

By nixing coal, Iceland grabs green with geothermal heat

October 21 2016, by Blaine Friedlander



Icelandic engineer Thorleikur Johannesson explains Iceland's historic backstory for abandoning coal in favor of the greener geothermal agency. Credit: Robert Barker/Cornell Marketing Group

As Cornell considers geothermal heat to warm its campus, Icelandic

engineer Thorleikur Johannesson told the story of how his country abandoned coal and set standards to achieve blue-ribbon blue skies in an Oct. 16 visit to Cornell.

In his keynote talk, "The Potential of Geothermal Energy: Lessons From Iceland," Johannesson showed images of a grungy, sooty Reykjavik shrouded in smog. By the late 1930s, Iceland was beginning to change from heating with coal to tapping into Earth's natural hot water. Scuttling coal removed the grime from Icelandic streets and restored the beauty of the country's azure skies.

Johannesson said 85 percent of Iceland's annual energy comes from domestic, renewable resources. Hydropower there produces about 71 percent of the country's electricity and [geothermal energy](#) about 29 percent. In a country of 330,000 people, residential housing consumes only about 5 percent of the electricity.

Today the geothermal energy system is fully developed in Reykjavik, its suburbs and throughout small towns in Iceland, as virtually all residential homes are heated this way. "It was street-by-street, house-by-house, and we did it. Some people take it for granted, as it hasn't always been like this. It took 90 something years to get where we are," Johannesson said.

"Most of the politicians in Iceland – and I mean most of them – have been pro-geothermal, and we think it is important to have the politics on our side," he said.

After Johannesson spoke, panelists Jeff Tester, the Croll Professor of Sustainable Energy Systems in the Robert Frederick Smith School of Chemical and Biomolecular Engineering; KyuJung Whang, vice president for infrastructure, properties and planning; and Todd Cowen, professor of civil and environmental engineering and the Kathy Dwyer Marble and Curt Marble Faculty Director for Energy at the Atkinson

Center for a Sustainable Future, spoke about researching geothermal energy for Cornell.

Tester said this country needs to adopt an Icelandic approach to integrate geothermal and other renewable sources to produce a clean energy economy while reconstructing America's infrastructure.

Referencing Cornell's recent Senior Leaders Climate Action Group report on achieving campus [carbon neutrality](#) by 2035, Whang said, Earth Source Heat is one of several options being examined for carbon neutrality. Each option carries a cost, he explained. Further, it would be difficult for the university to ultimately attain carbon neutrality by keeping the status quo, and continuing to use [natural gas](#) and other fossil fuels.

Iceland's achievements impress Whang. "We're able to see how much work the Icelandic people have done to heat their entire country... to think that you can heat an entire nation this way is mind-boggling to me," he said.

During the panel discussion, Cowen noted that Cornell's Combined Heat and Power Plant uses natural gas as a bridge to future energy sources, and methane leakage – at the source – remains a problem. "... moving away from natural gas is important. The goal is to get off of it as rapidly as possible," Cowen said. "We've got a campus that is in the process of engaging all aspects, all academic units, the social sciences, the economists, the business school," said Cowen. "There is no better place to be than Cornell to lead the country into these future energy spaces and see how we're going to get there."

Provided by Cornell University

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