

District Heating for Holiday Homes

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New markets

Pursuing new market opportunities

Traditional District Heating markets
have already been covered



Holiday home areas



Holiday homes

Approximately 10,000 in Iceland

A holiday home per 30 inhabitants

The number of sections intended for holiday homes is growing rapidly



Concept of holiday homes

Retrieve from the rat race and relax

A hobby guaranteed to occupy all the time
you wish to spend on it

A shelter from the harsh reality of life



Holiday homes

Usually well built houses
Demand for comfort is huge

Similar appliances as at home

Even internet connections

Holiday home?

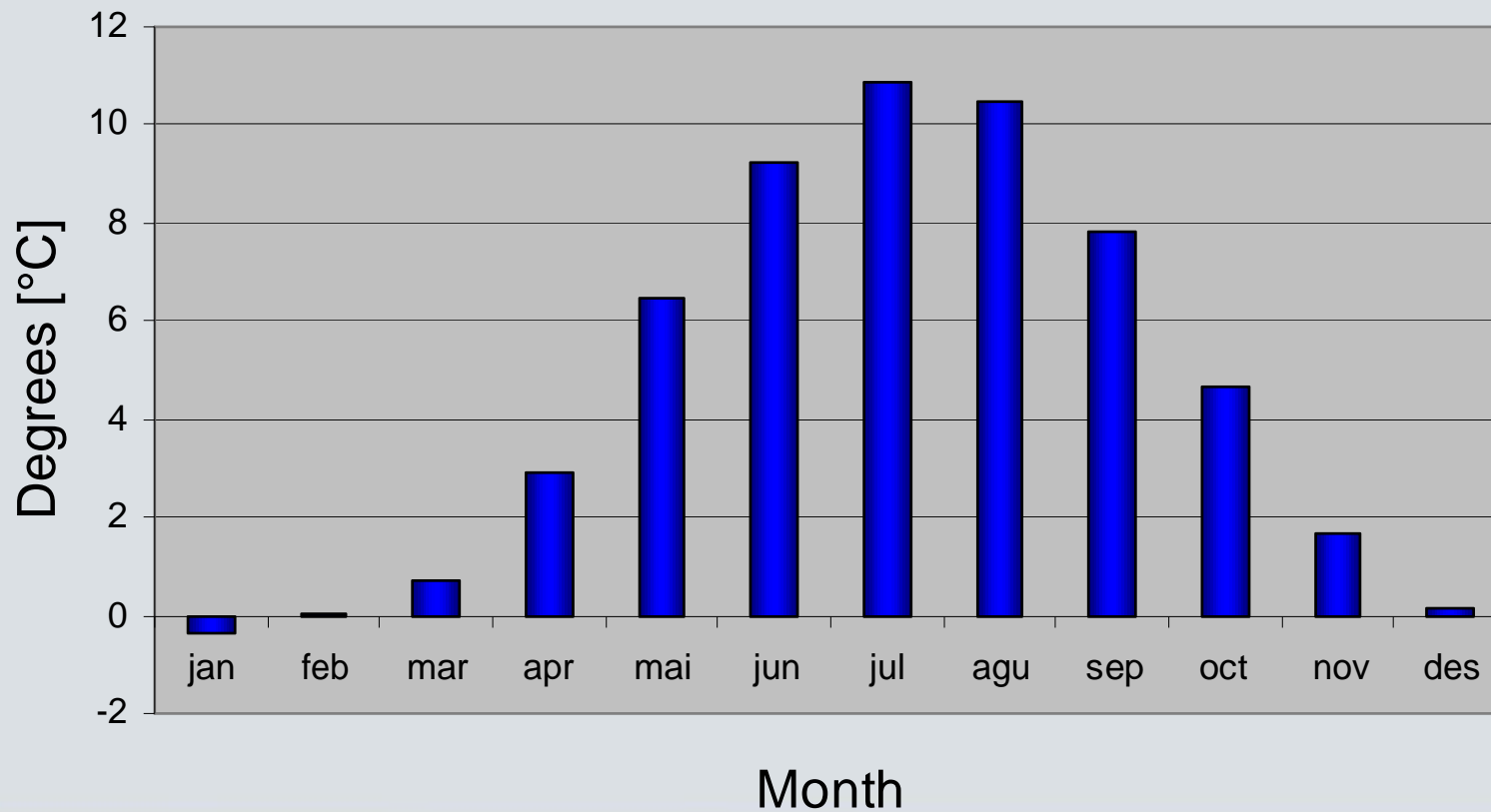
380 m² holiday home with 650 m² snow
smelting system





Why heat holiday homes?

Average outdoor temperature



Other heating alternatives

Electricity (majority connected to the grid)
Bottled gas (propane & butane)

Running costs are higher than for district heating but the investment is less.

So, why hook-up to the district heating??





Reasons.....

Demand for:

Comfort

Increased utilisation period (winter)

"Heitir pottar" (e. Spa pools)

(Financial?)

Luxury - Basis for our marketing!



Grímsnesveita

One of the largest project on DH-system for the past 10 15 years in Iceland

Commissioned Dec 2002

Two years of planning, design and construction



Grímsnes - field

Geothermal field

The production well:

60 to 70 litres/second

84°C hot water

Other wells were drilled but are of less quality



Grímsnes - Market

Close to the field
750 holiday homes
At least 250 additional
sections
DH extendable to
nearby areas and can
cover more than 1400
holiday homes



Grímsnes District Heating

Supply temperatur at the point of deilivery ranges from 55° to 80°C

Supply pressure above 2 bar, below 6 bar

Distribution approximately 70 km of piping

Mainly pre-insulated PEX piping

Main pumping station with additional two booster stations



Holiday home connections

Cabinet located on the exterior holiday homes

Heating system connected through heat-exchanger

Tap water directly connected, valve closed during periods of non-occupancy



Energy sales

Subscription to certain effect (flow)

Constant flow in the district heating system

Installing flow restrictions will enable smaller diameters of the systems hence decrease the investment

Minimum 3 litres per minute, additional flow is available for those who want it.



Grímsnes - Tariffs

Connection fee
1270
Annual energy fee
575



Challenges

Marketing was the greatest challenge

Achieve sufficient participation to make the project technically viable and economically feasible



Achievements

600 of 750 holiday homes have wished to connect to the district heating

450 have already been connected

The remaining houses will be connected this year



The project

The rate of connection has been slower than estimated

The participation is more than planned

The economy of the project is according to our original plans



Other projects based on the Grímsnes model

Munaðarnes

New district heating service, commissioned
04.06.2004

100 public and 100 private holiday homes.

Hlíðaveita

Established district heating service (200)

In need of restructuring

Huge potential



At last.....

Grímsnes has proven the concept of establishing district heating for holiday homes

We will continue to pursue similar project provided they are feasible and will increase the utilisation of Reykjavik Energy's resources



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