

Reykjavik is considered by many to be one of the greenest cities in the world. Given the country's independence from fossil fuel and generally unspoiled nature, Iceland has found itself in a position to be a global leader in sustainability. Since two thirds of the country's population lives in Reykjavik, managing the city's sustainable development has become of great importance to maintaining its green demeanor. The City has taken a progressive stance on sustainability with emphasis placed on utilizing green energy; improving transportation and reducing car dependency; protecting and preserving green urban areas, particularly the "green scarf"; and focusing on sustainable land use by increasing urban densities. While I was able to observe several aspects of Reykjavik's sustainable practices first hand, my visit to Reykjavik in April 2014 focused on learning more about green energy and it's presence in the City.



To learn about geothermal energy I visited the Geothermal Energy Exhibition at the Hellisheidi Power Plant just outside of Reykjavik. Located on Hevill volcano the plant, the powerplant uses geothermal energy to provide hot water and energy to the city of Reykjavik. 90% of all homes in Iceland are heated with geothermal energy; while in the nations capital, Rekjavik, nearly 100% of homes use geothermal energy. The City even uses geothermal energy to heat the streets and sidewalks in the downtown core to keep them snow free in the winter months. However, I was surprised to learn that a large amount of the energy produced from geothermal sources in Iceland provides cheap power to numerous aluminum smelters outside the City. An aluminum smelter requires the equivalent amount of energy of that of a city of one million people. To put that in perspective, the whole of Iceland only has a population of 300,000.



While the power plant provided an eye-opening look at geothermal energy on a large scale, it is also present on a smaller scale. Located just outside of Reykjavik is the Deildartunguhver thermal spring. The spring produces 180 liters of water per second, the largest output of any thermal spring in the world. The water temperature is 212 F and the total production capacity of the spring and neighboring boreholes is 62MW. Water from the spring has been utilized for central heating since 1925 in the nearby towns of Akranes, Borgarns and Hvanneyri. The pipe runs a total of 74 km and is considered the longest of its kind in the world. The water takes approximately 24 hours to travel from the spring to the furthest homes it services and reaches these homes with a temperature between 150 to 170F.

Sustainability and planning for climate change is only going to continue to grow in importance, particularly in light of the extreme weather we have been experiencing. The innovative and progressive stance Iceland has taken on climate change can provide valuable insights on sustainability. This experience provided an interesting case study to inform practice regarding settlements, cities and green energy.

