



CO₂ policies as innovation drivers

Faroese Challenges

Sisimiut

1-3 March 2008

Bitland Enterprise

Vilhjálmur Nielsen





3 years ago

- Energy consumption and CO₂ emission not high on political agenda for many years
- Energy standard of buildings has not improved since 1970'ies

Expectations

- Autumn 2005
 - Which goals should we have?
- Then
 - How do we get there?
- And what about the Kyoto Protocol?

Energy Policy

- Energy policy adopted spring 2007
 - Goals for 2015
 - 20 % renewable energy on land
 - 15 % improved energy efficiency in fishing
- Keywords
 - Economy
 - Environment
 - Security of supply
 - Information, learning, research



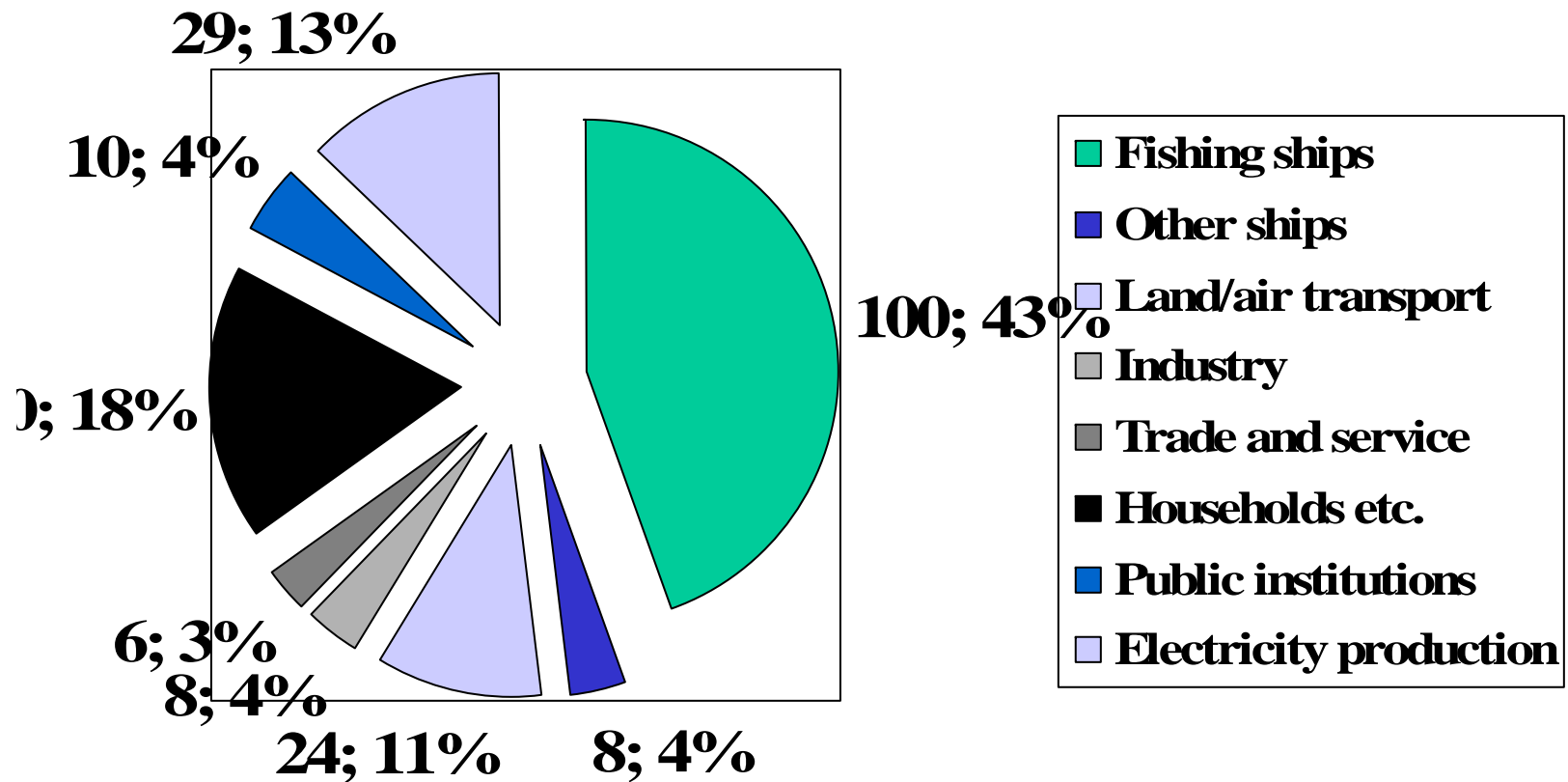
A landscape photograph showing a rocky, mountainous terrain in the foreground and middle ground. In the background, there is a large blue lake and more mountains under a clear sky. The text is overlaid on the image.

**Kyoto Protocol is accepted
but why 8%?**

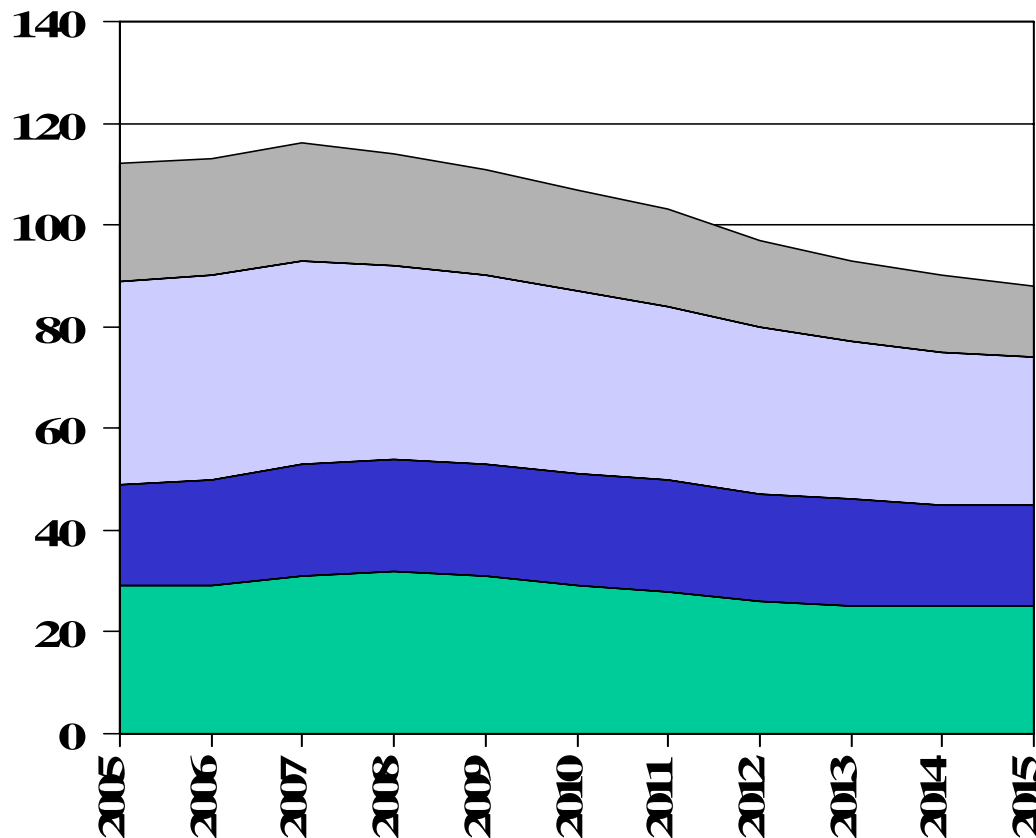
Nothing has been done

Oil consumption in 2005

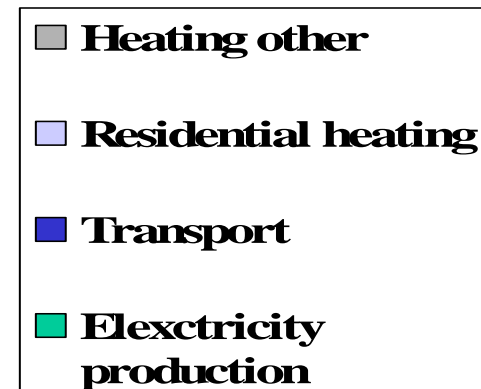
Total 225 kTon



Ton oil on land – Energy policy



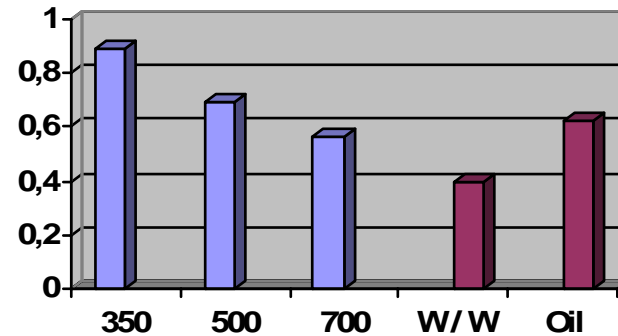
15% reduction from 1990 in 2012 with rapid implementation of energy policy



Cable to Iceland

Vision

- 100% renewable energy
- All international commitments solved



Implications

- No innovation
- What about energy savings?



The big issues is the fishery

- Higher oil consumption
 - Higher costs
 - More emissions
- Lower catch
- Fewer wants to be fishermen

Innovative change is needed
New fishery management

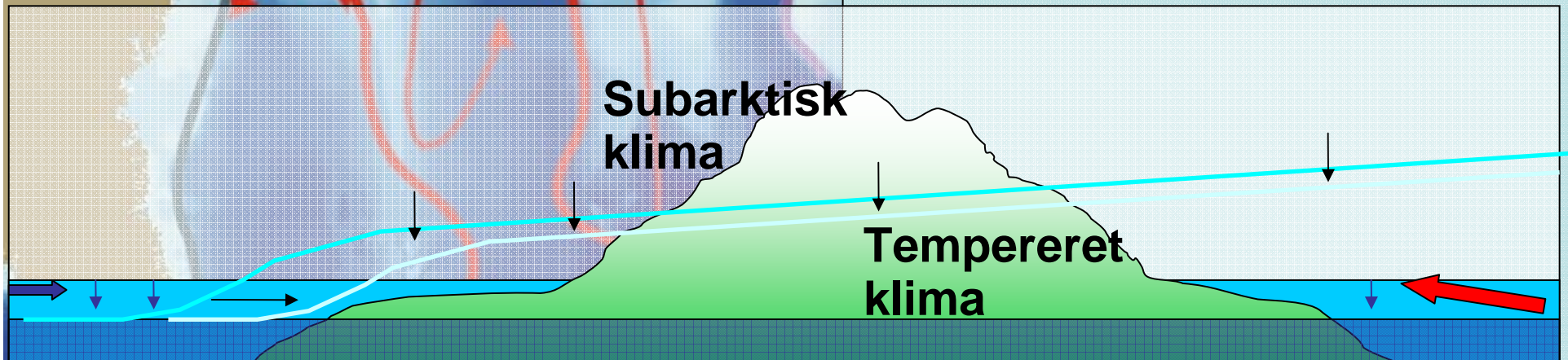




Surrounded by the Gulf stream

The Faroe Islands are

- ⇒ **Small** pieces of land
- ⇒ **Surrounded** by the Gulf Stream
- ⇒ A dynamic region on the border between temperated and arctic climate.



Trans Atlantic Climate Conference



Altjóða ráðstevna í
Norðurlandahúsinum

7. – 8. April 2008 www.TACC208.com

Workshops

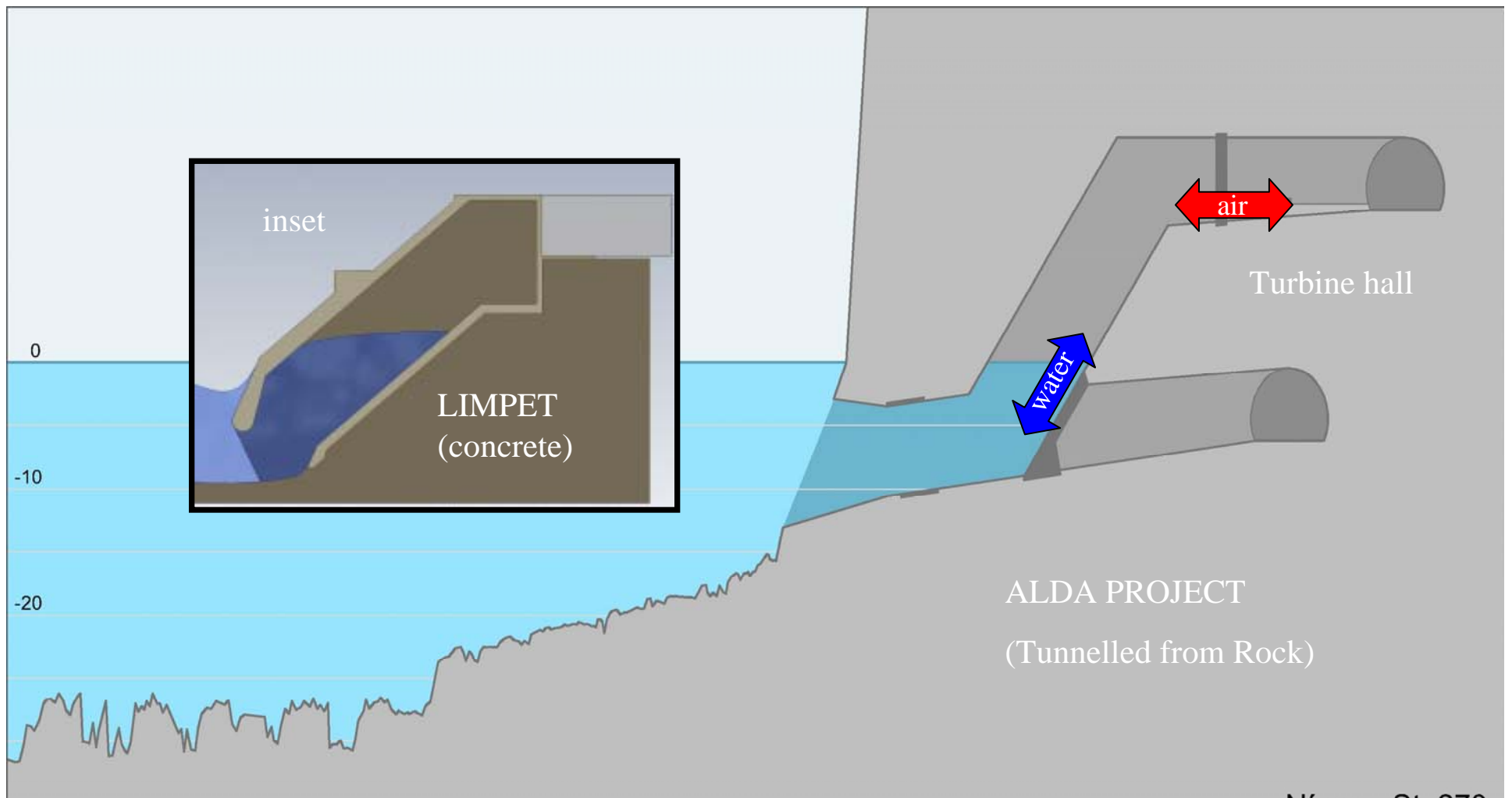
- Ocean Environment and sustainable resource management
- Innovative in energy and environmental technologies on land and sea
- Sustainability – effects on marketing, reputation and investments
- Trans Atlantic Climate Institute as a Knowledge hub

TransAtlantic Climate Conference

7-8 apríl 2008 / Norðurlandahúsið / www.tacc2008.fo

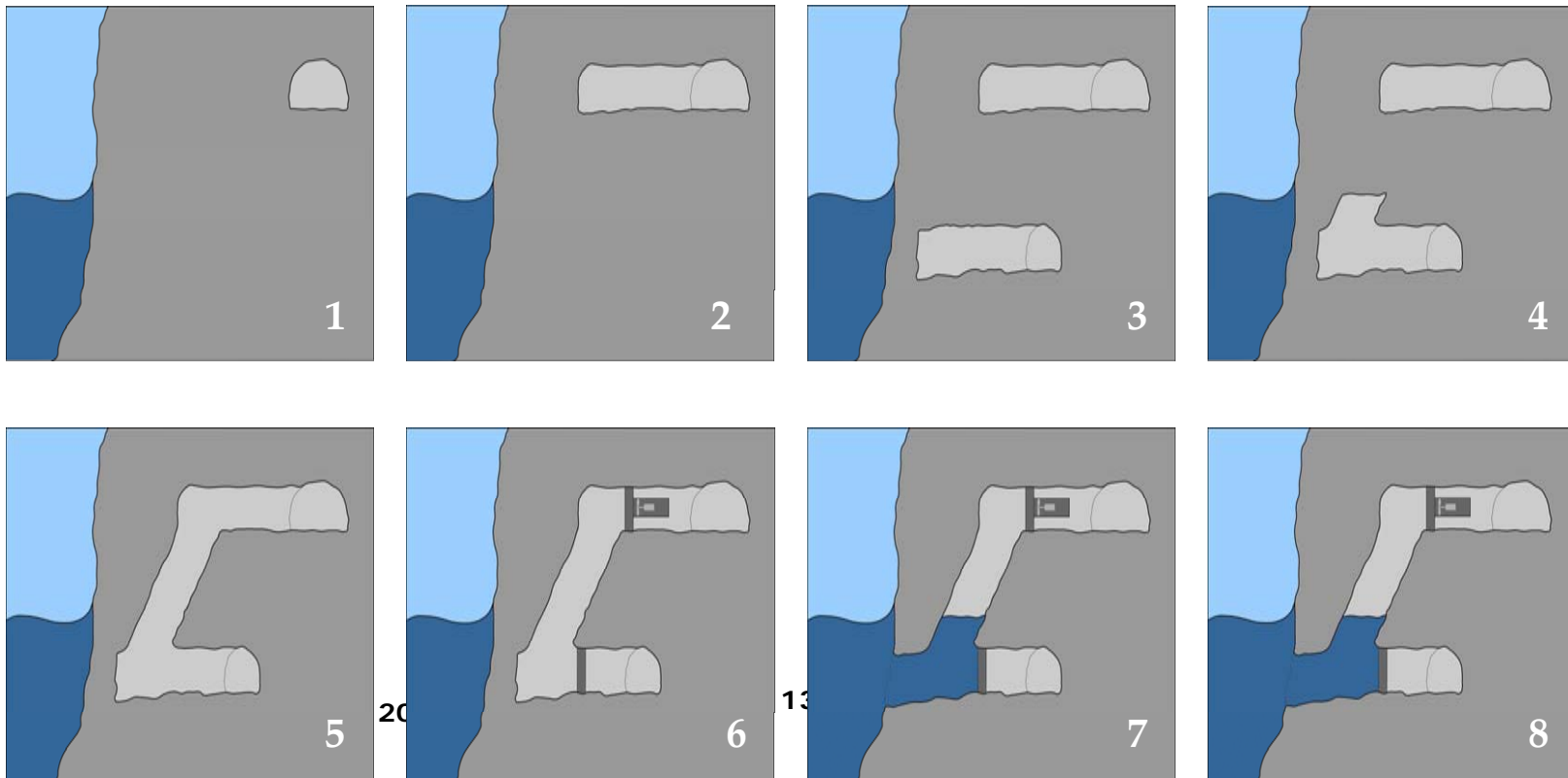
Demo Plant: Full Scale

1 MW installed capacity



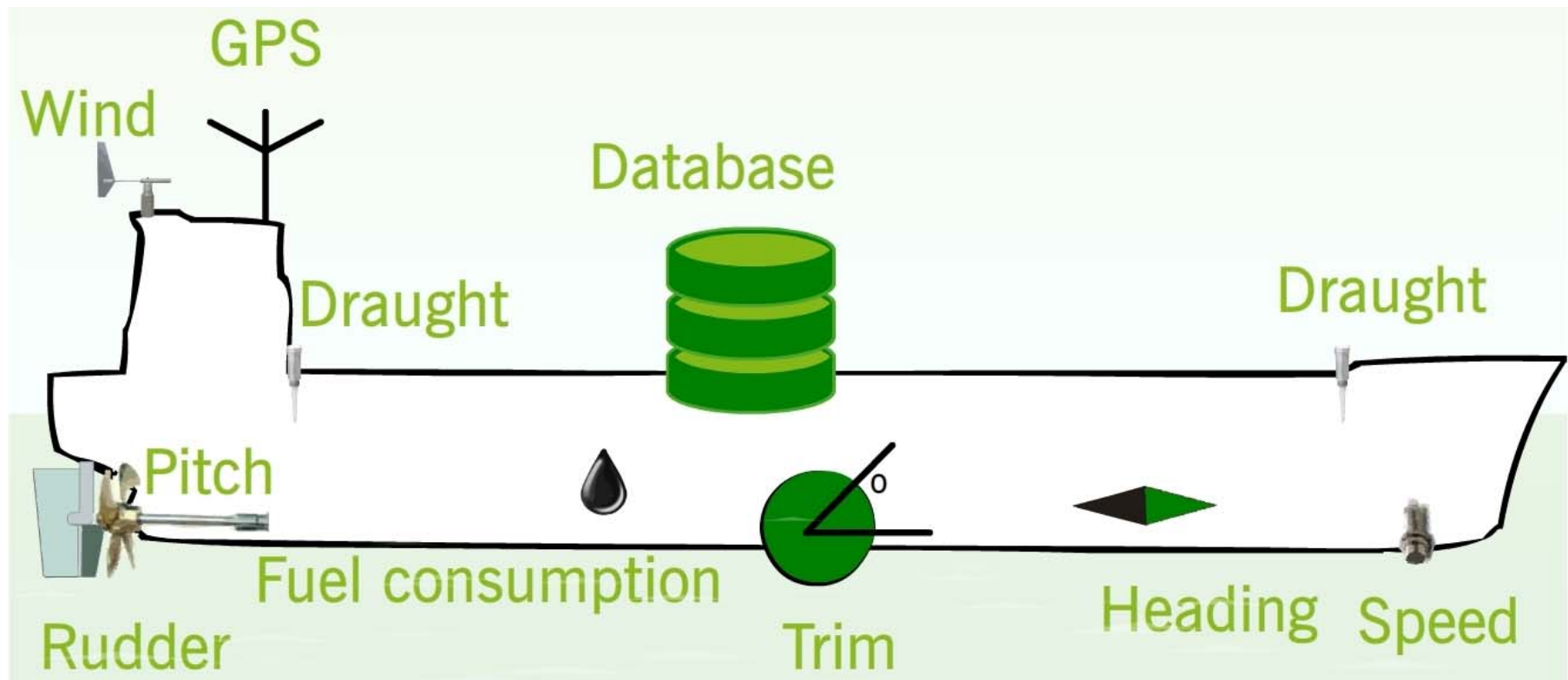
Advantages of tunneling

- **Minimum construction down time due to weather**
- **Minimum visual and environmental impact**
- **Takes advantage of an existing rock face**
- **Always accessible**
- **Scalable**
- **A leading contender within its sector (cost and risks)**



Greensteam

Real time optimisation



Test show 7-11% energy savings



Greensteam potential

- Primary market - ships rated 7000 kW and more
- Focus on 2400 ships with an estimated daily oil consumption of 30 ton.
- 300 operational days a year and 5% energy improvement gives a saving of 450 ton a year per ship
- Savings from 500 ships equals total Faroese consumption – including the fleet.



Ocean Rainforest

Bioethanol from Algae farms

- Vision: Large scale algae farms for production of Bioethanol and high value extracted substances
- First test with Laminara algae in summer 2008.
 - Laminara has a carbohydrate content of 20-50% compared to 5.8% for Sargassum used in the Japanese project.
- Development of
 - farming technologies that combines strength, durability and economy
 - effective harvesting systems.
 - Processing plants
- Potential CO₂ reduction is orders of magnitudes higher than Faroese emissions



Post Kyoto 2013-

- Further CO₂ reductions 20-30%
- Including
 - Developing countries
 - International transport
- So far no CDM project in marine technology or fishery
- It will be needed in the future



Now something is happening

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TransAtlantic Climate Conference

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