

# Hengill Volcanic Area

## Synergies Between Energy Development and Landscape Experience

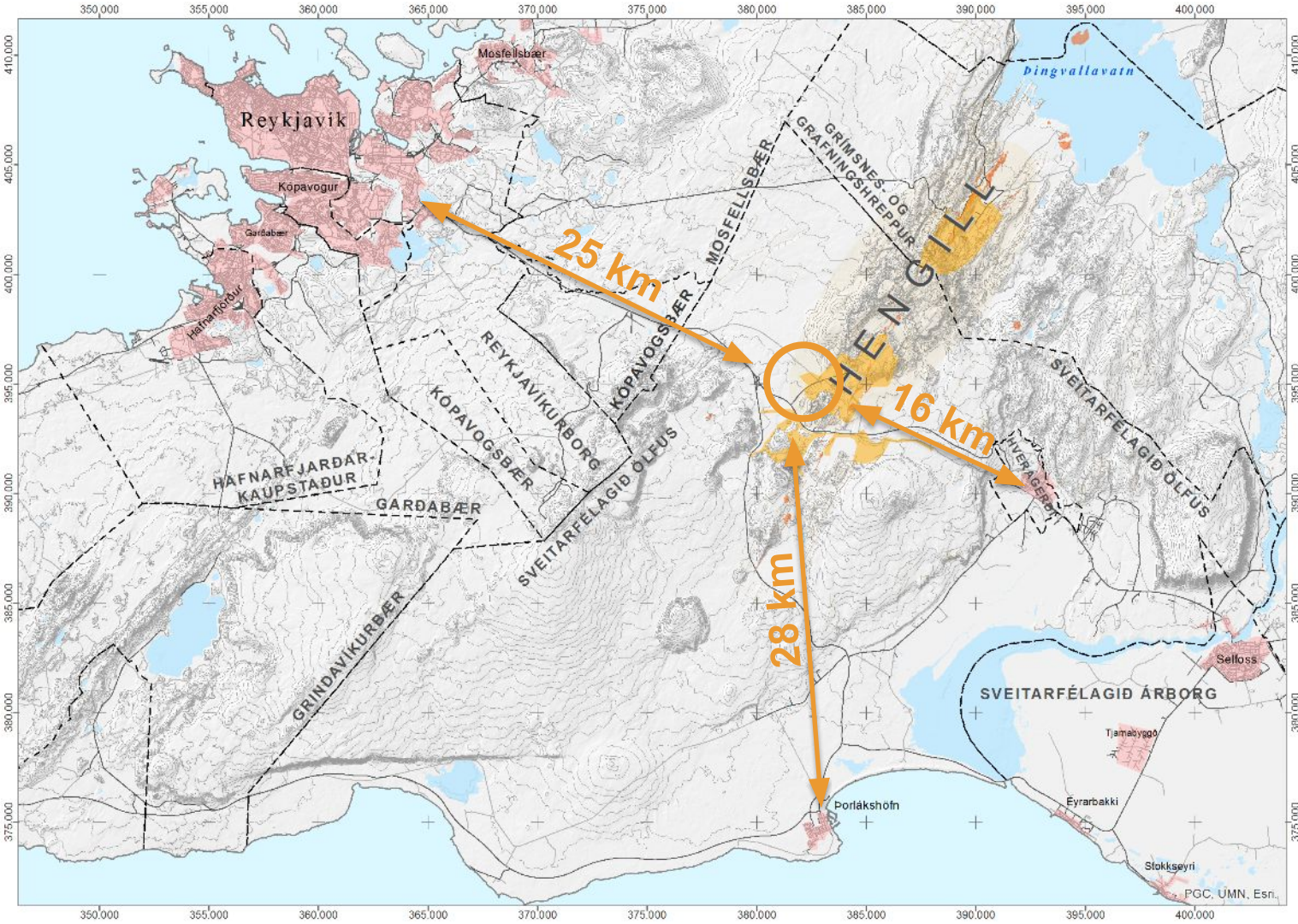
Heiða Aðalsteinsdóttir, Landscape Architect

Seminar landscape – city – public space

September 23<sup>rd</sup> 2019

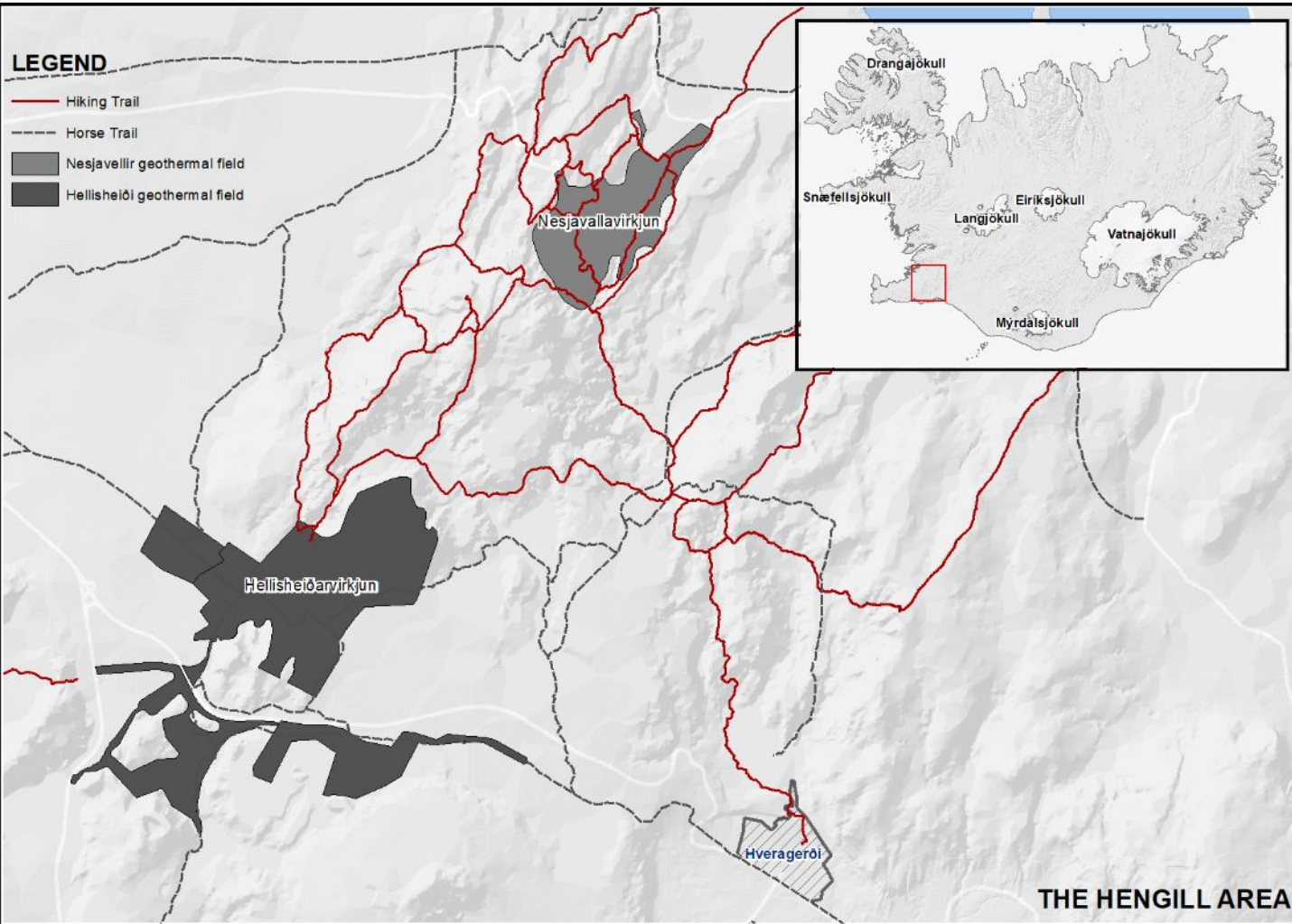






## LEGEND

- Hiking Trail
- Horse Trail
- Nesjavellir geothermal field
- Hellisheiði geothermal field



THE HENGILL AREA





# Hengill

Hengill volcanic area is amongst the largest high-temperature geothermal areas in Iceland, covering 100 km<sup>2</sup>

Geological features

Craters

Hot springs

Warm river

130 km trail network

Hiking

Trail running

Mountain biking

Cross country skiing

Bathing

Snow mobiling

Orkuveita  
Reykjavíkur



# Hellisheiði

Largest geothermal power plant in the world

62 high temperature wells

1000 to 2500 meters deep

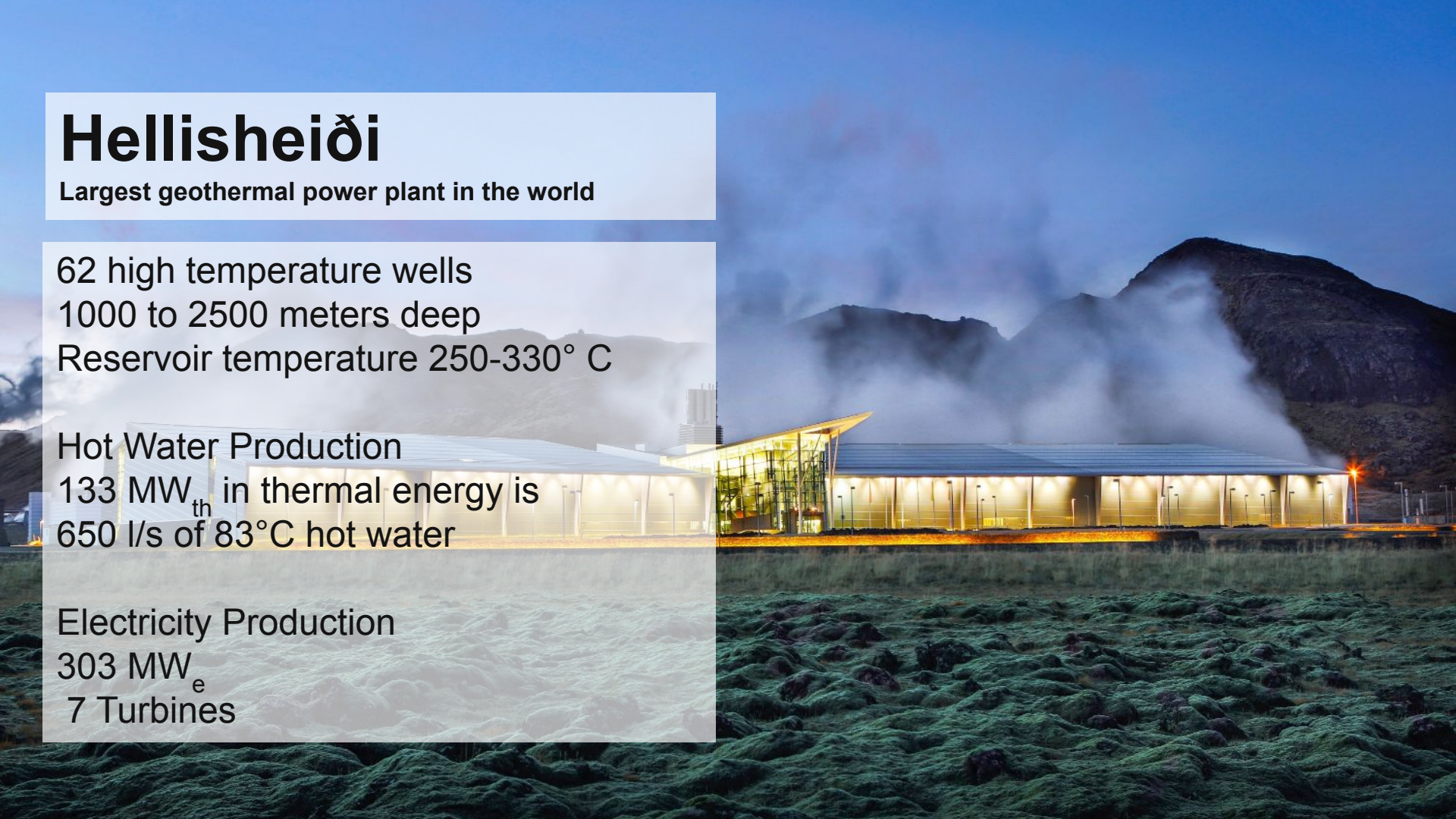
Reservoir temperature 250-330° C

Hot Water Production

133 MW<sub>th</sub> in thermal energy is  
650 l/s of 83°C hot water

Electricity Production

303 MW<sub>e</sub>  
7 Turbines



# Nesjavellir

31 high temperature wells  
1000 to 2500 meters deep  
Reservoir temperature 250-330° C

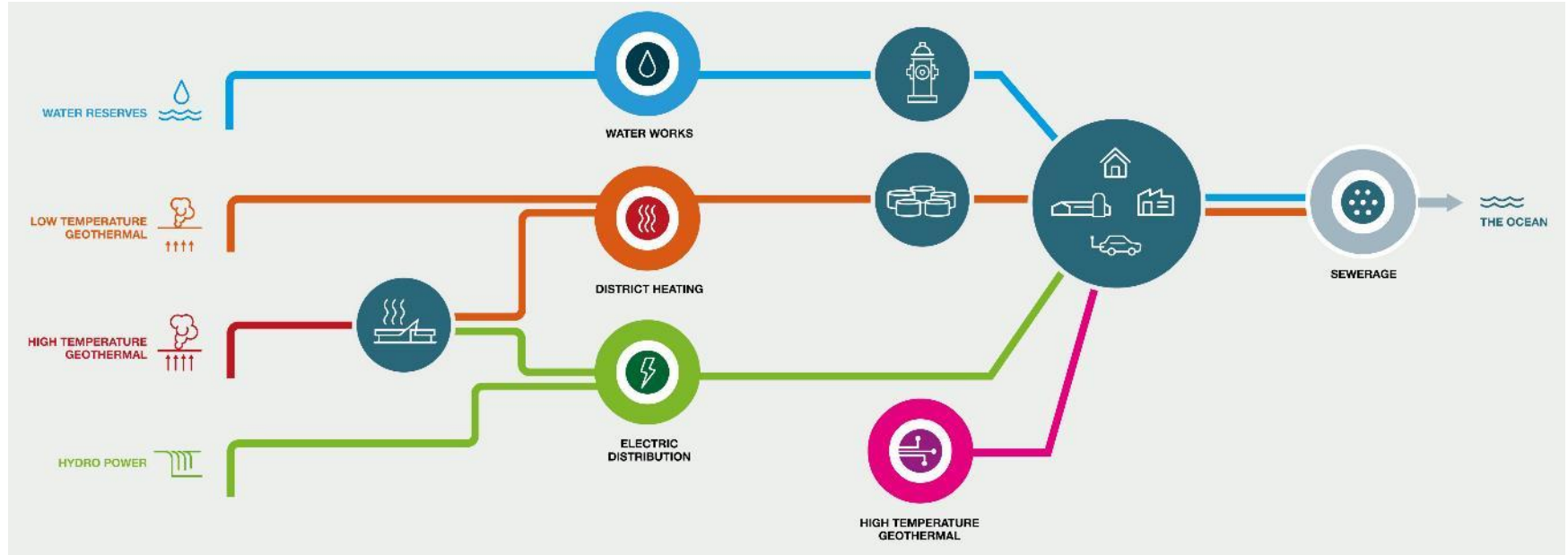
Hot Water Production  
290 MW<sub>th</sub> in thermal energy is  
1680 l/s of 83°C hot water

Electricity Production  
120 MW<sub>e</sub>  
4 Turbines



# Reykjavík Energy

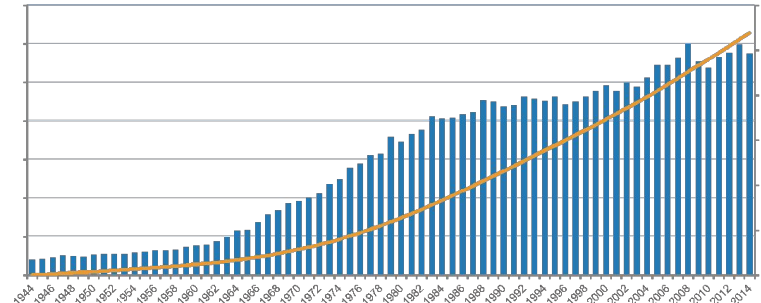
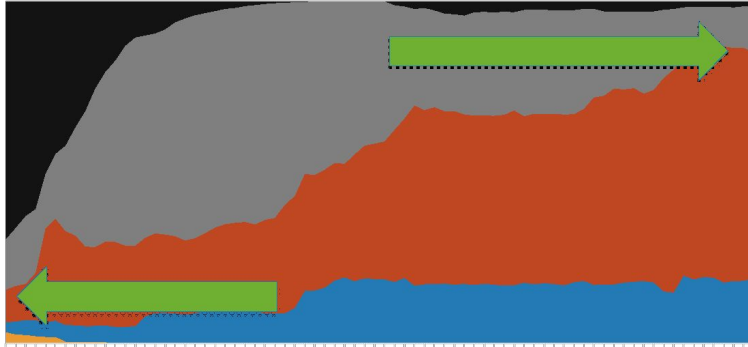
## Company Profile



# Why Geothermal?

The use of geothermal energy for space heating saves us \$3.500 per capita per year compared to importing fossil fuel.

Compared to oil, geothermal heating saves 3 million tonnes of CO<sub>2</sub> annually.







**Power Station**





**Separation Station and Cooling Towers**





Pipelines





## Boreholes



# What is “Landscape“

- "Landscape" means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors;

(European Landscape Convention)





**The Hengill Area as Perceived by People**



# Dyradalur

- Gateway to the Hengill area
  - Outdoor users
  - En route between Reykjavik and Nesjavellir Power Plant
  - Mostly free from energy development



# Reykjadalur

- Popular tourist attraction
  - Outdoor users
  - Bathe in a hot river
- Busy from morning to night
  - Mostly free from energy development

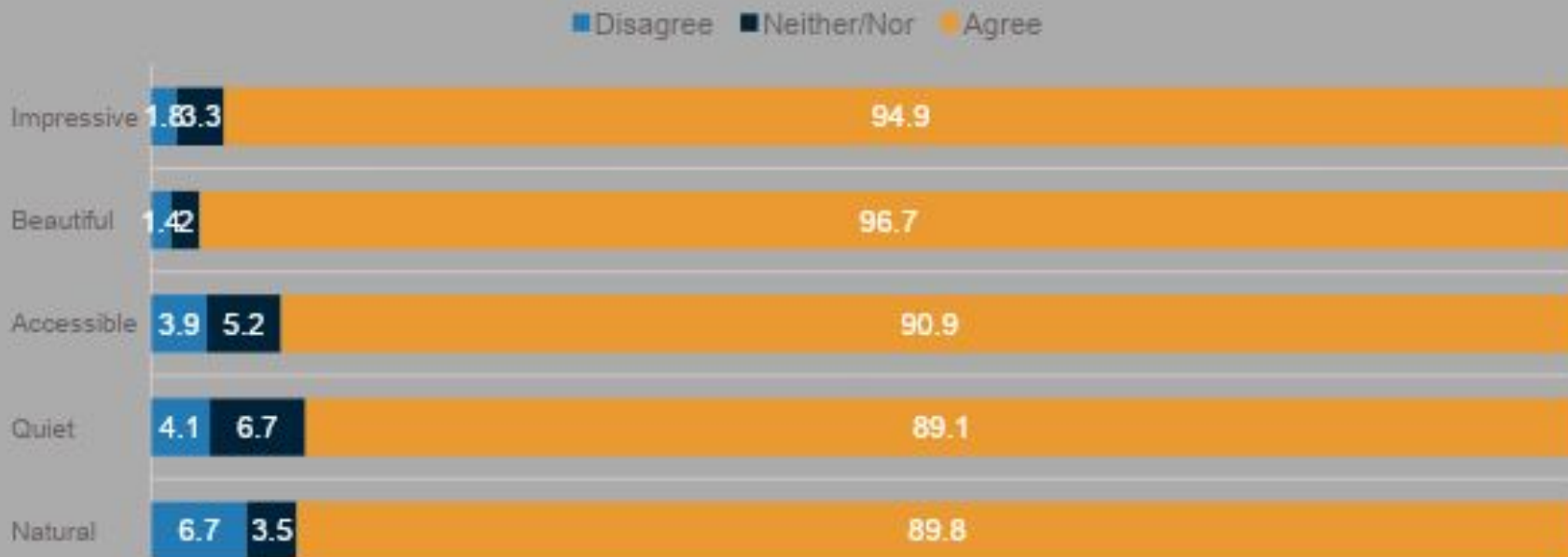


# Nesjavellir

- A viewpoint overlooking Lake Þingvallavatn and Nesjavellir Power Plant
  - Power station
  - Geothermal Field
  - Unesco site Þingvellir in the backdrop

# Satisfaction with experience of the area

How descriptive are the following words for the survey area?

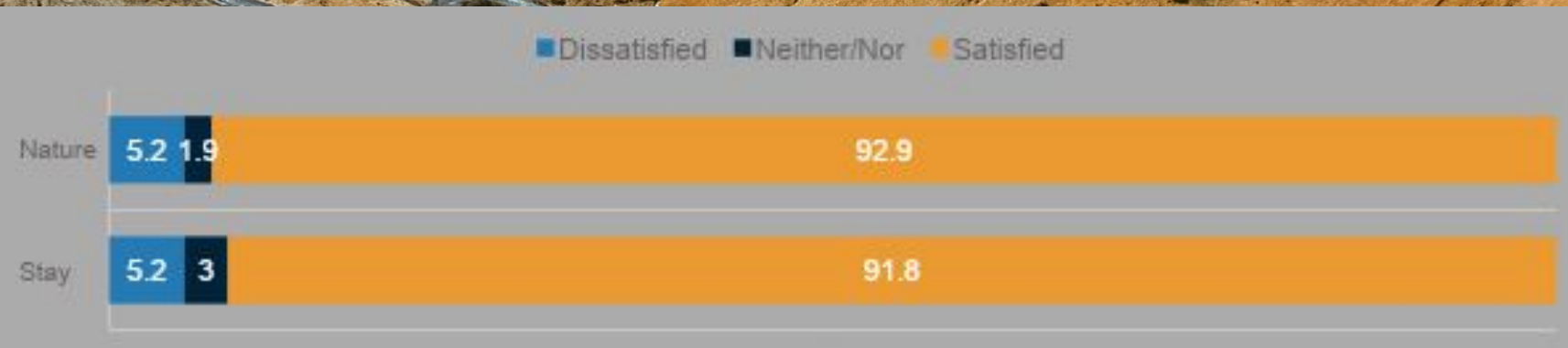




# Satisfaction with experience of the area

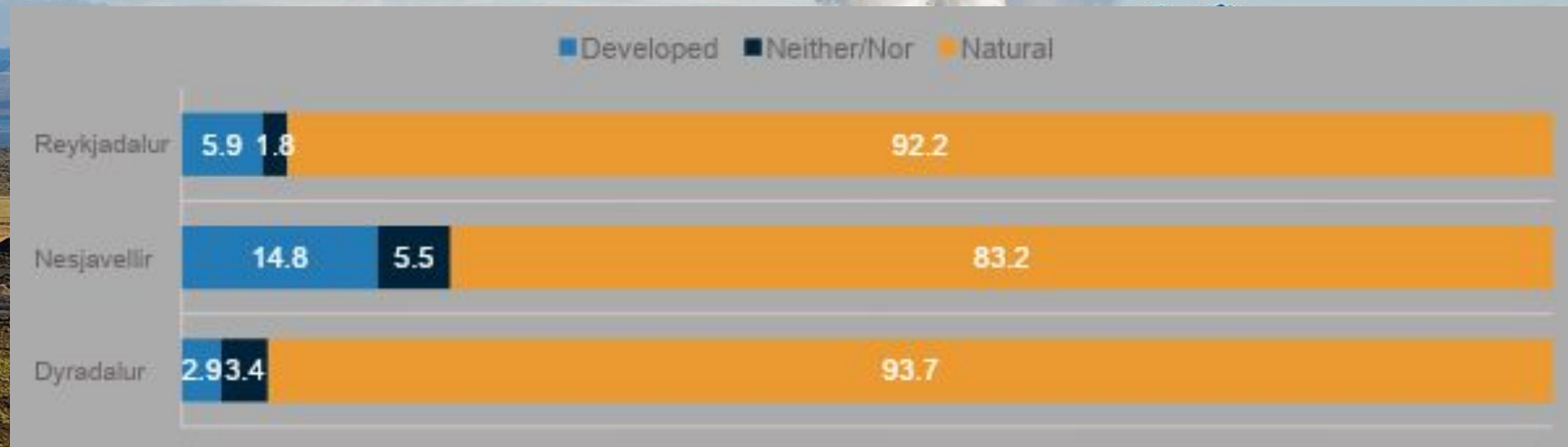
Satisfaction with nature in the area

Satisfaction with stay in the area



# Satisfaction with experience of the area

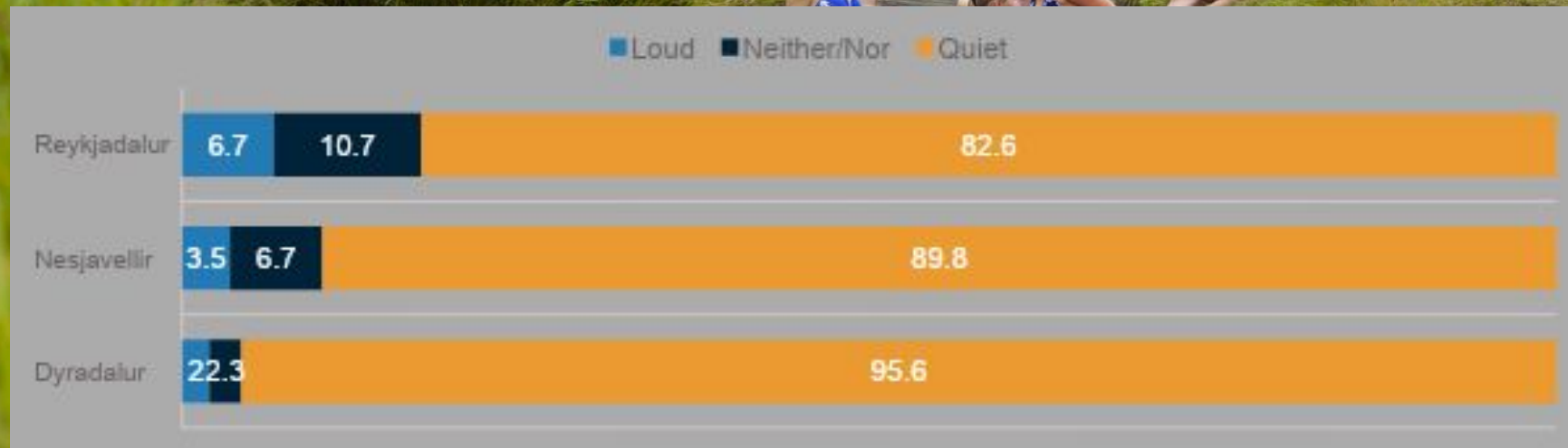
How natural is this area?





# Satisfaction with experience of the area

How quiet is this area?





## Energy Development as Perceived by People

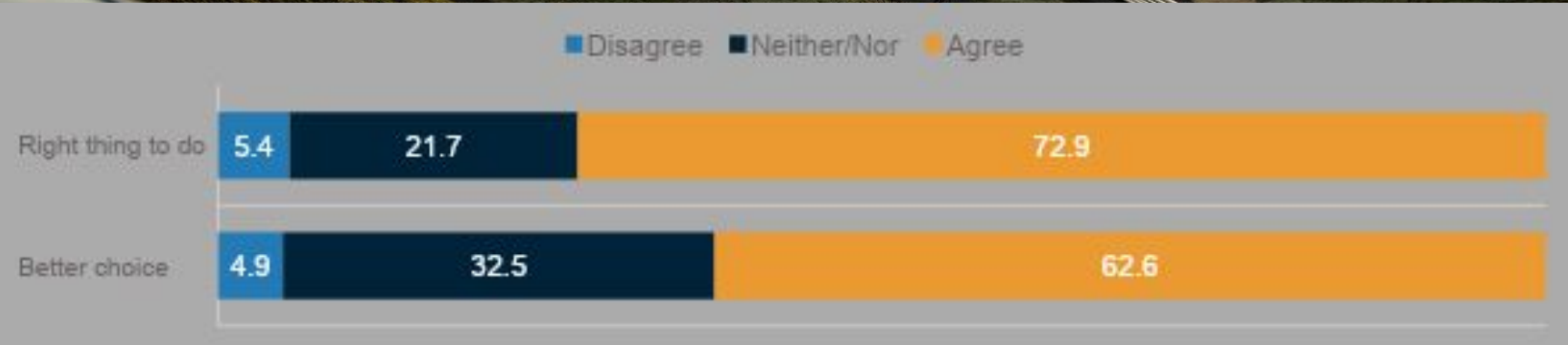




# Position on geothermal development at the Hengill area

Utilization of geothermal steam from the Hengill area is the right thing to do

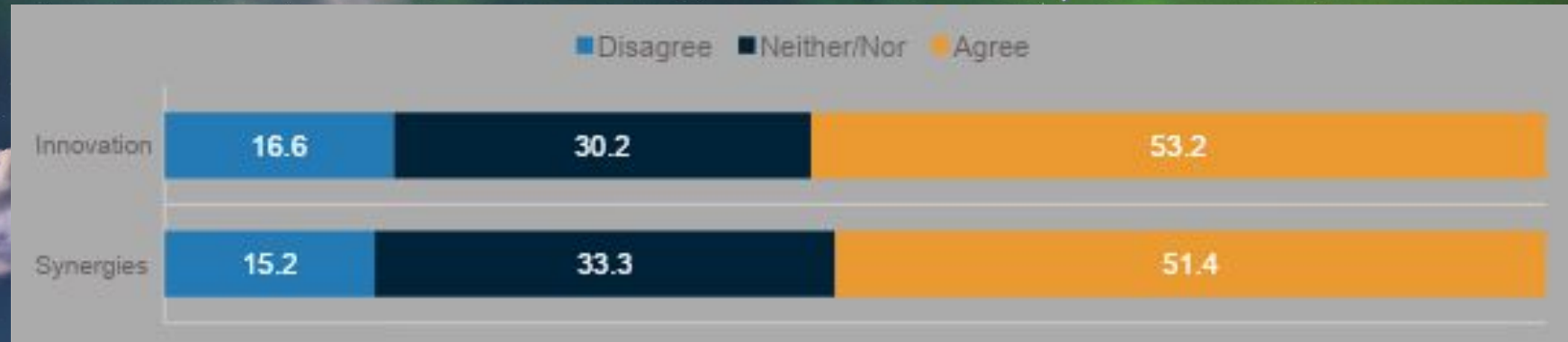
Geothermal power development is a better choice compared to hydropower development



# Position on geothermal development at the Hengill area

Geothermal power development increases innovation potential in tourist services

Geothermal power development and increased tourist services go hand in hand







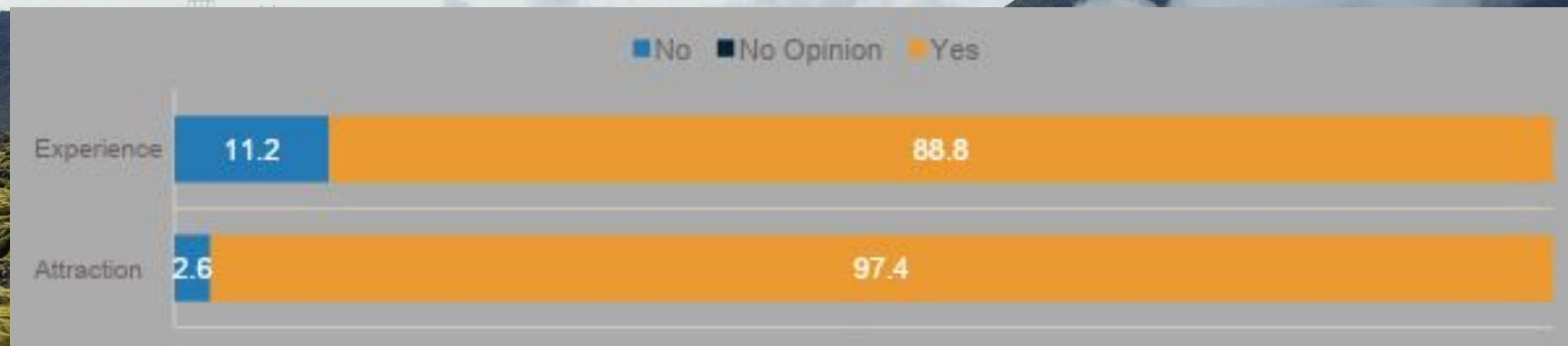
**Can Landscape and Energy Development Coexist?**



# The Hengill area as a wilderness/unspoiled nature

Did you visit this area to experience wilderness/unspoiled nature?

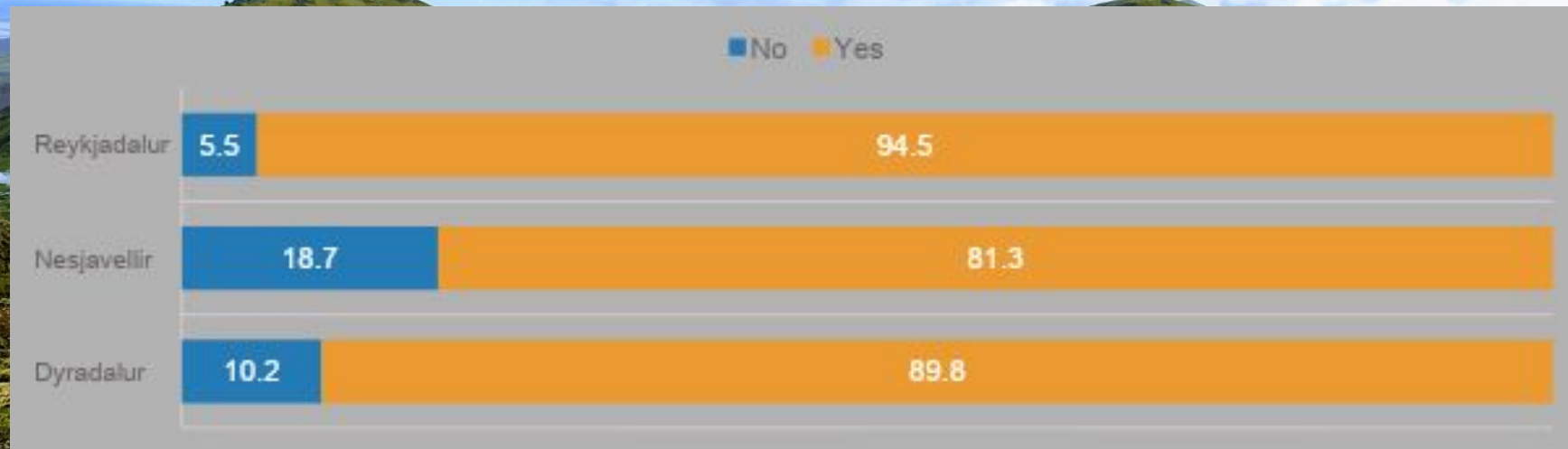
Do you think wilderness/unspoiled nature is part of the attraction of the area?





# The Hengill area as a wilderness/unspoiled nature

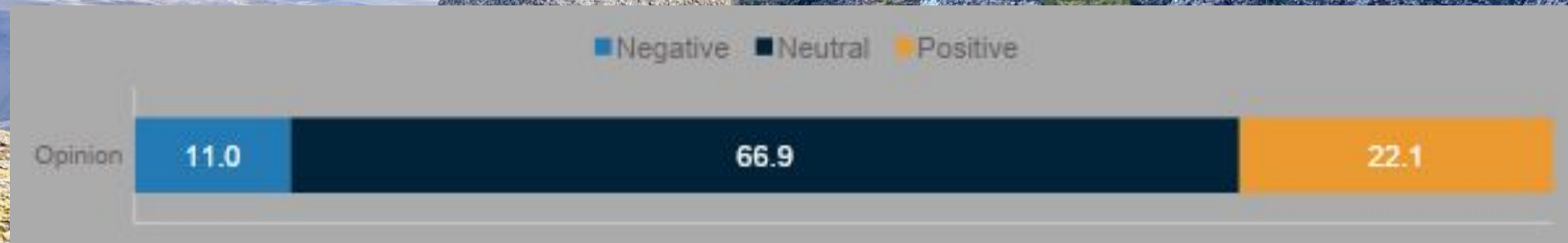
Did you visit this area to experience wilderness/unspoiled nature





# The Hengill area as a wilderness/unspoiled nature

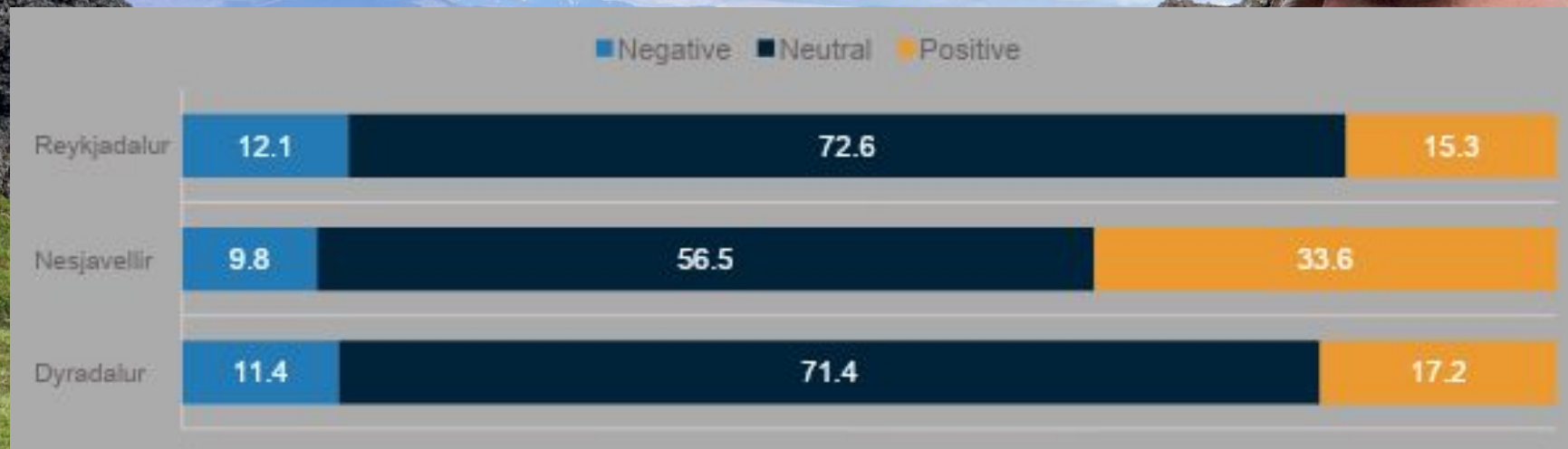
What effect does the fact that there is a power plant at Hengill have on your interest in spending time outdoors in the area?



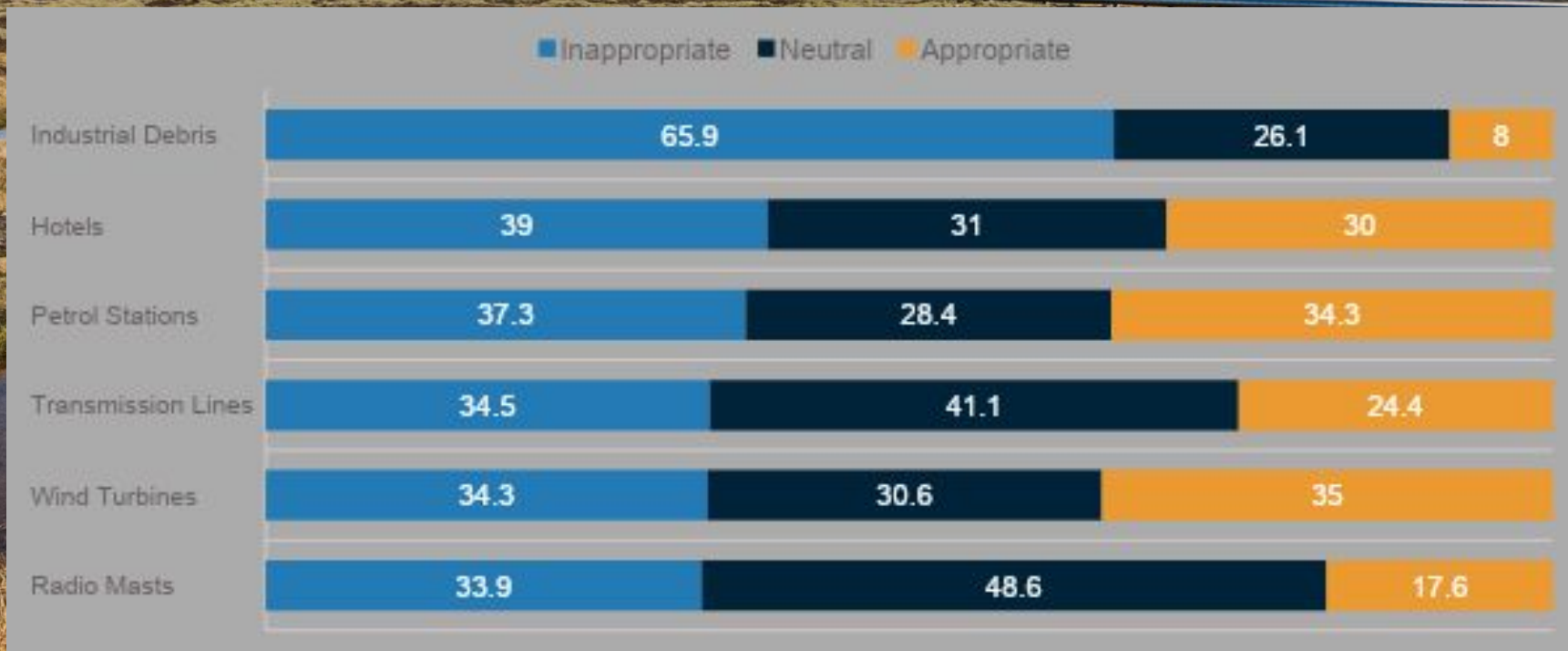


# The Hengill area as a wilderness/unspoiled nature

What effect does the fact that there is a power plant at Hengill have on your interest in spending time outdoors in the area?



# Appropriacy of structures/facilities in the area







**Restoration Post Energy Development**





Restoration Using Turf from Construction Site





Restoration Using Local Vegetation





Restoration of a Former Storage Site





Restoration of a Former Storage Site





Pipeline Completion and Finishing





Pipeline Completion and Finishing





Thank you // [heidaa@or.is](mailto:heidaa@or.is)