** announced that the only order of business would be a presentation by Institute of the North. Prior to the presentation, Co-Chair Isaacson provided information to the committee related to previous meetings. For the benefit of Institute of the North, he asked each member of the committee to specify the electric generation needs in their communities.

[8:05:55 AM](#)

**REPRESENTATIVE FOSTER** relayed that the electrical needs in his district are second to the cost of diesel-fueled space heat.

**REPRESENTATIVE HUGHES** said in the Matanuska-Susitna Valley the biggest need is for a supply of natural gas.

**REPRESENTATIVE NAGEAK** said Barrow has natural gas; however, in the villages the cost is higher because both heat and electricity are generated with diesel generators.

**CO-CHAIR MILLETT** said it is all about natural gas.

**REPRESENTATIVE FOSTER** added that for those not on the road system, along with the cost of space heat there is the additional transportation costs that affect goods and services.

**CO-CHAIR ISAACSON** noted that the aforementioned information frames the ideas in the presentation that would follow.

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COUNSEL GENERAL STEN ROSNES, Royal Norwegian Consulate General, said it is important for those in Norway to understand what is happening in Alaska. He said he visited the business community in Anchorage and studied the electrical supply of Arctic regions at the University of Alaska Fairbanks. He opined Institute of the North has done an outstanding job promoting closer contact between Scandinavia and Alaska, which are regions that can learn from each other.

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NILS ANDREASSEN, Executive Director, Institute of the North (the Institute), stated Iceland and Norway both consider power as the backbone of their economy and that the Arctic is the number one foreign policy issue; Alaska can learn from the successes of both of these Arctic neighbors. The Institute's values are: the Arctic is a commons and management of its resources is for the benefit of the peoples and the communities of the North; responsible energy and infrastructure development facilitates sustainability; and sustainability is a goal for healthy, prosperous, and resilient communities. These values are promoted by elevating the voices of northern peoples in state, national, and international arenas [slide 1]. The Institute works to convene and facilitate civic discourse; to cultivate and engage citizenry; to inform public policy through outreach and education; to sustain stakeholders, policymakers, and technical experts; to synthesize research for broader awareness and accessibility; and to connect people to one another and with issues [slide 2]. Fundamental to the Institute's work is the development of Alaska's resources for the people of Alaska; in fact, 80 percent of its work is focused on energy and transportation, both at the Arctic Council and state levels. Within the Arctic Council the Institute is focused on Arctic port and airport infrastructure and response capacity in times of need, beginning with mapping to find the gaps in infrastructure and planning. Regarding Arctic energy, in 2006 the Institute began looking for the latest technology and forming policy frameworks so that regions and states can adopt the best practices of energy technology for their communities [slide 3]. In response to Co-Chair Isaacson, he explained that the Arctic Council consists of eight Arctic nations and six indigenous organizations that participate in the sustainable development working group (SDWG).

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REPRESENTATIVE NAGEAK asked whether the Arctic Energy Summit is held this year.

MR. ANDREASSEN advised the Arctic Energy Summit will be held 10/8/13 through 10/10/13 in Akureyri, Iceland. Air service from Seattle is available. He returned attention to the work of the Institute which is also to strengthen networks through its Arctic Energy Network, the Pacific Northwest Economic Region (PNWER) Arctic Caucus, the Bering Strait Region, and with Circumpolar Policy Tours to Norway in 2011, Iceland in 2012, and future destinations. The tours delve into common areas such as mining, offshore development, indigenous issues, and rural development [slide 4].

[8:23:17 AM](#)

REPRESENTATIVE HUGHES asked for all that "Arctic policy" encompasses and its status in Alaska.

MR. ANDREASSEN explained that each Arctic nation has an Arctic policy, including the U.S. Most are strategies that support sovereignty, Arctic domain awareness, healthy communities, economic development, and environmental protection along with development. He opined that northern nations recognize opportunity pertaining to potential undiscovered resources - Norway is strengthening its relationship with Russia and collaborating on offshore resource development - and fishing and mining present other opportunities. At this time the U.S. does not see the Arctic as the number one priority, but it should be a top priority for Alaska, and Alaska should take a leadership role. Mr. Andreassen added that the creation of the Alaska Arctic Policy Commission (AAPC) is a step forward.

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CO-CHAIR ISAACSON asked what lessons Alaska can learn from Provideniya, Russia, should a policy tour travel there.

MR. ANDREASSEN reminded the committee this year is the 25th anniversary of the 1988 friendship flight from Nome to Provideniya that helped open the border. The Institute is working on a plan to return to build on that experience.

REPRESENTATIVE NAGEAK recalled in 1988 he traveled on a ship from Nome to Provideniya and on to Magadan to learn about

activities and connect with family. In 1991, an agreement was signed with Russian Chukotkan Natives to do a bowhead whale study; this is a very important relationship.

REPRESENTATIVE FOSTER suggested looking to the east for ideas on how to handle Arctic issues such as shipping, tourism, oil and gas, sea mammals, and future cooperation between nations.

MR. ANDREASSEN noted the strength of cross-border communications in the Bering Strait region is unclear, as are the issues of vessel traffic, travel by individuals, and the environment.

CO-CHAIR MILLETT recalled her circumpolar trip in 1989, and asked whether reports from that experience are available.

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IRA PERMAN, Member, Board of Directors, Institute of the North, said he has not looked at those reports.

MR. ANDREASSEN said the AAPC recommended a review all of the information collected over last 25 years to better understand circumpolar relations. He returned to the presentation and said the Institute responds to the fundamental challenges of declining oil production, decreased state revenue, high energy costs, gas challenges, and fiscal hurdles, and seeks to observe helpful information from other nations on how to develop resources for maximum benefit [slide 5].

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MR. PERMAN informed the committee he was board chair during the policy trip to Norway. Current board chair is Drue Pearce and she and the other board members are interested in the development of Alaska's resources for the benefit of Alaskans. The trip to Iceland was the Institute's second policy tour. Research revealed that Norway is very highly rated in the world in many areas and the first policy trip went there. A week was spent in Norway visiting government agencies and industry to get a good understanding of the energy development policies in Norway. The next trip to Iceland had a different focus as it does not have the hydrocarbon resources found in Norway and Alaska. Iceland is located in an "interesting" air crossroad between North America and Europe. It is also strategic to polar shipping lanes transiting the Northern Sea Route which shortens the distance from Europe to Asia [slide 7]. In fact, Norway is now shipping natural gas to Asia, saving 40 percent in costs.

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REPRESENTATIVE NAGEAK inquired as to the access to the Northern Sea Route.

MR. PERMAN said shipping is active there and Russia is increasing its icebreaker capacity from six to fifteen so it can run convoys of ships through the ice in two directions.

REPRESENTATIVE HUGHES suggested the map on slide 7 should be provided to legislators to remind them to think about Arctic policy.

MR. PERMAN observed that Iceland considers itself the front door from Europe into the Arctic and to the Aleutian Chain.

CO-CHAIR MILLETT recalled the legislature passed a resolution last year urging the U.S. Congress to build more icebreakers.

MR. ANDREASSEN said the U.S. Coast Guard has an icebreaker in its budget.

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REPRESENTATIVE NAGEAK relayed 94 ships traveled nearby Barrow last year. He agreed that the U.S. needs more icebreakers and urged for Alaska to be involved in decisions about shipping and the protection of those living in the Far North.

MR. PERMAN continued, noting that Iceland developed its energy policy in a comprehensive manner that resulted in affordable energy for its residents and for industry. Both of the policy tours helped to show that Alaska does not provide as much benefit to its residents as do Iceland and Norway. The policy tour to Iceland was five days long and began with meetings with leaders of parliament, the president, and the ministries of foreign affairs and of industries and innovation. There followed visits to industrial installations and businesses such as Landsvirkin - the nationally-owned energy company, the hydropower plant at Karahnjukar Dam, two geothermal plants, Mannvit Engineering, Verkis Consulting, the Alcoa plant, the Verne Global data center, indoor farms, and educational institutions [slide 9].

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MR. PERMAN said the population of Iceland is 320,000 - about the size of Anchorage - and the island is approximately the size of Kentucky. The population is centered in the capital of Reykjavik, where the climate is mild because of the influence from the Gulf Stream. The income per capita is the lowest of the major Scandinavian countries, as the economy is recovering from a devastating economic collapse. Since then exports of fish and aluminum, and tourism, have brought the economy back to a degree [slide 10].

REPRESENTATIVE HUGHES asked how the cost of living compares to Alaska.

MR. PERMAN said the cost of living is similar to that of Alaska.

MR. ANDREASSEN added that the availability of cheap electricity and heat makes a difference for the residents, and they do not conserve energy.

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CO-CHAIR ISAACSON opined that affordable energy is what incentivizes private investment, as happened in Iceland. Alaska, however, provides supplements to residents but does not provide a new, sustainable way to live. He asked for the difference between affordable energy compared to cheap energy.

MR. PERMAN pointed out that Iceland provides electricity to smelters for between 2 cents and 3 cents per kilowatt (kW) hour without subsidies.

CO-CHAIR ISAACSON asked whether Iceland is similar to Alaska regarding bureaucracy and environmental controls.

MR. PERMAN said he was unsure about environmental controls. In Iceland the residential cost is an average of 11 cents per kW hour on the grid. Iceland formerly imported oil and coal, but during the oil shortages in the 1970s, it chose to develop hydroelectric (hydro) and geothermal sources of energy [slide 11].

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REPRESENTATIVE NAGEAK expressed his belief that Alaska has the same geothermal capacity with volcanos and hot springs. Alaska needs to use the same technology to reduce the cost of energy in nearby areas. He urged for drastic action.

MR. PERMAN recalled Norway came to that decision after World War 11, and Iceland did so much later and both power systems were the responsibility of the central governments. In response to Representative Hughes, he said Norway now exports its excess power to Sweden and Europe.

MR. ANDREASSEN returned attention to the number one lesson learned: complete a resource assessment and choose what to develop. In Norway, the choice was to export oil and gas and use hydro for domestic use. In Iceland the choice was to use geothermal for heating and hydro for electricity. Other technologies were not considered. Investments were also made in educating people to become experts in geothermal energy, in institutions, and in infrastructure. He opined cheap power is provided to industry and affordable power to citizens, thus both can move toward economic prosperity [slide 13]. Iceland's energy mix is 80 percent of primary energy supply comes from renewable resources: 99.9 percent of electricity production and 99 percent of space heating. The remaining 20 percent comes from imported fossil fuels used for transportation and fisheries. He characterized this as a strategic and measured approach [slide 14].

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CO-CHAIR ISAACSON said Alaska has a scattered approach.

MR. ANDREASSEN stressed the need to prioritize to move forward as Norway and Iceland have done. In Iceland geothermal produces 37 percent of electricity and 45 percent of space heating [slide 15]. He presented a map that identified the location of geothermal sites [slide 16]. The Hellisheidi Geothermal Plant is the second largest in the world and generates power for 18 revenue streams [slide 17]. The Karahnjukar Hydropower Plant is the same size as the proposed Susitna-Watana Hydro project and was built to power the Alcoa smelting plant [slide 18]. The dam was built with private financing and government guarantees.

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MR. PERMAN said the bauxite and alumina ore for the smelting plant come from all over the world.

CO-CHAIR ISAACSON pointed out that ore from the Red Dog Mine is shipped to Australia and Portugal for processing elsewhere, rather than creating jobs in Alaska.

REPRESENTATIVE NAGEAK added that Alaska has incredible potential from its resources.

MR. ANDREASSEN, in response to Co-Chair Isaacson, said the water for the Karahnjukar dam comes from glacial rivers; in fact, some of the rivers now have salmon. The landscape in a fairly uninhabited area was changed, but community perspectives were heard and environmental risks were mitigated.

MR. PERMAN turned to exports, noting that Norway exports raw energy products. Iceland is an island regarding energy so it uses its low-cost energy to develop products for the world market such as fish, aluminum, and tourism [slides 19 and 20]. Little electricity is used by fishing or agriculture, moderate amounts are used for industries and residential consumption, and most is used to support the aluminum industry. For the aluminum industry the raw material comes from Brazil and Australia and the final product is exported for a higher value [slide 21]. Another energy-intensive industry is hothouse agriculture which supplies tomatoes and bananas to Europe [slide 22]. Added to these is a pharmaceutical industry and internet server farms [slide 24].

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REPRESENTATIVE NAGEAK noticed there was no smoke coming from the aluminum smelter [slide 23].

MR. PERMAN advised the data center was located in an area of declining population in order to provide economic renewal.

REPRESENTATIVE HUGHES asked whether communities in Iceland are connected by roads.

MR. PERMAN said there is a road around the island, however, as in Alaska there is outmigration from small villages to Reykjavik.

REPRESENTATIVE HUGHES observed the transportation infrastructure removes some of the challenges seen in Alaska.

MR. ANDREASSEN, in response to Representative Nageak, said the dam was built with local materials but he was unsure of the source of material for the roads.

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MR. ANDREASSEN turned attention to the third lesson: planning. Faced with the oil crisis in the 1970s, Iceland made a fundamental energy policy decision looking at long-term benefit and working toward energy independence. After choosing to develop hydro and geothermal resources, there was a focus on infrastructure development and comprehensive planning for 10 years [slide 25]. The goals of the comprehensive energy strategy were to have renewable energy sources replace imported energy, to support diversified industry, and to use a protective approach in energy production. The master plan chose projects for sustainability, natural environment, tourism, and land use [slide 26]. Projects were then put in three categories: proceed with utilization; subject to further research; and not utilized [slide 27]. In response to Co-Chair Isaacson, he explained TWh stands for terrawatt hours.

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MR. ANDREASSEN, in response to Representative Nageak, stated that after the identification of the resources and potential projects, and 10 years in work groups and public discussion involving the entire society, parliament issued a decision after 16 years of inclusive discussion [slide 27].

REPRESENTATIVE NAGEAK asked for a comparison of Iceland's educational system with that of the U.S.

MR. ANDREASSEN said Iceland is ranked at near the top of all nations for education.

MR. PERMAN added that education is free through college and graduate school.

MR. ANDREASSEN stated that much of the planning process is handled through the National Energy Agency, Ministry of Industry and Innovation, and its purpose is to develop and implement the plan [slide 28].

REPRESENTATIVE HUGHES asked whether employees of the National Energy Agency are government workers.

MR. ANDREASSEN said they are civil service officials with long-term experience, and are not political appointments.

[9:30:24 AM](#)

MR. PERMAN pointed out that once major policies are set by a long inclusive process the implementation is not affected by a change in parliament because employees below the ministry and deputy ministry level are lifetime employees insulated from the political process.

MR. ANDREASSEN described Norway's planning process that began in the 1930s and was revisited in the 1970s.

MR. PERMAN continued to the hallmark of Scandinavian countries regarding major energy infrastructure: Own the Infrastructure [slides 29 and 30]. The government owns and maintains the power grid that parallels the road system around the island connecting all of the communities. It is a common carrier line which connects all of the locally-owned generation and power distribution systems. Because it is an open access grid, all of the power generators are competing with each other to keep prices to residential consumers low [slides 31 and 32].

REPRESENTATIVE HUGHES recalled that Alaska "has been burned" with owning projects and asked whether Iceland has had similar problems.

MR. PERMAN said, other than its banking system, he was unsure. The power grid was built privately and purchased outright by the government.

[9:34:32 AM](#)

CO-CHAIR ISAACSON advised the communications industry now has a successful link from Anchorage to Fairbanks and to Nome.

MR. PERMAN acknowledged that Iceland has communities on its peninsula that are not attached to the grid which receive postage stamp rates through a program similar to Power Cost Equalization. In response to Representative Nageak, he said communities on the peninsula generate power with diesel, hydro, or geothermal.

MR. ANDREASSEN informed the committee the policy tour was attended by Alaskans from various industries, and the public and private sector. As an aside, he noted that Alaska has built infrastructure that was sold to private business, in reverse of Iceland's process.

MR. PERMAN continued to Iceland's energy future which may include exporting electricity 800 miles to Europe via a high-

voltage direct current (HVDC) cable, even though a connection to an international grid may increase cost [slide 33]. There is also the possibility that oil and gas may be developed offshore by private industry [slide 34].

9:40:06 AM

MR. ANDREASSEN turned attention to four challenges facing Alaska's investment for long-term prosperity: pick an energy resource; develop a comprehensive plan; own the infrastructure; export value-added product [slide 35]. The next steps for the Institute are to evaluate the lessons from Iceland, Norway, and others, and how they may apply to Alaska, given that Alaska is bigger and geographically different. Also, research is needed for the implementation of these lessons.

CO-CHAIR ISAACSON opined Alaska must take the next step beyond writing its energy policies. He asked when the Institute will be able to help focus all the groups that are working on this problem.

MR. ANDREASSEN said the Institute's goal is to put together a plan by November that can be addressed during the next legislative session.

REPRESENTATIVE NAGEAK asked whether Iceland presents opportunities for private enterprise.

MR. PERMAN stated that the large dam was constructed by private industry under government contract; in fact, the end goal is the benefit of residents using a capital-driven system.

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REPRESENTATIVE HUGHES asked about the tax structures in Iceland and Norway.

MR. PERMAN explained that individuals pay high taxes - in Norway the average income tax is 47 percent. However, residents receive high benefits in health care, college education, and retirement.

REPRESENTATIVE FOSTER asked what suggestions the Institute has regarding legislation. He then requested copies of the recommendations that were issued after the policy tour to Norway.

REPRESENTATIVE HUGHES requested Mr. Perman expand on his view of what is "maximum benefit."

MR. PERMAN explained that within the narrow definition of energy, Iceland developed its resource in a way that it is extremely affordable for residents to pay for electricity and heating. In addition, the aforementioned social democratic benefits are possible by the careful development of its energy.

CO-CHAIR ISAACSON agreed that lowering the cost of living is key to a wealth of opportunity.

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MR. ANDREASSEN advised that the Institute does not want to replicate Norway or Iceland, but seeks to find an approach for Alaska.

[9:52:14 AM](#)

#### **ADJOURNMENT**

There being no further business before the committee, the House Special Committee on Energy meeting was adjourned at 9:52 a.m.