

# Invest in Reykjanes



**Kadeco**<sup>®</sup>

Keflavik Airport  
Development Corporation

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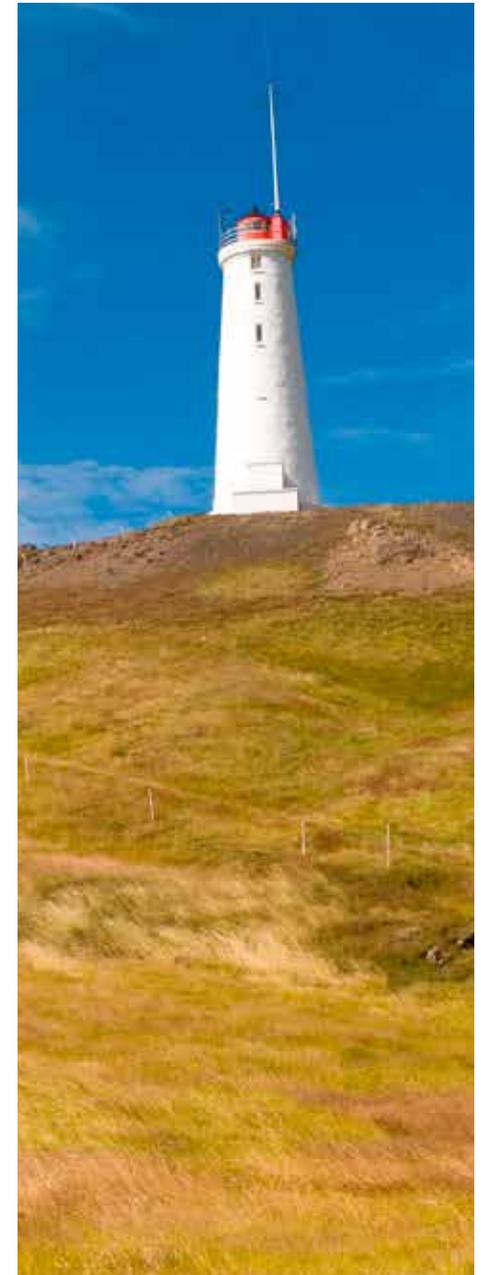
### Why invest in Reykjanes?

- Compact society - Minimum Red Tape
- Low 20% corporate tax
- Tariff-free access for most products to the single market of the European Union
- A strategic location half-way between Europe and North America
- International airport with daily flights to major European and U.S. cities
- Educated labor force, open for innovation
- Flexible labor market
- Competitively priced green energy
- Political stability
- European and Scandinavian regulatory framework and quality standards

Blue Lagoon geothermal spa which National Geographic has named one of ten wonders of the world. The region has been successful in attracting new foreign investment and is increasingly growing its knowledge economy based on logistics, technology, geothermal energy and health tourism. These revolve around two key industry clusters of geothermal energy and seafood. The region is home to a number of successful seafood and geothermal companies and is a world leader in eco-innovation within these fields. Due to this, there is an enormous amount of opportunities and potential partnerships for foreign companies, entrepreneurs, researchers, and students. The Reykjanes region also offers start-up incubator spaces and assistance in setting up operations in the region.

### A DYNAMIC RESOURCE PARK

Reykjanes is Iceland's most attractive location for foreign direct investment, offering geothermal energy and an international airport with 35 daily destinations (65 during summer season). The area boasts a well-developed infrastructure, providing a number of services and a strong housing community, as well as being only a 40-minute drive away from the capital, Reykjavík, via a four-lane highway. Reykjanes is home to the world famous





# Reykjanes investment profile

*The Reykjanes peninsula is one of Iceland's most exciting options for foreign direct investment. The region has great infrastructure, available green energy, an international airport, and is only a short drive from the capital area.*



The Reykjanes peninsula is home to some of Iceland's most popular tourist attractions, including the Blue Lagoon, the Power Plant Earth and the Bridge Between Two Continents. The area boasts both pristine nature and an active cultural scene.

## DEMOGRAPHICS

Reykjanes has a population of 21,500 and is one of the more densely populated parts of Iceland. The region is on the outskirts of Reykjavik and the location of Keflavik International Airport. The local population is relatively young compared to the rest of Iceland and has experienced population growth in the past decades while many rural regions in Iceland have experienced decreasing population. The number of

university students in the region has grown considerably in the last few years which creates a future supply of knowledge workers. The capital, Reykjavik, has the highest density of university graduates in Iceland and is only a 45-minute drive from Reykjanes, making it the same employment region.

## WORKFORCE

Most of the local workforce works in services (42%) which can be attributed to the international airport – the largest employer in the area. The second strongest industry in the region is seafood. Other areas in Iceland, outside of the capital area, have a lot less production from services as shown in the table to the right.

## LANGUAGE

Icelandic is the official language in Iceland. It is a Norse language closely related to Norwegian, Danish, German and English. Due to the fact that Reykjanes hosted a U.S. Naval Air Force base for 60 years, the fluency of English in the local area is very high.

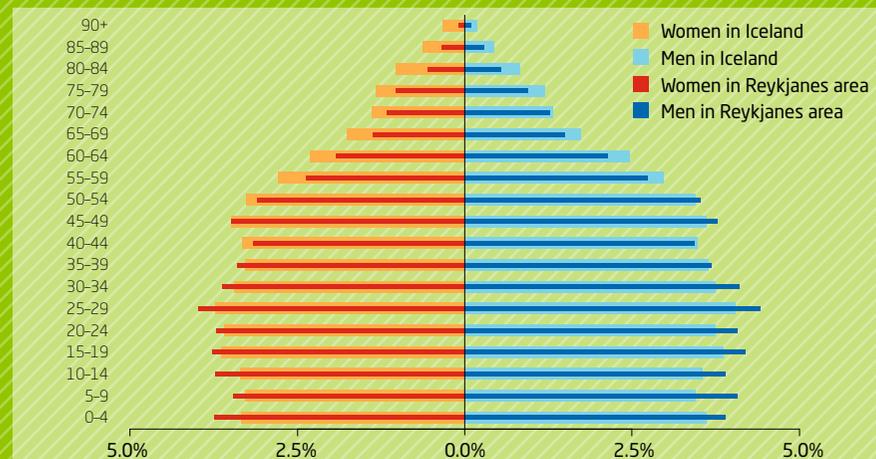
## HOUSING

There is a good availability of high quality housing in the Reykjanes region. There is a stock of apartments available in all of the municipalities. The smaller municipalities are mostly based on single houses. Reykjanes town has the biggest stock of available apartments.

Production in Iceland by industry

	Capital	Rural Iceland	Reykjanes	Iceland
Agriculture	0%	6%	0%	2%
Fishing	1%	12%	11%	5%
Fish processing	1%	9%	8%	4%
Industry	7%	11%	5%	8%
Investment	8%	10%	13%	9%
Government	25%	25%	21%	25%
Services	58%	27%	42%	47%
	100%	100%	100%	100%

Age structure in the Reykjanes area and the whole of Iceland



## EDUCATION

The local municipalities operate the local school system; 15 pre-schools, 10 elementary schools and one of the largest music schools in the country. Students aged 16–20 attend the *Sudurnes Comprehensive College*.

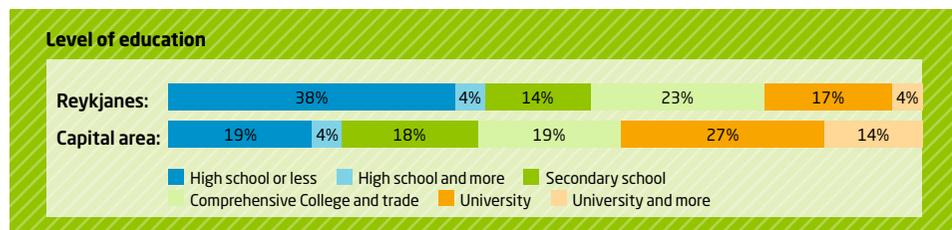
English speaking children who want to study in English can go to the *International School of Iceland* which is located in Gardabaer, 30 minutes from Reykjanes.

[www.internationalschool.is](http://www.internationalschool.is).

High school studies in English are conducted at *Hamrahlid college* which offers the IB Diploma Programme – a comprehensive pre-university curriculum. [www.mh.is/ib](http://www.mh.is/ib).

*Keilir, Atlantic Centre of Excellence*, in Ásbrú offers education at university level. University students in the area also attend the *University of Iceland* and the *Reykjavik University*, both located in the capital area.

[www.keilir.is](http://www.keilir.is).



All universities and colleges in Iceland offer a variety of single courses and even full degree programs in English.

## LIFE AFTER WORK

The Reykjanes region offers a variety of great outdoor activities. The area is a hiker's paradise offering some amazing geological formations, lava fields and caves to explore.

## Swimming

In the region you can find many geothermal swimming pools in addition to the world famous Blue Lagoon spa.

## Sports

The region is known around Iceland for its enthusiasm towards sports. Among the most popular sports in the region are soccer, basketball and golf.

## Golf

In Reykjanes there are four golf courses (54 holes in total). In addition there are four

more 18 hole courses on the way to the capital area – a 30–45 minute drive from Reykjanesbaer.

## Culture

The Reykjanes region has an active and vibrant cultural scene including various museums, art galleries, theater arts, concerts and so on. Among interesting historical and cultural places to visit are:

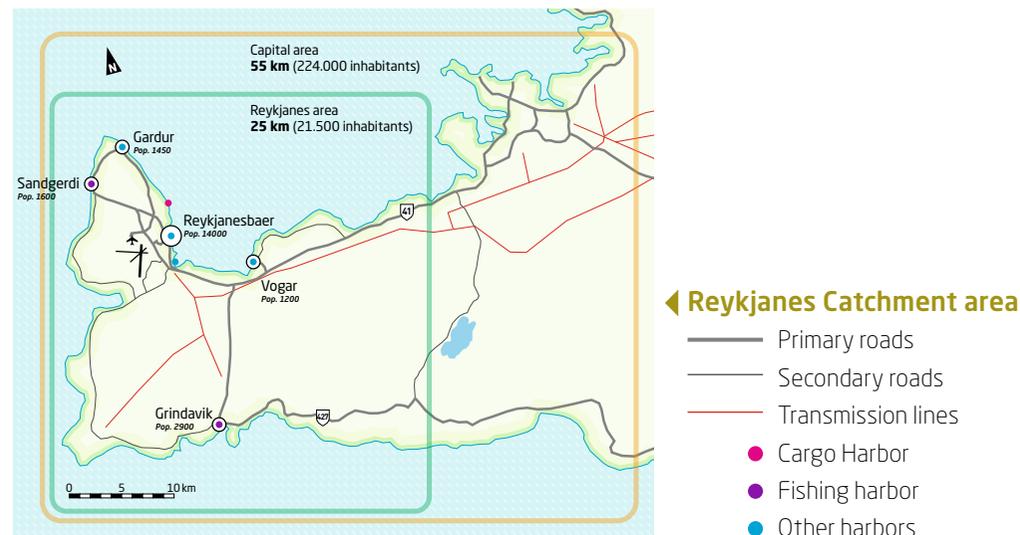
**The Power Plant Earth** covers the history of energy from the creation of the universe to the harnessing of geothermal power.

**Sandgerdi Knowledge Center** and museum of natural history, where you can explore Icelandic nature up close.

**Vikingaheimar** offers a historical overview of the world of the Vikings and is home to the Viking ship *Íslendingur* (Icelander).

**The Bridge between Two Continents** is based on one of the geological characteristics of Iceland where the Eurasian plate meets the North-American plate.

**Duushús**, culture and art center of Reykjanesbaer, houses the Reykjanes Art Museum, the Reykjanes Maritime Museum and the Museum of Heritage.



## KEY INDUSTRIES IN REYKJANES

The Reykjanes region is built on three foundations: seafood, geothermal and logistics. From these three fields various other sub-fields have developed such as tourism. In the following fields, Reykjanes has dynamic companies, research, education and entrepreneurship along with multiple opportunities for new companies.

## LOGISTICS

Reykjanes contains a diverse mixture of businesses connected to the airport and harbor. The future opportunities of the airport and harbor lie in its location, midway between Europe, the U.S. and Asia. Keflavik International Airport could become a key airport for transportation connected with the

opening of the north Trans-Arctic shipping route, domestic aviation and services to oil and mineral exploration in the arctic.

## TOURISM

The Reykjanes peninsula is a unique geological location with many natural attractions. The region hosts Iceland's international airport and its most popular tourist destination: the Blue Lagoon. Tourism in Iceland is growing fast and new opportunities to offer tourists more value added services are being created every day.

## SEAFOOD

Reykjanes is home to some of the strongest seafood companies in Iceland and most of the seafood sector in Iceland is located

there. Reykjanes functions as a logistical connection node in the export of fresh seafood via Keflavik International Airport.

## BIOTECH

The Reykjanes biotech industry spins off its seafood and geothermal industries. Research and development has led to innovation and development of several new products. The area has great potential for algae production using geothermal energy. Seafood processing companies have been looking towards getting a higher yield from their products by finding use for all bi-products.

## MATERIALS

Because of the availability of long term con-

tracts on green energy, several companies have been looking towards establishing material factories in Reykjanes. These include an aluminum smelter and a silicone factory at Helguvik industrial harbor. There is already a large aluminum smelter in Hafnarfjordur.

## IT

The Reykjanes peninsula has attracted international data centers, such as Verne Global which has clients including German automaker BMW. The company Farice, which offers a point of presence in the Ásbrú Enterprise Park, offers services between Iceland and Europe through the FARICE -1 and DANICE submarine cable systems, and to North America through the Greenland Connect submarine cable system.



# Reykjanes nature and climate



*The warm Gulf Stream from the Caribbean has a big impact on Iceland's temperatures and weather, resulting in a relatively mild climate.*

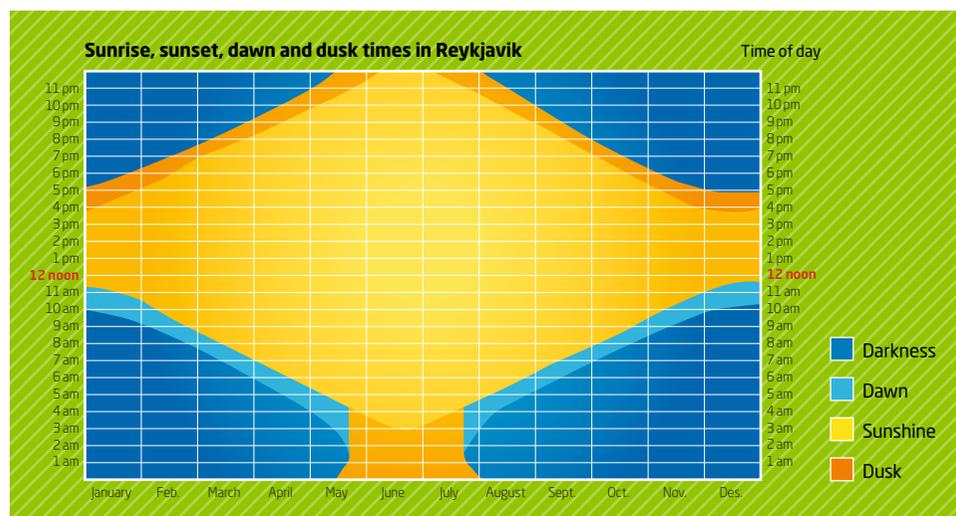
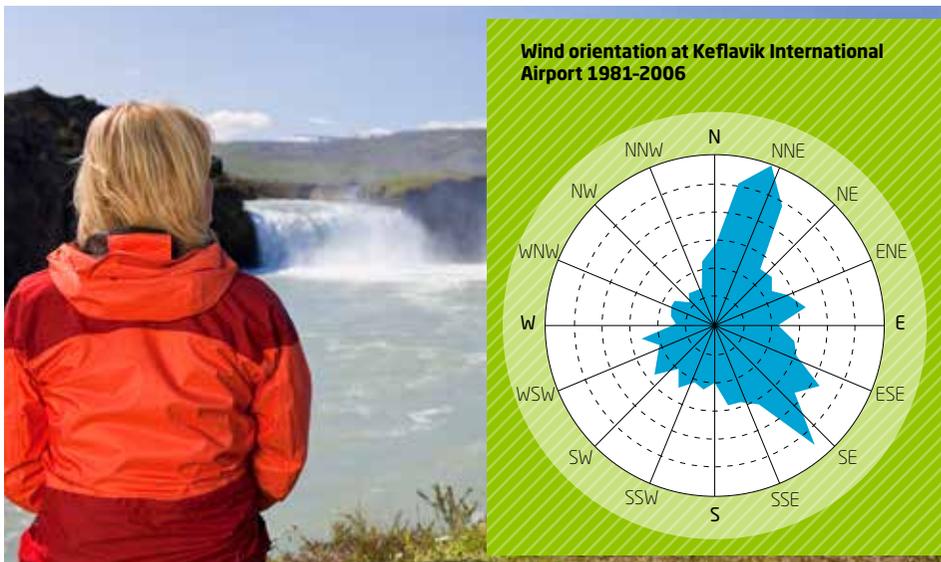
## NATURE

Reykjanes peninsula is home to many spectacular attractions with lava fields as far as the eyes can see and black sandy beaches surrounding its parameter. In the lava fields, over 200 caves of various shapes and sizes have been recorded. The area is well known hot spot for Aurora Borealis sightings, otherwise known as the Northern Lights, producing an amazing display of dancing lights in the night sky.

## CLIMATE

The warm Gulf Stream from the Caribbean has a big impact on Iceland's temperature and weather, resulting in a relatively mild climate. From early May to early August, Icelanders cherish their long hours of brightness. From mid-June to late July, they see practically no darkness at all. Around June 23, there are about 24 hours of daylight. This annual extended period of daylight shifts Iceland's weather from cool days to warmer, sunny days with temperatures varying between approximately 8°C and 25°C. The winter temperature in SW-Iceland commonly ranges from -10°C to +10°C, often hovering around 0°C.

*(By Ari Trausti Guðmundsson)*





**Weather in Reykjanesbaer - 164 feet (50 meters) above sea level**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. temperature	0	0	0	2	6	8	10	10	8	4	1	0
Avg. max temp.	3	2	2	5	9	11	13	13	11	7	4	3
Avg. min temp.	-2	-3	-3	0	3	6	8	8	6	2	0	-1
Avg. rain days	12	10	10	10	14	13	14	15	14	16	11	9
Avg. snow days	9	12	12	4	1	0	0	0	0	4	8	8

# Energy



*The local energy company HS Orka owns and operates two geothermal power plants in the region and is a large shareholder in the Blue Lagoon, one of Iceland's premier tourism destinations and one of the world's top spas.*

*Over 70% of Iceland's total energy needs come from renewable energy sources and over 99% of all electricity is either geothermal or hydroelectric in origin.*

Iceland is in a unique position to become carbon neutral and oil free ahead of most others and to demonstrate how this ambition can be achieved. In 2011, the great geothermal areas in the Reykjanes area produced around 1327 GWh/year of electricity which is 7.7% of the total production in Iceland. Almost all houses are heated by geothermal means.



*Svartsengi geothermal power plant*

## **REYKJANES ENERGY PRODUCTION**

Geothermal energy is one of the biggest strengths of the Reykjanes peninsula. The two geothermal power plants on Reykjanes generate 170 MW of electricity. In addition to electricity production, the geothermal power plants create hot water which heats homes in Reykjanes via a district heating system.

There are two geothermal power plants in the Reykjanes peninsula: Svartsengi and Reykjanes. Both plants are owned and operated by HS Orka.

The **Svartsengi** geothermal power plant is a combined heat and electricity plant, located in the Svartsengi geothermal field, approximately 20 km south of Keflavik airport and 45 km from Reykjavik. The power plant is next to the famous tourist attraction, Blue Lagoon, created by the brine from the power plant. The power plant is connected to the Icelandic electrical transmission grid with a 132 kV transmission line.

The **Reykjanes** geothermal power plant is located at the southwest tip of the Reykjanes peninsula, 20 km south of Keflavik

airport and 55 km southwest of Reykjavik. The power plant is connected to the Icelandic electrical transmission grid with a 220 kV transmission line.

Systematic exploration in the Reykjanes field started in the late 1950s. However, drilling for power production commenced in 1998. Reykjanes has a capacity of 100 MW and started commercial operation in May 2006. Net electrical output to the grid is 96.5 MW. Expansion of Reykjanes plant to at least 180 MW is planned.



*Reykjanes geothermal power plant*

## FUTURE ENERGY PRODUCTION

The Icelandic parliament has passed a bill on a general framework agreement for the preservation and utilization of natural resources in Iceland. In the bill several project proposals in Reykjanes are evaluated in regards to utilization or protection.

Two projects on the list could be utilized within the next 3 to 4 years if all permits

and environmental assessments are approved. The other possible projects are still in preliminary phases of environmental assessment and utilization analysis.

HS Orka has applied to create an 80 MW expansion in Reykjanes geothermal power plant. A new plant, Eldvörp, is also approaching utilization stage.

The future production capacity in Reykjanes could be around 400 MW in 5 to 10 years if the project proposals within the framework agreement will go underway. If Hengill is taken into the account the production capacity could add up to 580 MW within 5 to 10 years. Total production capacity of project proposals in Hengill area is 625 MW, where 445 MW are in projects set on hold or in preservation category.

### ▼ Infrastructure and power plants

- Primary roads
- Secondary roads
- Transmission lines
- Cold water well
- Geothermal areas
- Ⓜ Reykjanes Power Plant
- Ⓢ Svartsengi Power Plant

### Svartsengi geothermal powerplant

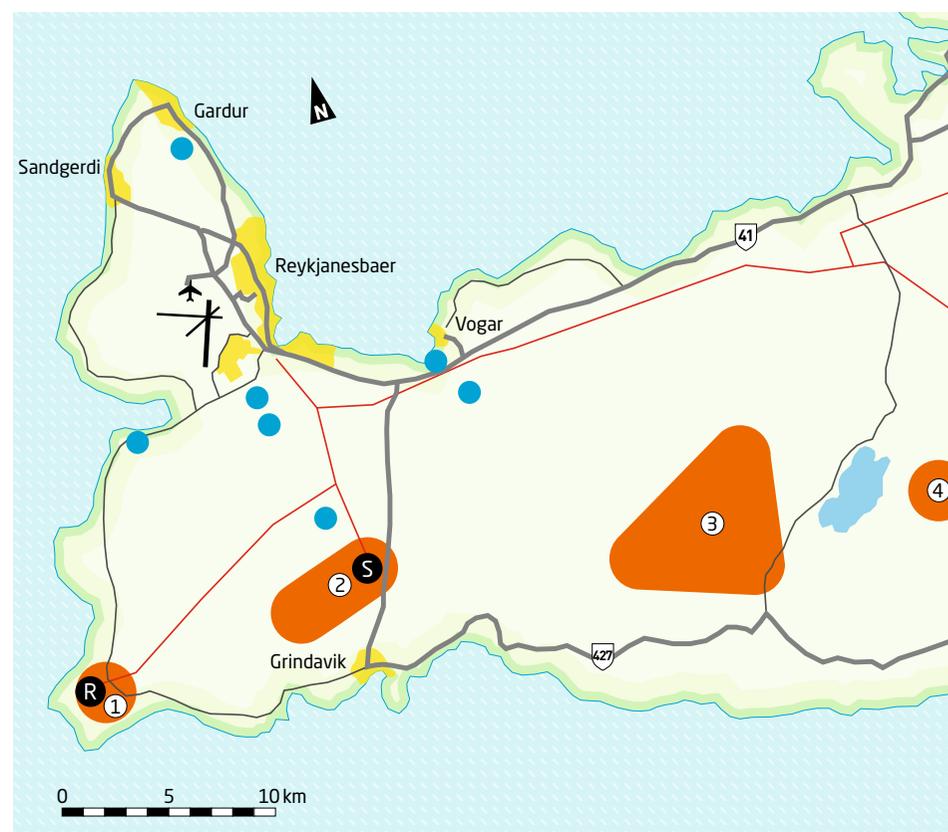
- 150 hectares
- Nameplate electrical generation capacity 74.4 MW
- Nameplate thermal (hot water) production 150 MWth

### Reykjanes geothermal powerplant

- 410 hectares
- Nameplate electrical generation capacity of 100 MW
- 17 production wells in the field
- 45 MW of steam behind pipe from 3 wells and outflow canal
- 80 MW of expansions planned
- 50 MW turbine unit delivered May 2010

### General framework project proposals in Reykjanes

Geothermal area	Geothermal project proposals	Power (MW)	Evaluation	Possible production start?
1	Reykjanes	80	Utilization	3-4 years after permission
	Stora-Sandvik	50	Utilization	In 5 to 8 years
2	Svartsengi	50	Utilization	In 3 to 4 years
	Eldvorp	50	Utilization	In 5 to 10 years
3	Krisuvik	50	Utilization	In 5 to 10 years
	Sandfell	50	Utilization	In 5 to 10 years
	Trolladyngja	50	On hold	In 5 to 10 years
	Sveifluhals	50	Utilization	In about 5 years
4	Austurenglar	50	On hold	In about 5 years
	Brennisteinsfjoll	25	Preservation	Unknown
<b>Total:</b>		<b>405</b>		
Hengill		625		
<b>Grand total</b>		<b>1030</b>		





## REYKJANES RESOURCE PARK

The Reykjanes peninsula has, in the last few years, significantly increased its value in sustainable utilization of natural resources, mostly geothermal and seafood through eco-innovation. This development has made the area one of the most exciting avenues of green growth in Europe.

In geothermal, several companies have co-located next to the two geothermal powerplants in the peninsula and are buying production streams which were previously considered waste and thrown away. Companies are now buying CO<sub>2</sub>, hot seawater and steam from the geothermal plants. Also companies have begun looking at the geothermal fluids as a resource and several companies are developing products based on the ingredients of geothermal fluids.

In seafood, the best example is Codland, which is a processing company that aims to increase the image and full utilization of fish related products. Codland has created a health product plant on the Reykjanes peninsula that utilizes leftover beats from fisheries and converts it into high quality fish meal and raw fish oil along with enzyme production. Next to the health-product plant is Haustak, a fish drying plant that specializes in drying fish heads and bones.



# Logistics

*When it comes to logistics, Reykjanes is home to Iceland's main airport, Keflavik International Airport. A large industrial harbor in Helguvik also provides excellent facilities for sea logistics. All within a 45-minute driving distance from the Reykjavik city center.*



## AIR LINKS

Keflavik International Airport (KEF) is a vital transport link for both passengers and freight, offering a world-class facility. The airport covers an area of some 25 square kilometers, it has four runways of more than 3,000 meters capable of handling modern long-haul aircraft. Fourteen passenger carriers and three scheduled cargo carriers operate at KEF during the high season. Icelandair, WOW air and SAS provide year-round scheduled services.

KEF and activities based around it form the foundation of an international transportation cluster or logistics cluster. Proximity to the capital and port in the vicinity of the airport support the logistics cluster concept. The airport area already contains a diverse mixture of businesses that serves airlines, both passenger and freight transport. The future opportunities of KEF lie in its location, midway between Europe, the U.S. and Asia.

Keflavik International Airport could become a key airport for transportation connected with the opening of the Trans-Arctic shipping route, and potential domestic aviation.



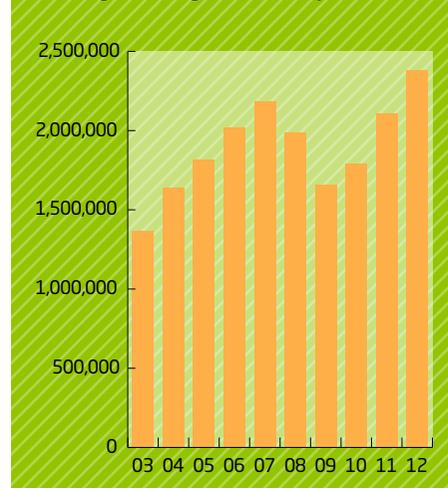
Keflavik International Airport

### Keflavik International Airport overview

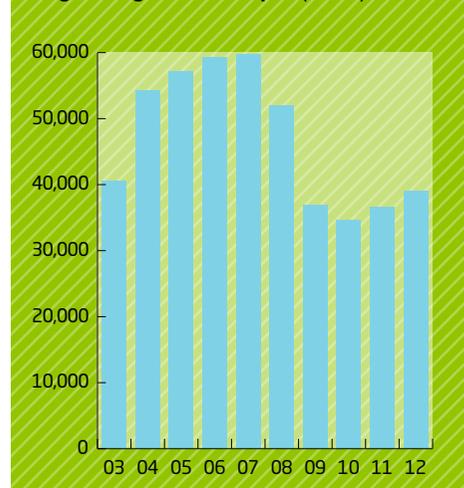
- Best Airport in Europe 2011
- 2 million passengers per year
- 5 minutes from Ásbrú Enterprise Park
- 35 scheduled destinations (65 during summer)
- Serving most major cities in Europe and USA
- Connectivity of a major metropolitan city
- Annual growth over 10%
- Freight traffic growing
- 4-5 hours from New York and Washington D.C.
- 3 hours from London and Paris
- 8 hours from Delhi and Beijing



Passengers through Keflavik Airport 2003-2012



Cargo through Keflavik Airport (in tons) 2003-2012



## SEA LINKS

Helguvik industrial harbor provides excellent facilities for some of the biggest vessels sailing the North Atlantic. With ample industrial sites in the area close to the harbor, there are excellent opportunities for fast growing import or export firms wishing to expand in a new, well planned industrial area with ready access to the geothermal power on which the Reykjanes region stands. In addition, an industrial zone has been planned at Helguvik, only 4 km from Keflavik and Keflavik International Airport.

Helguvik is also the main oil supply and distribution harbor of Reykjanes, and now offers improved services for industrial freighters and oil vessels. The port of Helguvik easily accommodates ships up to 200 m long with a draft of 10 m at a 150 m long quay with a generous wharf area behind it.

### Other sea links easily accessible from the Reykjanes region:

Straumsvik: >14 miles (25 km)

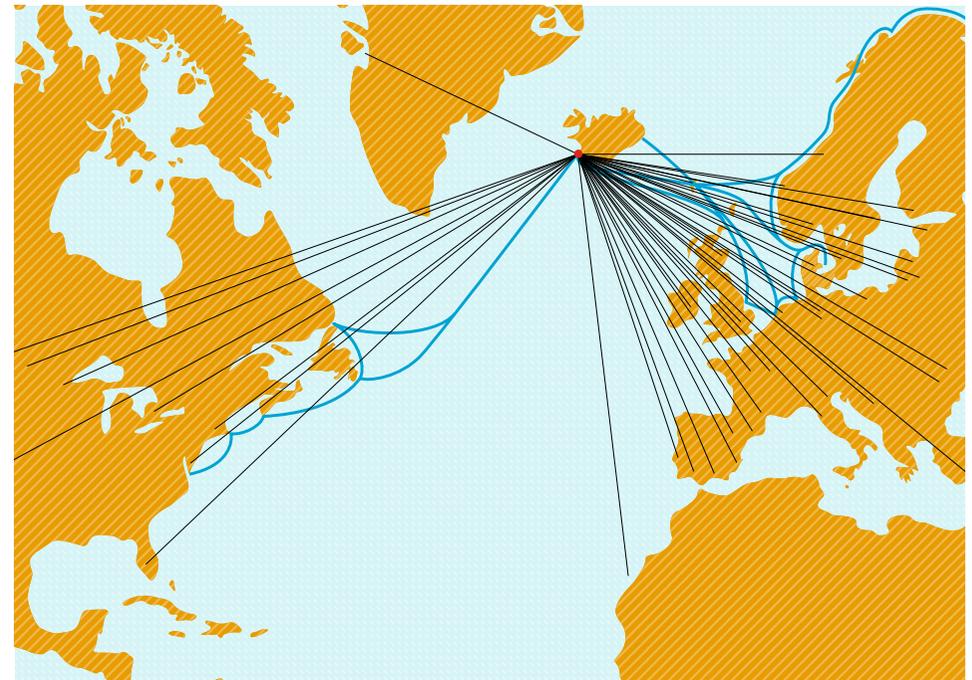
Sundahöfn: >27 miles (50 km)

### Helguvik industrial harbor overview

- Ample industrial sites available
- Main oil supply and distribution harbor of Reykjanes, and offers improved services for industrial freighters and oil vessels.
- Easily accommodates ships up to 200 m, draft 10 m at a 150 m long quay
- Oil-pier is 105 m long, but ships can be up to 230 m long for that pier, but with the maximum draft of 13 m.
- Container Pier of Helguvik is 150 m long, with depth 10 meters.



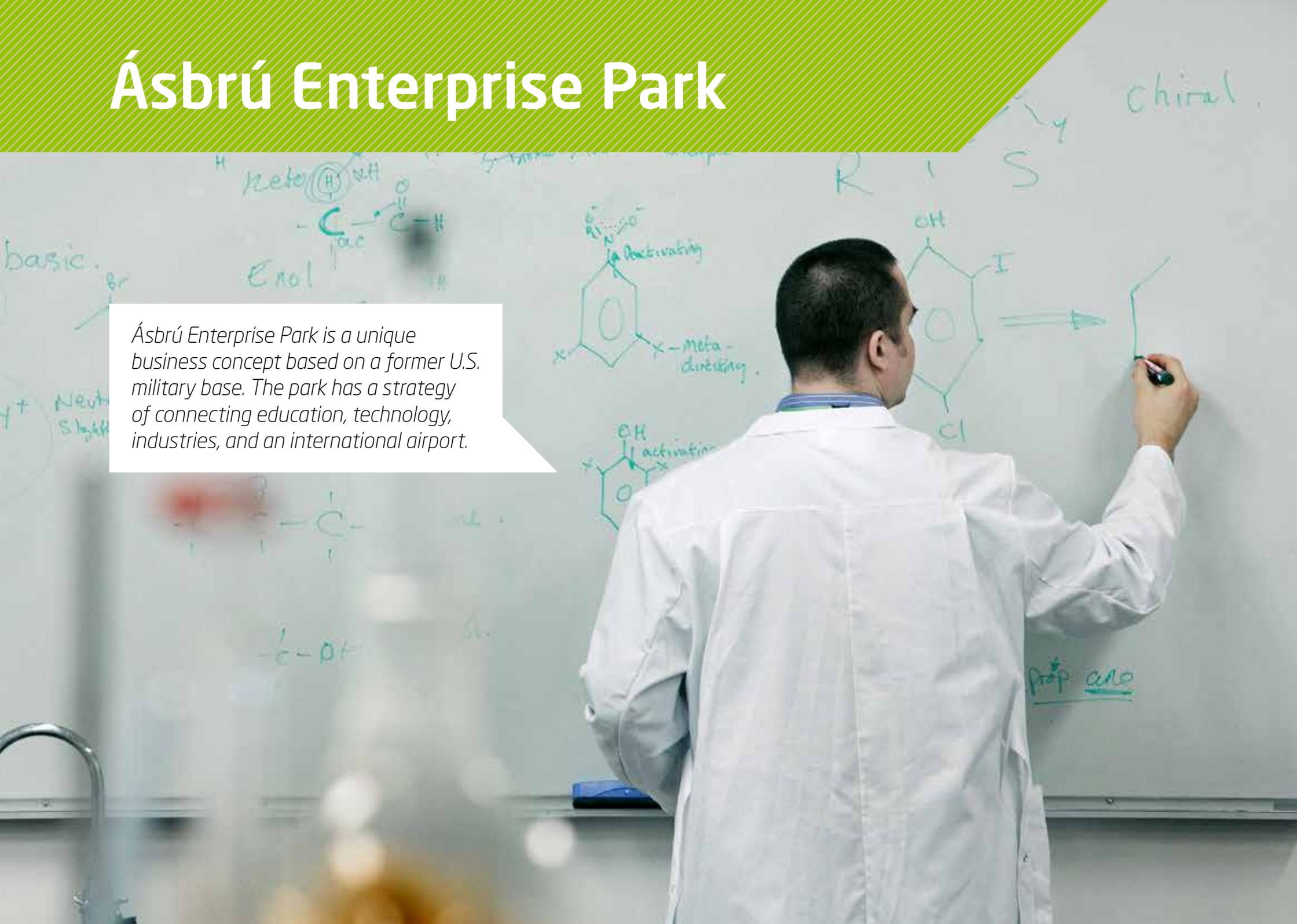
Helguvik industrial harbor



Air-links and sea-links to Iceland

# Ásbrú Enterprise Park

*Ásbrú Enterprise Park is a unique business concept based on a former U.S. military base. The park has a strategy of connecting education, technology, industries, and an international airport.*

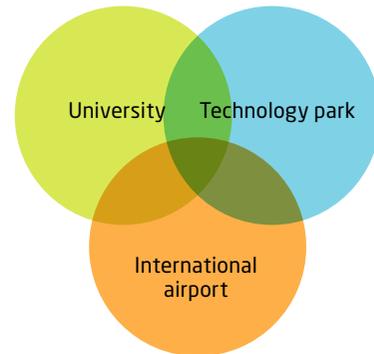




## ÁSRÚ ENTERPRISE PARK

Ásbrú Enterprise Park is a new name for a discontinued NATO base at Keflavik International Airport in Iceland. When NATO left the area in 2006 after 60 years, the Keflavik Airport Development Corporation - Kadeco, was founded with the goal of re-developing the base for civilian use. Kadeco is wholly owned by the Icelandic Government.

Ásbrú has already established itself as one of the most innovative areas in Iceland. The first development project: the Keilir educational institution has become an engine of knowledge and innovation for the area. Ásbrú is the home of both several start-up companies, which are located at its Eldey incubator, and also larger projects such as the Verne Global data centre which has BMW, among others, on its client list. Ásbrú also offers direct airport access which has proven to be very exciting to logistic companies that have moved to the park.



Ásbrú is the location of Iceland's largest student campus. All university students in Iceland have access to the campus. Included in the rent are free bus fares, with internet connection, between Ásbrú and universities in the Reykjavik area.

Ásbrú offers a fun and diverse environment that suits both individuals and families. There are excellent facilities and areas for outdoor activities and the residents of Ásbrú have access to playgrounds for children and open barbecue facilities. There is also an elementary school and two pre-schools onsite.

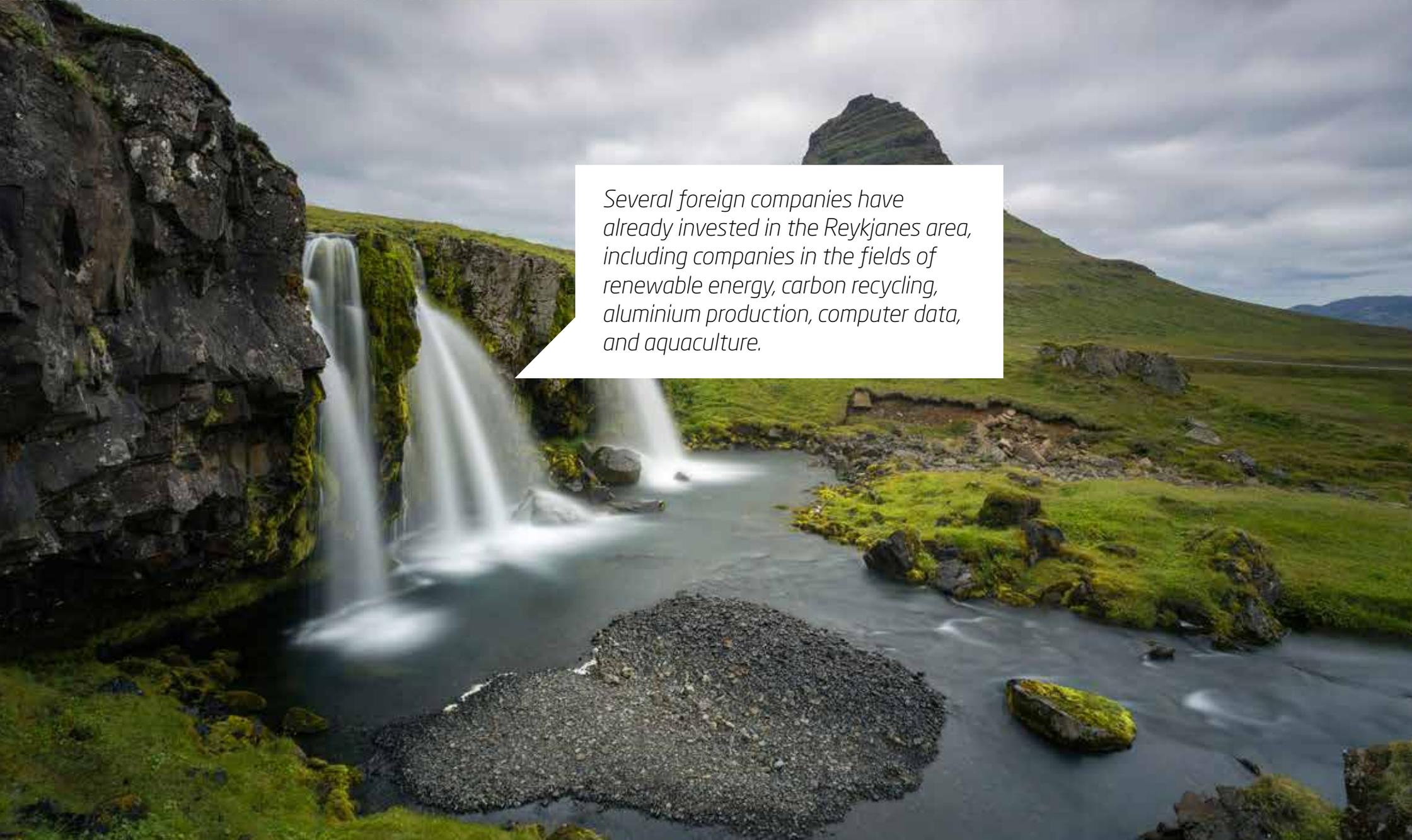


Keilir – Atlantic Center of Excellence, which is located in Ásbrú, is the educational backbone of the Reykjanes region. Keilir offers research and education within all of the key industries in the peninsula. Keilir has research facilities and offers degrees in health, aviation and technical engineering.

At Ásbrú, housing and industrial facilities are available for lease and sale. Industrial lots are available for development.

# Foreign Direct Investment

*Several foreign companies have already invested in the Reykjanes area, including companies in the fields of renewable energy, carbon recycling, aluminium production, computer data, and aquaculture.*





**Alterra Power Corp** is a leading global renewable energy company head-quartered in Canada. The corporation produces 1,575 GWh of clean power annually from 147 MW of geothermal capacity in Iceland and Nevada, 94 MW of run-of-river hydro capacity in B.C. and 73 MW of wind capacity in B.C. Alterra is the owner of HS Orka, the power company behind the Svartsengi and Reykjanes geothermal powerplants in Reykjanes. Alterra has plans for further geothermal developments on Reykjanes. Alterra Power Corp trades on the Toronto Stock Exchange under the symbol AX.Y.



### **CARBON RECYCLING INTERNATIONAL**

**Carbon Recycling International (CRI)** captures carbon dioxide from industrial emissions and converts carbon dioxide to liquid fuels. CRI has built a prototype plant next to the Svartsengi geothermal powerplant and buys CO<sub>2</sub> from the powerplant.

## **RioTinto**

**Rio Tinto** is a leading international mining group which has an aluminum smelter in Straumsvik. Rio Tinto is investing US\$140 million in a leading-edge casting facility to produce value-added billet at its aluminum smelter and is also investing US\$347 million to modernize and increase the smelter's capacity by 20%.

## **Century**ALUMINUM

**Century Aluminum** is a Nasdaq (CENX) listed company with corporate offices in California. Century owns and operates aluminum smelters in the U.S. and at Grundartangi, Iceland. Century plans to build a 250,000 ton plant in Helguvik.

## **verneglobal**

THE DATA CENTRE SOLUTION

**Verne Global** is a data center start-up owned by U.S. venture capital company General Catalyst. Verne plans to build a 700 million USD data center at the Ásbrú Enterprise Park. Among other Icelandic investments of General Catalyst is the computer games company CCP.

## **Stolt-Nielsen Limited**

**Stolt Sea Farm** and **HS Orka** have agreed that the aquaculture specialists will utilize surplus hot water from the Reykjanes geothermal plant for breeding Senegalese sole. Construction of the seven-hectare farm on the Reykjanes peninsula is estimated to cost around ISK2.5bn (€15.3m).



**BMW** has a high-performance computing (HPC) application located at Verne Globals' Ásbrú campus. Applications include crash simulations, aerodynamic calculations and computer aided design and engineering (CAD/CAE). In their current environment, the 10 clusters running these apps are consuming 6.31 Gigawatt hours of power annually. By moving the HPC clusters from Germany to Ásbrú, BMW expects to reduce the cost of powering them by as much as 82%. Because the Verne facility is a "zero emission data center," BMW will reduce annual carbon emissions by 3,570 metric tons; the equivalent of the carbon produced by burning 1.46 million liters (about 385,000 gallons) of gas.



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