

# Rock Energy

**Clean. Green. Everlasting.**

In harmony with nature  
we provide smart energy to all



# Executive Summary

- ✓ Patented technology
- ✓ Renewable Energy
- ✓ Plants in operation through three winters seasons
- ✓ Experienced team
- ✓ Scalable business
- ✓ Growth industry
- ✓ Institutional investor demand

## Revolutionizing Geothermal Energy

- Technology company with a large portfolio of patented technology
- Operational plant at Oslo Airport Gardermoen through three consecutive winter seasons
- Rock Energy technology provides reliable energy 24/7 at an industrial scale, independent from weather conditions and fuel prices
- Experienced team with over 100+ years of relevant experience
- Rock Energy is now planning to scale up operations across Western Europe and expand from there

## No foot print



# Global Market Potential – Applications across multiple geographies / industries

- ✓ European Union annual energy consumption is ca. 19 500 TWh (2017)
- ✓ Renewable energy investments in Europe in 2015 totaled EUR 44.8 billion
- ✓ The heating and cooling sector represents 47% of the EU's energy demand
- ✓ EIA projects that total U.S. energy consumption will grow to about 108 exajoules in 2025, with nearly all of the growth coming from the industrial sector

- Industrial and commercial energy users in need of reliable supply of energy 24/7. Industrial sector to consume over 50% of global energy by 2040
- World energy consumption projected to increase by 48% between 2012 to 2040.
- Solar, wind & hydro power - often unreliable sources of energy. (Sun doesn't always shine, wind doesn't always blow, rivers can freeze)
- Airports, hospitals, shopping centers, & hotels are all potential end-users.



Heating      Cooling      Electricity

## HEATED SURFACES

- Sport arenas
- Parking spaces
- Sidewalks
- Process industry

## INDOOR CLIMATE CONTROL AND ELECTRICITY PRODUCTION

<ul style="list-style-type: none"> <li>▪ Office buildings</li> <li>▪ Hospitals</li> <li>▪ Hotels</li> </ul>	<ul style="list-style-type: none"> <li>▪ Malls</li> <li>▪ Airports</li> <li>▪ District heating systems</li> </ul>
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# Global Market Potential – Recent News Headlines...

## **Big Oil Invests In Geothermal Energy Breakthrough**

Feb 18, 2021 at 12:01 | Felicity Bradstock

BP and Chevron, this Tuesday, announced plans to invest heavily in geothermal energy through a new innovative start up. The new technology introduced by Canadian startup...

## **A Surprising Innovation In Energy's Hottest Market**

Jul 31, 2019 at 11:27 | Irina Slav

The world's geothermal power generation capacity this year hit 14.9 GW. The figure is minuscule compared with fossil fuel or even renewable generation capacity but a figure that's...

## **Oil giants BP and Chevron become part-owners of 'world-changing' deep-geothermal innovator Eavor**

## **Geothermal solves the energy dilemma of European cities**

Nov 6, 2020

## **Could Oil Drillers Make Geothermal Energy Go Mainstream?**

Oct 22, 2020 at 14:59 | Irina Slav

With so much talk about offshore wind and utility-scale solar, it is easy to forget about one other abundant, emission-free energy source. Geothermal has garnered a lot less...

## **Geothermal could be key for Eastern EU countries in ditching fossil fuels**

# Solution – Why is Rock unique?



Patent protected and proprietary deep energy well technology



Independent and stable, long term energy source



Predictable cost levels, extremely low operating costs



Unique top-notch green solutions



Site independent opposed to today's deep energy well which dependent hot water reservoir anomalies) – Rock Energy technology works everywhere



Team has years of accumulated knowledge on geology, drilling technology / equipment, energy wells and designs, energy evaluation



Management and board has unique knowledge across several disciplines such as heat transfer, fluid mechanics, material science, geoscience and drilling



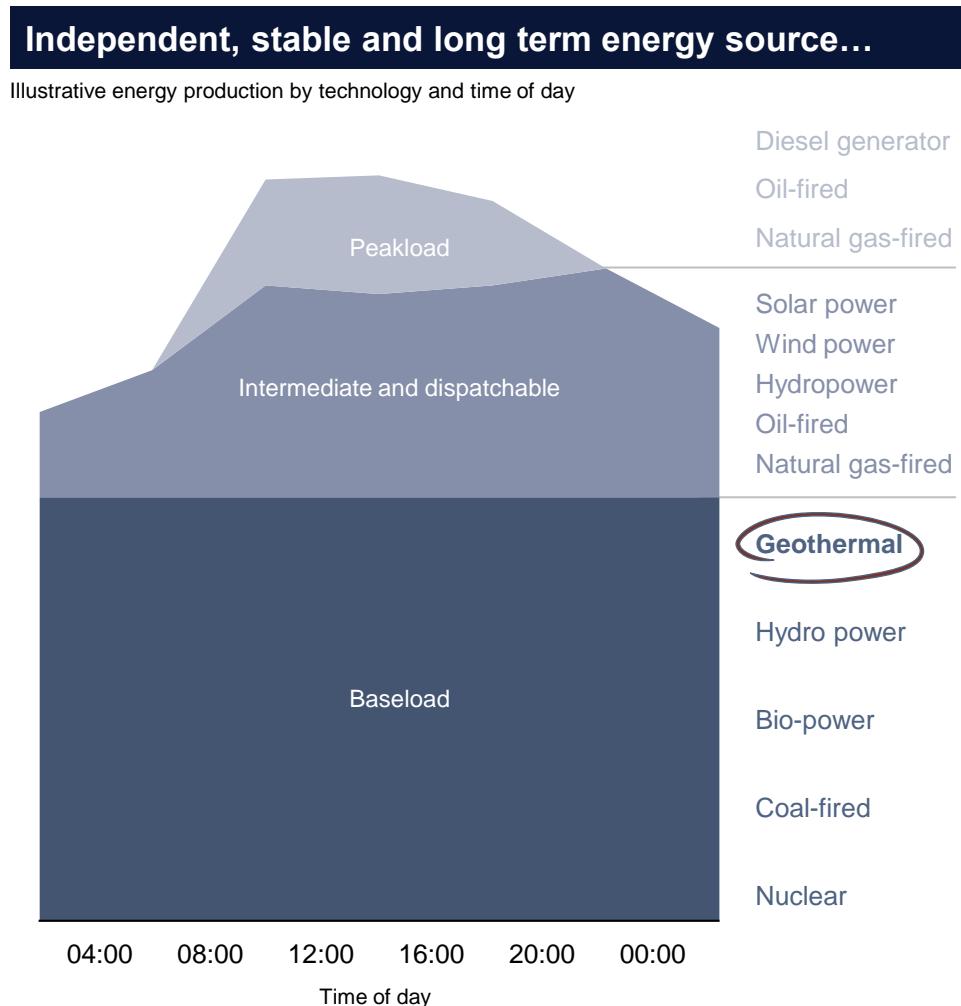
Talented and multidisciplinary team integrating drilling operators and utilities & construction companies

## **Substantial benefits of drilling deeper than today's shallow wells**

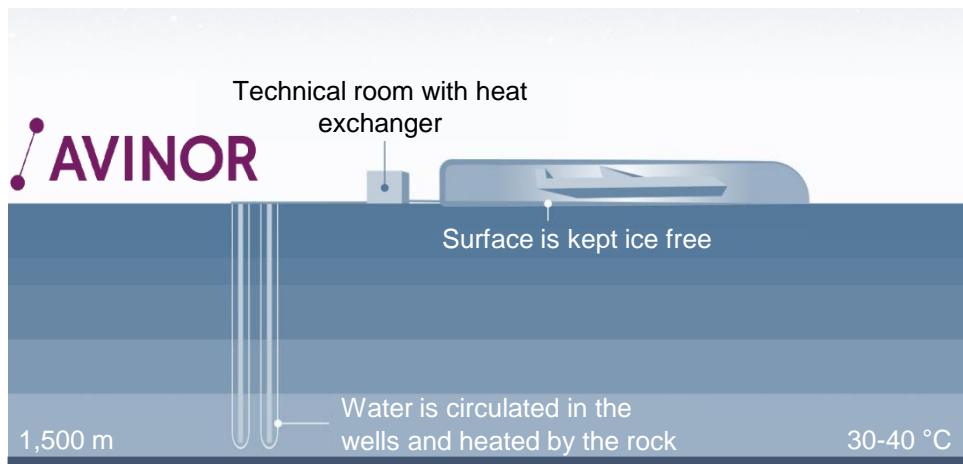
- ✓ The energy output at 1,500m depth is ~20x greater than the energy output at 250m (with only 6x the drilling length)
- ✓ By using one 1,500m well instead of twenty 250m wells, a customer could reduce its land footprint to 10m<sup>2</sup> instead of 4,800m<sup>2</sup>
- ✓ The significant reduction in land requirements is crucial in densely populated areas (cost of land is high)

# Solution – Key drivers for utilizing Rock Energy's solutions

- ✓ Energy production...
  - ✓ 24 hours a day
  - ✓ 7 days a week
  - ✓ 365 days a year
- ✓ No emissions and tiny footprint
- ✓ Long economic lifetime (50+ years)
- ✓ Independent of climate, weather and commodity prices
- ✓ Low long-term maintenance costs
- ✓ "Baseload" renewable energy production unlike solar or wind



# Solution – Case study at Oslo Airport Gardermoen



*“By installing Rock Energy Wells at the Engine Test Area we spend less in a whole year than we used to spend in January alone with our previous electricity solution”*

- Dag Falk-Petersen, CEO Avinor



## Key data

- The plant consists of two wells drilled at 1,500 meters providing direct surface heat to the engine test area at the airport
- The two wells were drilled by April 2018 and surface equipment installed October 2018
- First production took place 30 October 2018 and the wells have been in operation since
- These were the first wells drilled to these depths in hard dry rock in Norway
- OSL planning to expand with 30+ more Energy Wells+ and Well++:
  - De-icing of the outside areas surrounding the airport gates
  - De-icing of the runways
  - General heating of the building portfolio

Client	Avinor	Time frame	2017 - 2018
# wells	2	Well depth	~1,500 meters
Heat delivery	~300 MWh / y	Circulation hours	~3,000 hours / y
Circulation temperature	10 – 15 °C	Well diameter	165 mm

# Competitive Position – Many benefits over other renewables

- ✓ Used for heating/cooling purposes with clean, green everlasting heat supply
- ✓ Independent, distributed, local and off Grid energy production
- ✓ Energy production close to end users minimizing energy losses in network
- ✓ A closed loop system, no emissions
- ✓ Small surface footprint - ideal for urban areas
- ✓ Lifetime of plants more than 50 years
- ✓ predictable cost from your own energy source
- ✓ Low operational costs

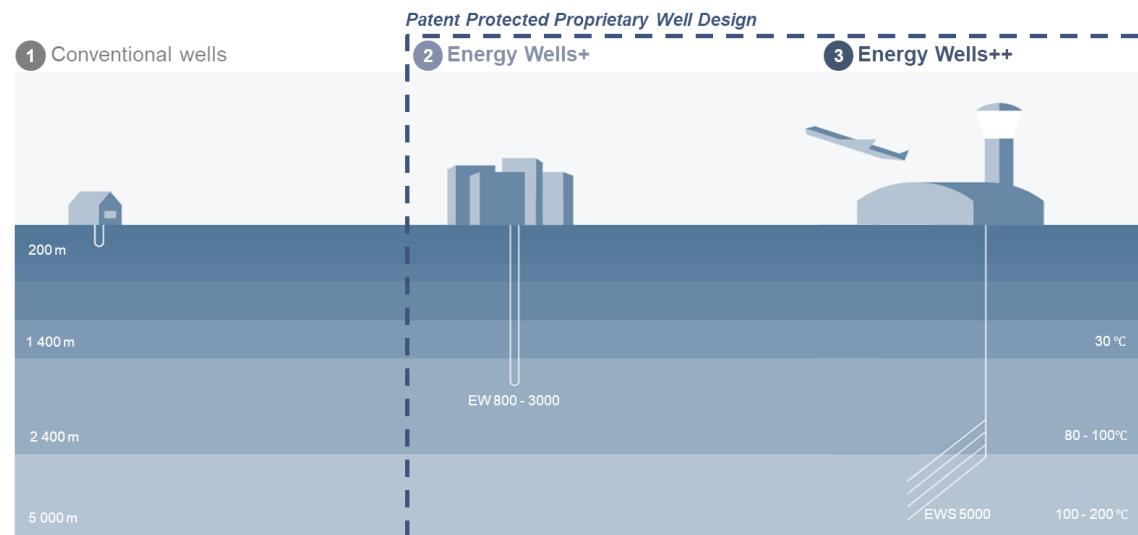
Energy source	Suitable to replace boilers	Independent from commodity prices	Independent from weather conditions	Ease of logistics	Heating (H), Cooling (C), Power (P)
Geothermal					H, C, P
Solar power					H, P
Hydro power					P
Wind power					P
Seawater heat pump					H, C
Air / water heat pump					H, C
Pellets boiler					H, C

# Competitive Position – Patented Technological Advantage

## Proprietary Technology:

- ✓ Drilling Technology – Efficient drilling 24/7
- ✓ Completion Technology – Efficient recovery of heat
- ✓ Logging Technology – Allows crew to see ahead of drilling bit...
- ✓ Surface-to-borehole integration
- ✓ Leading to very competitive levelized cost of energy (LCOE)...

- Worldwide exclusive rights to technologies defining synergies for reservoir monitoring
- Rock Energy's technologies yield the locations, compositions and attributes of geothermal reservoirs in the planning phase
- Drilling costs make up to 80% in costs for a deep geothermal energy well. Rock technology allows reduction of up to 50% of these costs.
- Rock Energy owns experience from oil & gas industry – crucial for commercialization of deep geothermal energy wells.



# Business plan – Multi faceted growth strategy

## 3 Distinct Strategies

1. Build and sell plants to end-user
2. License technology to international partners
3. Build and own plants and sell energy to end-user

## Recurring revenue streams:

- ✓ Royalties for applying the technology
- ✓ Licensing of technology
- ✓ Maintenance agreements
- ✓ Markup for producing energy
- ✓ Sale of energy as plant owner

## Multiple distribution channels

- Engagement with large infrastructure owners, development and architecture firms
- Various Energy Consultants
- Regional/international joint-ventures
- End-user reverse inquiries motivated by:
  - Compliance with “green policies”
  - Increase energy reliability at fixed cost
  - Reduction in energy costs

## Multi faceted growth strategy

- Capital light strategy
  - IP Developer
  - Rock Energy develops plants for clients and receives construction and/or royalty fees in return
- International strategy
  - Licensing and joint venturing
  - Rock Energy licenses its technology to partners abroad in return for licensing fees from constructed plants
  - Joint ventures allow for combination of licensing and BOO strategy
- Capital intensive strategy
  - Build, Own and Operate (BOO)
  - Rock Energy builds and owns the plants
  - Sale of energy on long-term contracts to end-users

# Team with multidisciplinary competences

**Jan Edin Evensen****CEO**

- More than 30 years of technical and senior management experience from the upstream oil and gas industry
- Experience with major exploration activities in the North Sea, together with significant oil and gas development projects internationally, both offshore and onshore

**Stig Myrseth****Board member**

- Distinguished and long-standing career as a financial analyst, fund manager and founder of financial institutions among others a brokerage firm, a fund management company and a bank
- Strong brand and reputation as one of Norway's leading financial experts

**Steven Royce****Board member**

- Investor, investment and business adviser in corporate- and property transactions and developments
- Wide experience from several financial institutions in London, including DNB and SEB

**Per Arne Myklebost****Board member**

- More than 35 years of senior management experience from business development, labour unions and finance/investments
- Several senior positions for more than 20 years at Norsk Hydro AS, including CFO of its oil & gas department

**Reidar Michaelsen****Chairman of the Board**

- Has 10 years of experience in Norsk Hydro ASA
- Founder, Chairman and CEO of PGS
- Headed the restructuring of Selmer Sande AS
- Raised over USD ~3.5bn in equity / bonds / project financing

**Bjarne Eggesbø****Board member**

- Over 20 years of capital markets experience
- Former Head of Real Estate for a publicly listed asset manager with over USD10bn in assets under management
- CEO & CIO of a private global asset manager, responsible for USD 8bn in assets under management

**Nicolas Brun-Lie****Board member**

- Extensive transaction experience and is ranked as one of Norway's leading experts in maritime law by Chambers and Partners and Legal 500
- Works with business law consultancy, with emphasis on offshore, asset management and private equity, banking and finance

**Lars Christian Beitnes****Board member**

- Investor, investment and business adviser, founder, chairman and sole owner of Aston Group, an international corporate and management services group based in 7 countries
- Wide experience from several early stage companies



The team has combined competence across several disciplines such as heat transfer, fluid mechanics, material science, geology, drilling, finance and project management, and will be an essential bridge to rig and other service companies

# Rock Energy

