

Legal Aspects and Challenges of Geothermal Industrial Parks

EAGP Geothermal Industrial Park Webinar Series

16 September 2020

ABOUT US

BBA//Fjeldco is the leading corporate law firm in Iceland, offering first-class legal services for international clients in relation to mergers and acquisitions, private equity, capital markets, banking, corporate finance, energy and infrastructure.

- ✓ BBA//Fjeldco has advised on many large and complex M&A, private equity, financing, renewable energy and infrastructure transactions in Iceland and in a cross-border context in recent years.
- ✓ The firm has more than 25 specialised business lawyers, with qualifications in Iceland, England, France and New York. A significant proportion of our transactional work has an international element.
- ✓ BBA//Fjeldco has offices in Reykjavik and London, together with a presence in France.
- ✓ The international qualifications of the BBA//Fjeldco team, combined with its London office and extensive network of international law firms, banks, investment funds, engineering firms and other consultants makes BBA//Fjeldco the natural starting point for any cross-border transactions.

STRUCTURE OF THE WEBINAR

- / I – Legal aspects of geothermal projects
- / II – Reykjanes Resources Park – a case study

GEOHERMAL INDUSTRIAL PARKS

- ✓ Various types of activities using geothermal energy
 - ✓ Power generation
 - ✓ District heating
 - ✓ Greenhouses
 - ✓ Cooling
 - ✓ Fish farming
 - ✓ Meat processing
 - ✓ Balneology

LEGAL ASPECTS OF GEOTHERMAL PROJECTS

- ✓ OWNERSHIP OF GEOTHERMAL RESOURCES
- ✓ ACCESS TO LAND
- ✓ LICENSING
- ✓ CASCADE USE
- ✓ ENVIRONMENTAL ISSUES
- ✓ CONTRACTUAL ISSUES
- ✓ ACCESS TO NETWORKS
- ✓ CORPORATE ISSUES
- ✓ FOREIGN INVESTMENTS

OWNERSHIP OF GEOTHERMAL RESOURCES (I)

- ✓ State ownership vs. Private ownership
 - ✓ Most jurisdictions provide for State ownership or ownership by the people
 - ✓ Turkey
 - ✓ Mexico
 - ✓ Chile
 - ✓ Italy
 - ✓ Ethiopia
 - ✓ Kenya

OWNERSHIP OF GEOTHERMAL RESOURCES (II)

- ✓ Private ownership: the owner of the surface owns the geothermal resource beneath it
 - ✓ USA: possible but unusual
 - ✓ Iceland
 - ✓ Japan
- ✓ Importance of clarifying the legal regime of resource ownership
 - ✓ Authority granting access to the resource (landowner, Government, Ministry, governmental authority, special authority ...)
 - ✓ Role of the landowner

ACCESS TO LAND

- ✓ Role of the landowner
 - ✓ Types of instrument
 - ✓ Is an agreement necessary?
 - ✓ Public ownership vs. private ownership of resource
 - ✓ Compensation
 - ✓ Expropriation
- ✓ Securing access
 - ✓ Acquisition
 - ✓ Land lease or tenure
 - ✓ Concession
- ✓ Planning

LICENSING (I)

- ✓ Need for licenses specific to the geothermal projects?
 - ✓ Comparison with mining licenses
- ✓ Method of license allocation
 - ✓ Direct approach
 - ✓ Tenders
- ✓ Types of licenses
 - ✓ Exploration licenses
 - ✓ Exploitation licenses

LICENSING (II)

- ✓ Licensed activities
 - ✓ Exploration
 - ✓ Power generation
 - ✓ Heat generation
 - ✓ Direct use
 - ✓ Mineral extraction
- ✓ Criteria for issuing of license
 - ✓ Experience
 - ✓ Financial aspects
 - ✓ Eligibility

LICENSING (III)

- ✓ Terms of license
 - ✓ Duration
 - ✓ Termination of licenses
 - ✓ Renewal
 - ✓ Right of priority
 - ✓ Decommissioning
 - ✓ Information and reporting obligations

CASCADE USE

- ✓ Multiple licenses for one resource
- ✓ Activities allowed under the licenses
- ✓ Succession of legal transaction relating to the resource
- ✓ Carbon recycling
- ✓ Shared liability

ENVIRONMENTAL AND SOCIAL ISSUES

- ✓ Environmental impact
- ✓ Social impact and impact on local communities
- ✓ Environmental impact assessment
- ✓ Sharing and allocation of environmental liability
- ✓ Waste management

CONTRACTUAL ISSUES (I)

- ✓ Parties
 - ✓ Private vs. public parties: Local authority might wish to be involved in the project
 - ✓ IPP
- ✓ Types of agreements
 - ✓ PPA
 - ✓ Steam Supply Agreements
 - ✓ Heat Supply Agreements
 - ✓ Carbon Supply Agreements
 - ✓ PPP and concessions
 - ✓ Design & Build Agreements
 - ✓ Operation and maintenance

CONTRACTUAL ISSUES (II)

- ✓ Risk allocation
- ✓ Security of supply
- ✓ Pricing
- ✓ Financing of infrastructure

ACCESS TO NETWORKS

- ✓ Access to power transmission or distribution networks
 - ✓ Connection agreement
 - ✓ Mini grid
 - ✓ Off grid
- ✓ District heating networks
 - ✓ Lease and Easement Agreement

CORPORATE ISSUES

- ✓ Which structure to manage the Geothermal Industrial Park?
 - ✓ Interests to be represented
 - ✓ Association
 - ✓ Corporate entity
 - ✓ Partnership
 - ✓ Economic Interest Grouping
- ✓ Project companies and project financings
 - ✓ Ring fencing
 - ✓ Security
 - ✓ Direct agreements
- ✓ Joint ventures
 - ✓ Two or more private parties

CORPORATE ISSUES (II)

- ✓ Joint ventures
 - ✓ Two or more private parties
 - ✓ JV involving the Local authority and the private partner
 - ✓ Shareholders agreement is of the essence
- ✓ State-owned and privately owned companies

CORPORATE ISSUES: SHAREHOLDERS AGREEMENT

- ✓ Assumption of a JV between a local authority and a private partner
- ✓ Structure of shareholding
 - ✓ 50/50
 - ✓ Others
- ✓ Governance
 - ✓ Appointment of directors
 - ✓ Reserved Matters
 - ✓ Deadlock resolution clauses

FOREIGN INVESTMENTS

- ✓ Independent Power Producers
- ✓ Change of law clauses
- ✓ Arbitration clauses
- ✓ Bilateral investment treaties

THE RESOURCE PARK
A CASE STUDY

The Resource Park

HS Orka operates two geothermal power plants in Reykjanes (within 18 min drive of each other

- Svartsengi Power Plant
- Reykjanes Power Plant

Each of the companies in the Resource Park is held by different private entities, municipalities and individuals

Each of the companies, through agreements with HS Orka, uses certain by-products from the production of electricity or direct use, from geothermal reservoirs

The location of the companies is no surprise – their production needs to be located nearby the power plants

Object of the Resource Park

The object of the Resource Park is to foster a “society without waste”

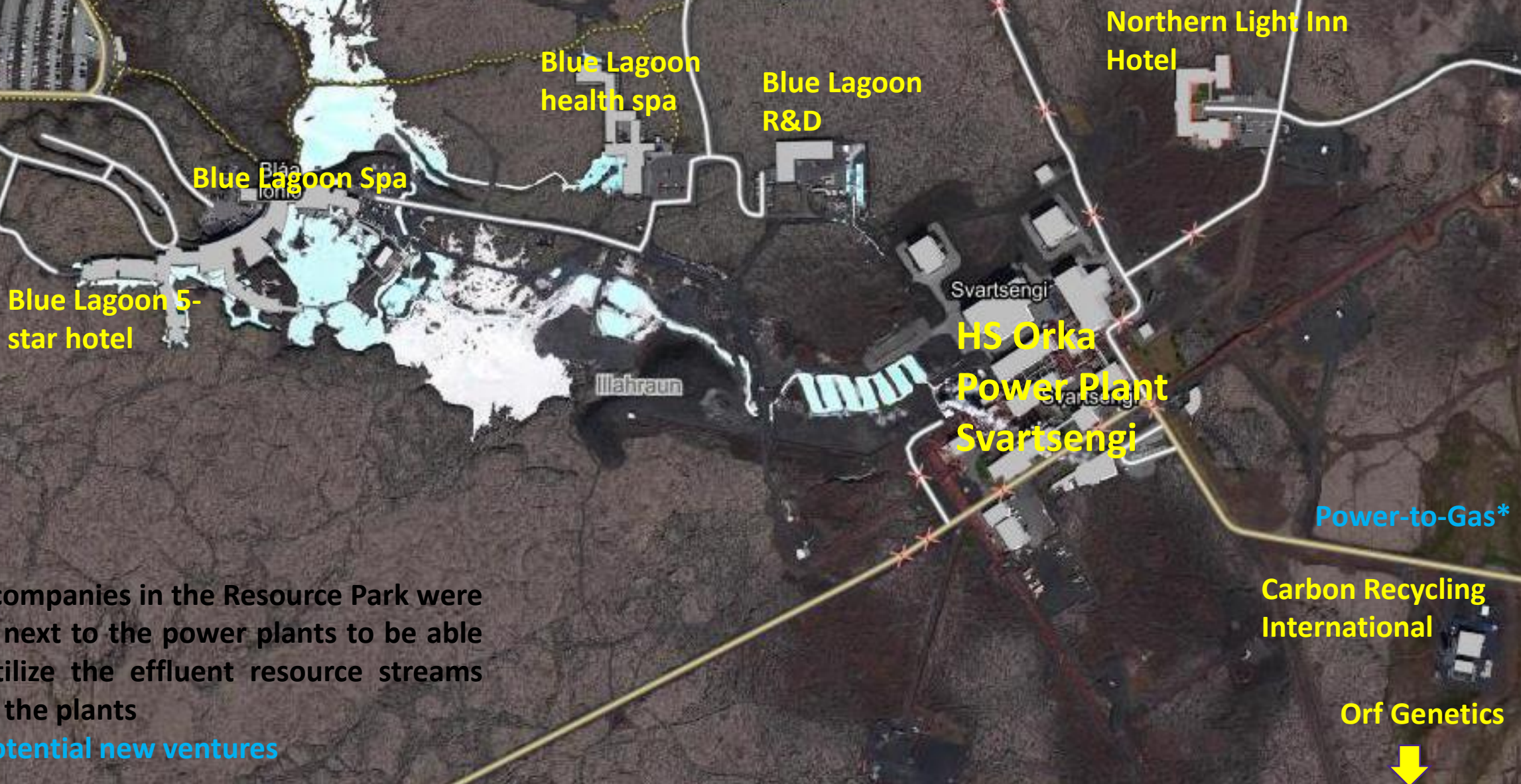
All resource streams flowing to and from the companies in the Resource Park are:

- utilised to the fullest extent possible
- utilised in as responsible a manner as possible
- utilised for the benefit and progress of the community

Each of the companies of the Resource Park directly utilises two or more resource streams from the geothermal plants

The Resource Park (Svartsengi)

BBA // FJELDCO



The companies in the Resource Park were built next to the power plants to be able to utilize the effluent resource streams from the plants

*= potential new ventures

The Resource Park (Reykjanes)

Sea Wells

Precipitated silica*

Stolt Sea Farm

HS Orka
Power Plant
Reykjanes

Vertical farming*

Stampahraun

Algae Farm*

Haustak

Laugafiskur

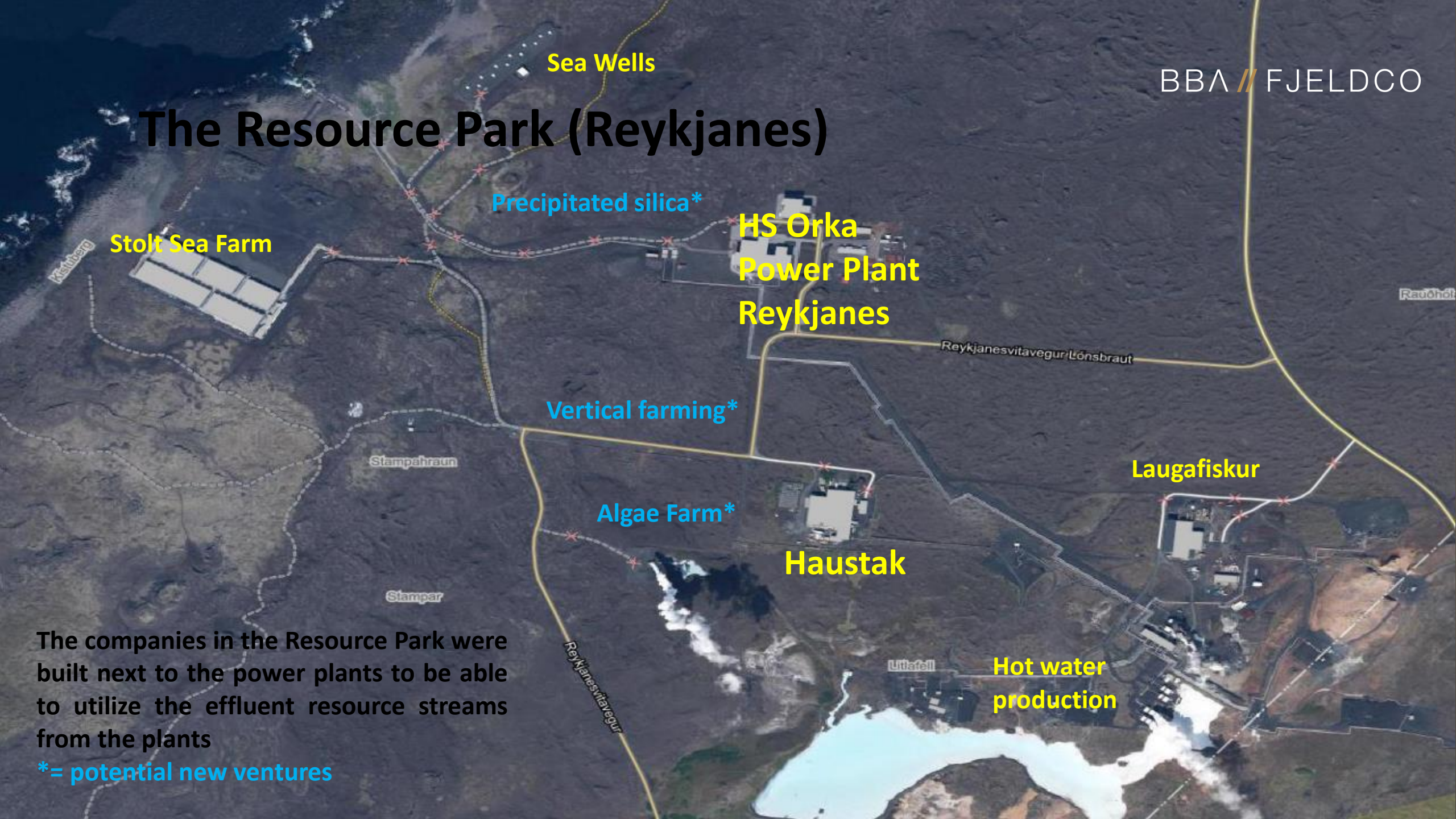
Hot water
production

Stampar

Uttafell

The companies in the Resource Park were built next to the power plants to be able to utilize the effluent resource streams from the plants

*= potential new ventures



Video of the
Resource Park

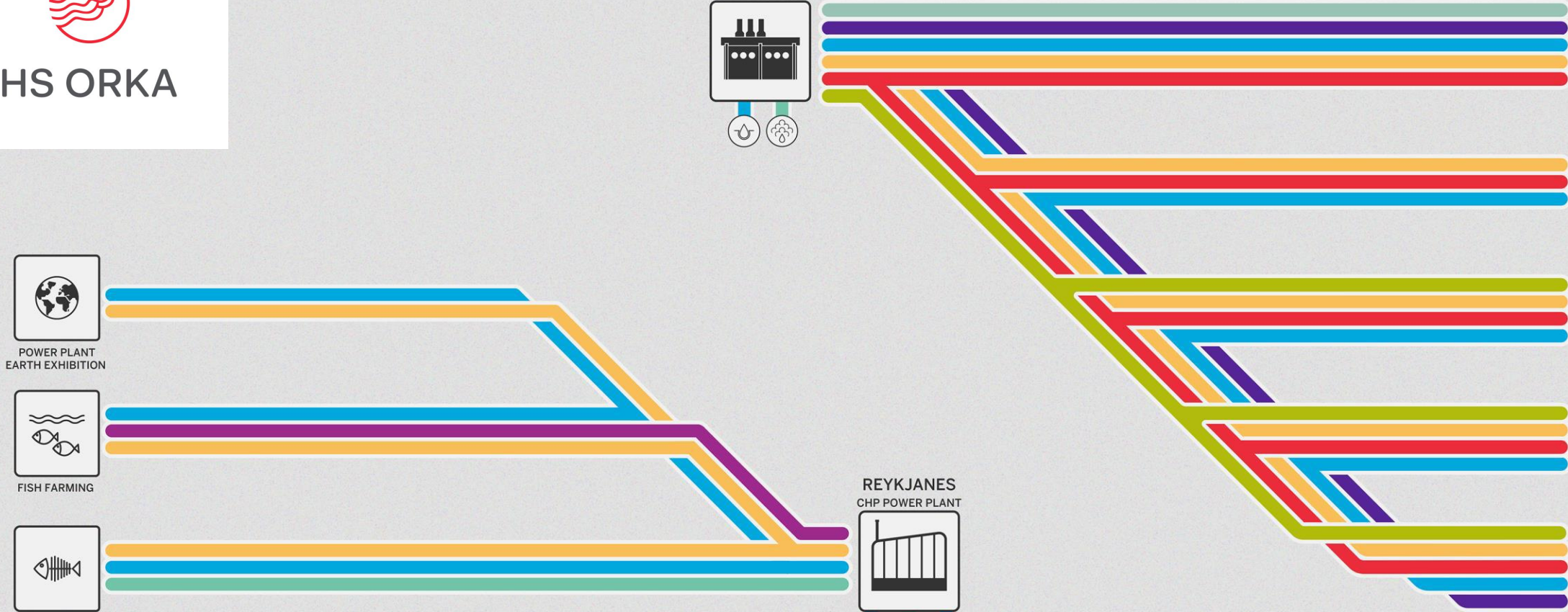
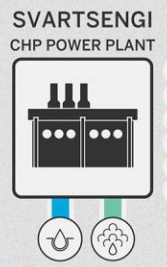
https://youtu.be/GbjQ4g_CgvA

Natural Resources

Renewable Resources

GEOTHERMAL STEAM
GROUND WATER
SEA WATER WELLS

HOT WATER (POTABLE)
COLD WATER (POTABLE)
POWER/ELECTRICITY
CO2
PURE/LAVA FILTERED SEA WATER
STEAM
GEOTHERMAL WATER/BRINE



Impact of the
Resource Park

2015	2016	2017	2018
600 jobs	900 jobs	1.100 jobs	1.300 jobs

High level of education / Well paid jobs

Legal challenges of
resource parks – general
comments

Highly dependant on the structure of the resource park
in question

In the case of the Resource Park, the main legal
challenges are of a contractual and business nature

Environmental and zoning challenges are also
important



HS ORKA

BBA // FJELDCO

Founded 1974

Leading privately held power generator in Iceland

Owns and operates over 174 MW of geothermal power production capacity

Owns a 10 MW hydro plant

Engages in hot water production and fresh-water harnessing sold to a local distribution network

Engages in producing by-products in the Resource Park

HS Orka sells electricity to homes and businesses throughout Iceland



HS VEITUR

BBA // FJELD CO

Founded 2008

Receives from HS Orka:

- hot water
- cold water
- electricity

Held by municipalities and various investors

Engages in

- sale and distribution of hot water
- sale and distribution of cold water
- distribution of electricity

BLUE LAGOON

ICELAND

Founded 1992

Receives from HS Orka:

- hot water
- cold water
- geothermal seawater
- electricity
- steam;
- co2

One of the wonders of the world
(National Geographic)

The Blue Lagoon is made of excess
brine from Svartsengi Power plant

Almost 60% of all tourists that come
to Iceland visit the Blue Lagoon

Why the Resource Park?

- the brine makes the Blue Lagoon
possible

Held by various local and
international shareholders

Operates:

- a retreat spa
- restaurants
- hotels
- travel services
- a psoriasis clinic
- a research and
development centre

Produces:

- skin care products



Holistic Fish Processing

Complete utilization of fish products

Drying of parts of fish that were previously thrown away. With this method the product can be stored for an extended period in hot and dry regions while still containing all necessary nutrients, i.e. protein

The products are primarily shipped to Africa where, due to the ease of storage, they can be stored outside for up to 2 years without the need for cooling

Why the Resource Park?

- fresh ground water is heated up (90°C) with excess heat from Reykjanes power plant
- the heat is used for the drying process

Receive from HS Orka:

- hot water
- cold water
- electricity



Pioneer in the manufacturing of growth factors and other recombinant proteins in plants

ORF Genetics started in stem cell research but has been producing skin care products from their plants, selling all over the world

Why the Resource Park?

- by using effluent heat from the nearby Geothermal plant, less electricity is needed.

Founded 2001

Receives from HS Orka:

- hot water
- cold water
- electricity



**CARBON
RECYCLING
INTERNATIONAL**

BBA // FJELDCO

Founded 2006

Receives from HS Orka:

- hot water
- cold water
- electricity
- co2
- steam

Held by various local and international entities

Produces renewable methanol from carbon dioxide, hydrogen, and electricity for energy storage, fuel applications, and efficiency enhancement

Why the Resource Park?

- electricity from the power plant is used to produce hydrogen which is an intermediate in the process
- natural CO₂ from the power plant is used as a raw material



The logo for Stolt Sea Farm, featuring the text "Stolt Sea Farm" in a bold, black, sans-serif font, followed by a red square containing a white stylized letter "S".

Stolt Sea Farm 

The condensers of the turbines of the geothermal plant in Reykjanes are cooled with seawater from boreholes, that has been filtered through the lava layers, resulting in pure lukewarm seawater. Creating ideal conditions for growing tropical fish

Founded 2012

Receives from HS Orka:

- cold water
- electricity
- lukewarm clean seawater

Why the Resource Park?

- by using effluent heat from the nearby geothermal plant, less electricity is needed





Matorka is a pioneer in producing environmentally friendly and sustainable seafood utilizing effluent heat from the Svartsengi power plant to regulate water temperature

Why the Resource Park?

- by using effluent heat from the nearby geothermal plant, less electricity is needed

Founded 2011

Receives from HS Orka:

- effluent heat
- electricity



Algae production

Algae could play a major role in freeing the land resources needed to simultaneously solve for climate change, energy demand, and food security

The Resource Park is ideal for algae production with abundance of renewable electricity, fresh water and natural CO₂

The proximity to fish farms all around the peninsula gives the option of using Algae as fish feed instead of using fishmeal that is unsustainable practice

The growth potential is vast

Vertical farming

Transforming agriculture worldwide

95% less water. 4-6 times more crops pr sqft

The Resource Park provides electricity, water and CO2 from its powerplants

With ever growing population, food safety has to be ensured. Access to sufficient amounts of safe and nutritious food is key to sustaining life and promoting good health

Iceland is a good location for vertical farming due to the temperate weather and abundance of electricity and fresh water

The growth potential is vast and Iceland could be an exporter of greens

Summary of legal challenges

- ✓ Ownership and access to resources
- ✓ Regulatory issues
 - ✓ Licensing
 - ✓ Environmental and social impact
- ✓ Licensed activities (direct use, cascade use)
- ✓ Access to land
- ✓ Contractual issues
 - ✓ Allocation of risks
 - ✓ Shared responsibility
- ✓ Access to networks

OUR SERVICES

FULL SERVICE CORPORATE LAW FIRM

The merger of BBA and Fjeldco created a first-class, full-spectrum corporate law firm, providing a full range of legal services. The merged firms have been leading in the field of mergers and acquisitions, capital markets, banking and corporate finance, energy and PFI projects since 1998, as well as tax law and general corporate and commercial law.

ENERGY AND INFRASTRUCTURE

BBA//Fjeldco has advised on a broad range of energy and infrastructure projects, including renewable energy, hydro and oil & gas projects. The team has also assisted banks and developers in relation to the project financing and structuring of industrial projects. The firm advised on PPP/PFI financing of public infrastructure.

BANKING AND FINANCE

BBA//Fjeldco has vast experience in advising financial institutions and borrowers on all aspects of banking and finance. The firm has an excellent track-record with complex financing structures, and we are as a result regularly trusted by all the local banks to handle their more complex, multi-jurisdictional financing deals.

OUR TEAM ENERGY AND INFRASTRUCTURE

BBA // FJELDCO



BALDVIN BJÖRN HARALDSSON PARTNER

Baldvin Björn is a Supreme Court Attorney, qualified to practice law in Iceland and France. He has extensive 26-year experience in M&A, banking & finance, energy law, renewable energies, mergers & acquisitions, capital markets and commercial and company law.

Baldvin played a key role in various geothermal projects over the last 20 years. Baldvin recently advised ODDEG in relation to the drafting of legal and regulatory framework for geothermal energy in Djibouti. He also provided advice to the Turkish Development Bank in connection with the development of the RSM risk-sharing system to explore and verify geothermal resources in Turkey.

Baldvin also advised an Icelandic developer on negotiating a power purchase agreement, reviewing license issues and on various legal issues relating to an independent geothermal power project in Ethiopia.

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ANTOINE LOCHET COUNSEL

Antoine is admitted to the Icelandic and French bars. He has a 14 years experience in cross-border M&A, corporate, banking, energy and infrastructure transactions.

Antoine recently advised ODDEG in relation to the drafting of legal and regulatory framework for geothermal energy in Djibouti. He also was part of a team advising the municipality of Strasbourg on the use of geothermal energy in district heating networks.

Antoine advised Innergex Renewable Energy, Inc. on the acquisition of HS Orka, an Icelandic renewable energy company. He also advised KfW IPEX bank on the USD 260m project financing of a silicon metal smelter in Iceland, ABN Amro on the USD 1bn financing of an international commodity trading company.

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ENERGY AND INFRASTRUCTURE TRANSACTION EXPERIENCE

BBA//Fjeldco has a broad experience of renewable energy projects, especially geothermal projects, including:

- ✓ Advising governments in relation to the drafting of legislative and regulatory frameworks for geothermal energy;
- ✓ Advising banks in relation to risk sharing mechanisms;
- ✓ Advising municipalities on legal aspects of district heating networks;
- ✓ M&A in the renewable energy sector;
- ✓ Advising project developers and drilling companies on geothermal projects in Asia, Europe and Africa;
- ✓ Geothermal Transparency Guide.

RATINGS

TOP TIER LAW FIRM

BBA//Fjeldco is rated as a top tier firm by all the leading rating agencies, Chambers & Partners, Legal500 and IFLR1000.



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