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The concept of the Icelandic Master Plan for Nature Protection and Energy Utilization and an integrated process based ecosystem approach to evaluating river basins

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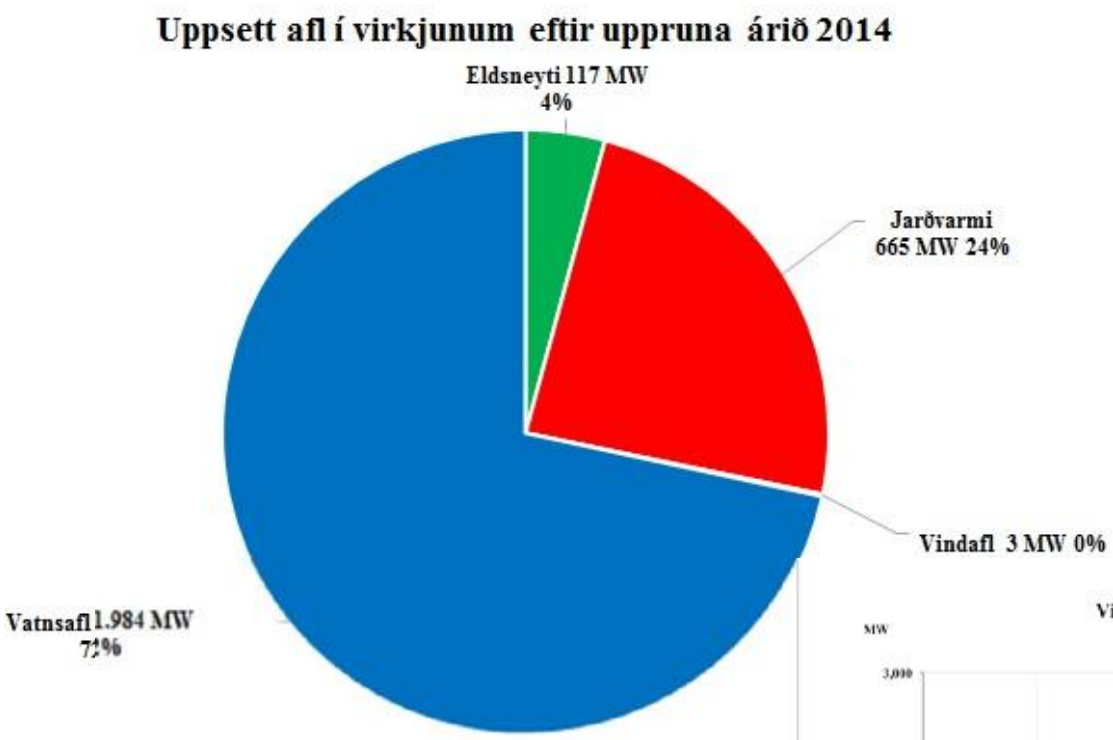
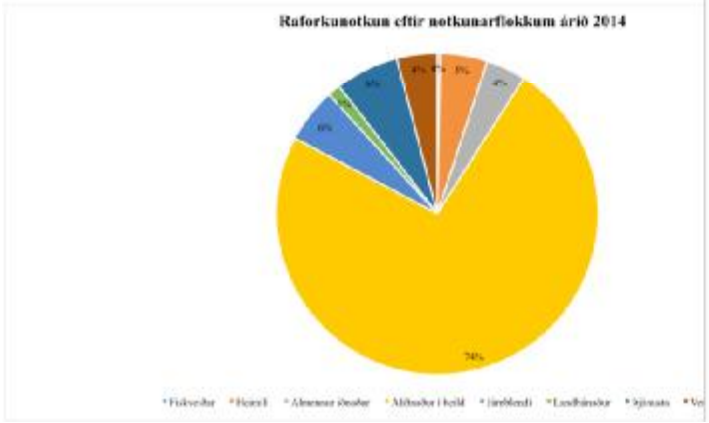
http://www.ramma.is/english

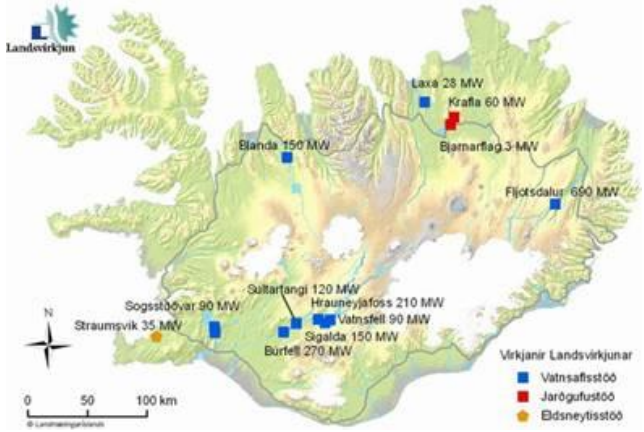
Fish-Passage Oregon 19-21 June 2017

Energy production and use in Iceland

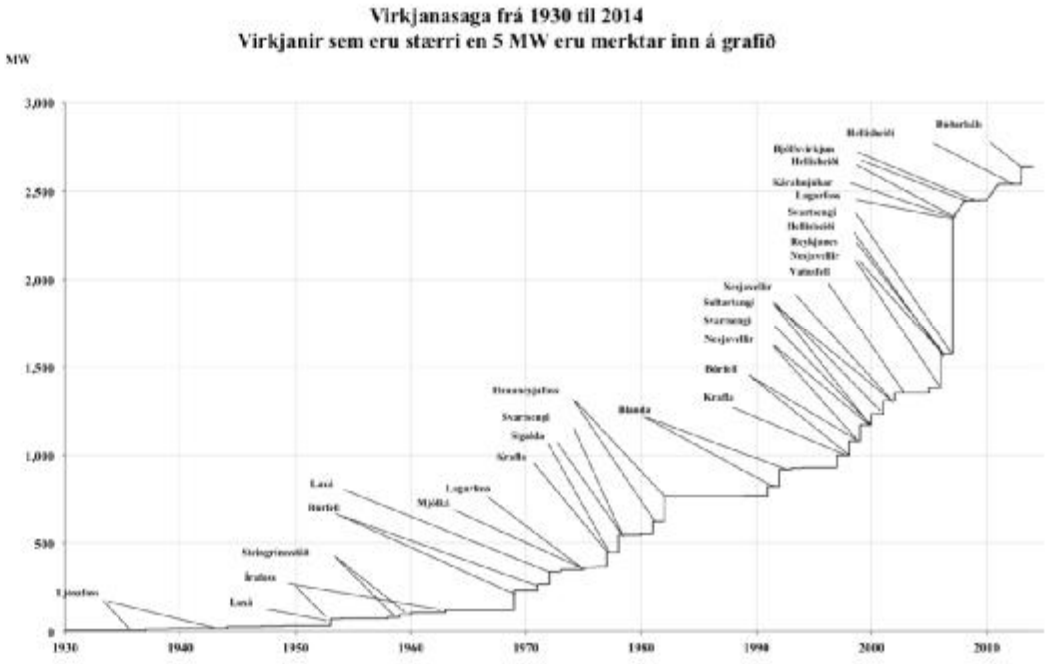


From the National Energy Authority





Hydro power plants in Iceland



Master Plan for Nature Protection and Energy utilization

- First phase – Master Plan 1 completed in 2003
- Second phase – Master Plan 2 completed in 2011
- Third phase – Master Plan 3 completed in 2016/17
- Legislation in 2013
- Based largely on the Norwegian "Master plan for water resources" 1984
- A form of strategic environmental assessment (SEA)

2011 nr. 48 16. maí

Lög um verndar- og orkunýtingaráætlun [1)]

[1)] *Lögunum var breytt með l. 60/2013, 95. gr. Breytingarnar taka gildi 1. apríl 2014 skv. 94. gr. s.l.*

1.–3. gr. tóku gildi 20. maí 2011 en að öðru leyti tóku lögin gildi 14. janúar 2013 þegar Alþingi samþykkti tillögu til þingsályktunar skv. 3. gr. *Breytt með* l. 126/2011 (tóku gildi 30. sept. 2011), l. 157/2012 (tóku gildi 3. jan. 2013) og l. 60/2013 (taka gildi 1. apríl 2014).

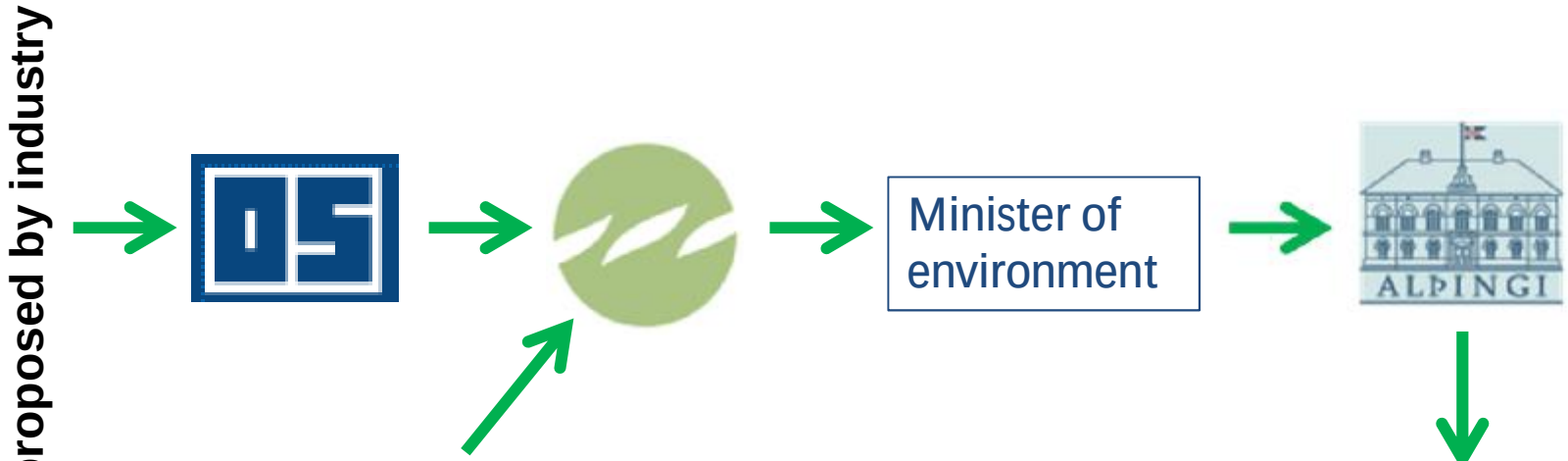
Ef í lögum þessum er getið um ráðherra eða ráðuneyti án þess að málefnasvið sé tilgreint sérstaklega eða til þess vísað, er átt við **umhverfis- og auðlindaráðherra** eða **umhverfis- og auðlindaráðuneyti** sem fer með lög þessi.

■ **1. gr.** *Markmið.*

□ Markmið laga þessara er að tryggja að nýting landsvæða þar sem er að finna virkjunarkosti byggist á langtímasjónarmiðum og heildstæðu hagsmunamati þar sem tekið er tillit til verndargildis náttúru og menningarsögulegra minja, hagkvæmni og arðsemi ólíkra nýtingarkosta og annarra gilda sem varða þjóðarhag, svo og hagsmuna þeirra sem nýta þessi sömu gæði, með sjálfbæra þróun að leiðarljósi.

The process

Act 48/2011 on conservation and energy use



Power-plant projects proposed by industry

Evaluation by Master Plan Steering commitee and Expert groups

- **Estimation of values and impact**
- **Ranking of proposals**
- **Public auditing (two times)**

Proposal to Alþingi =

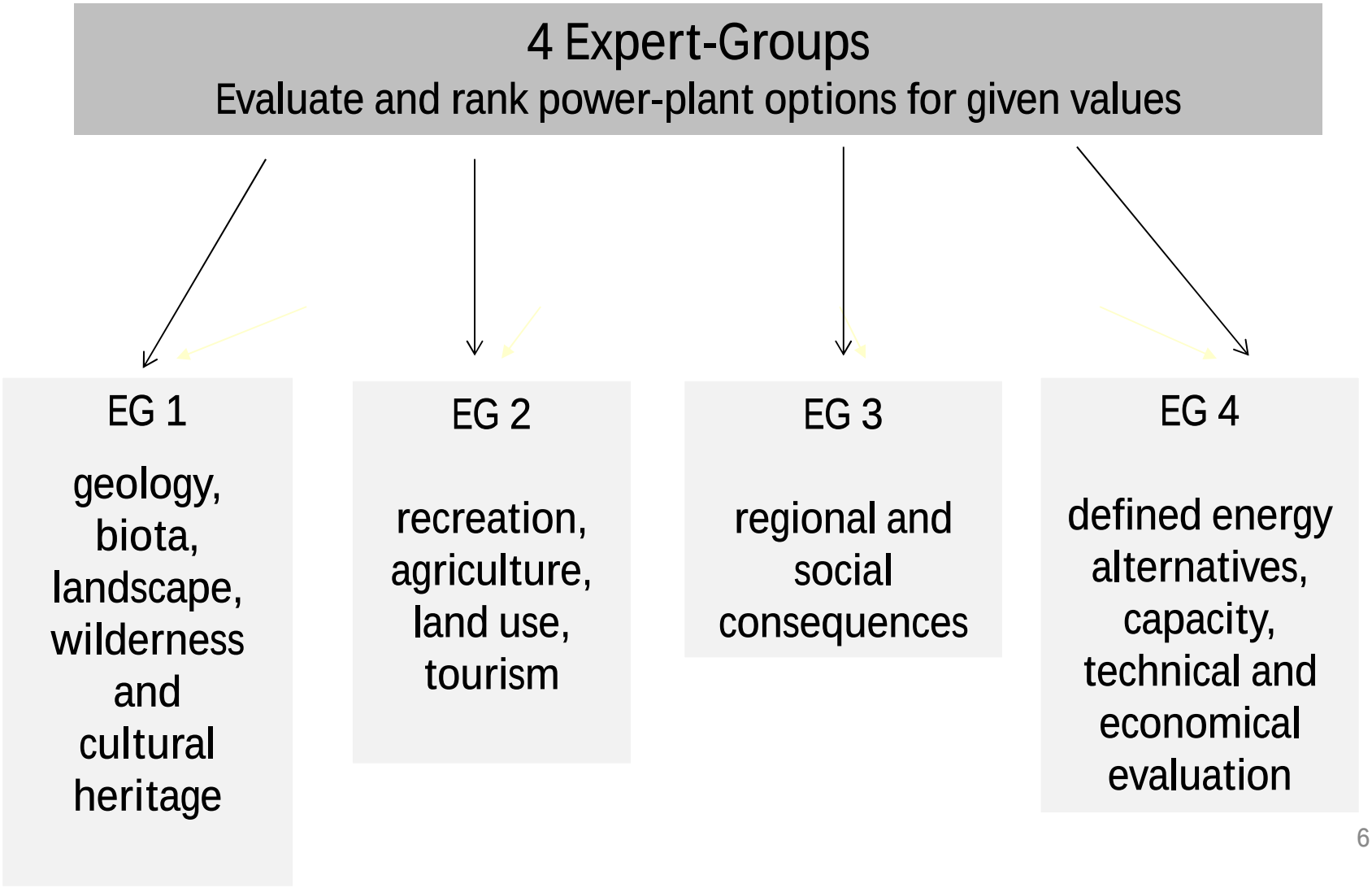
Master Plan

Every four years

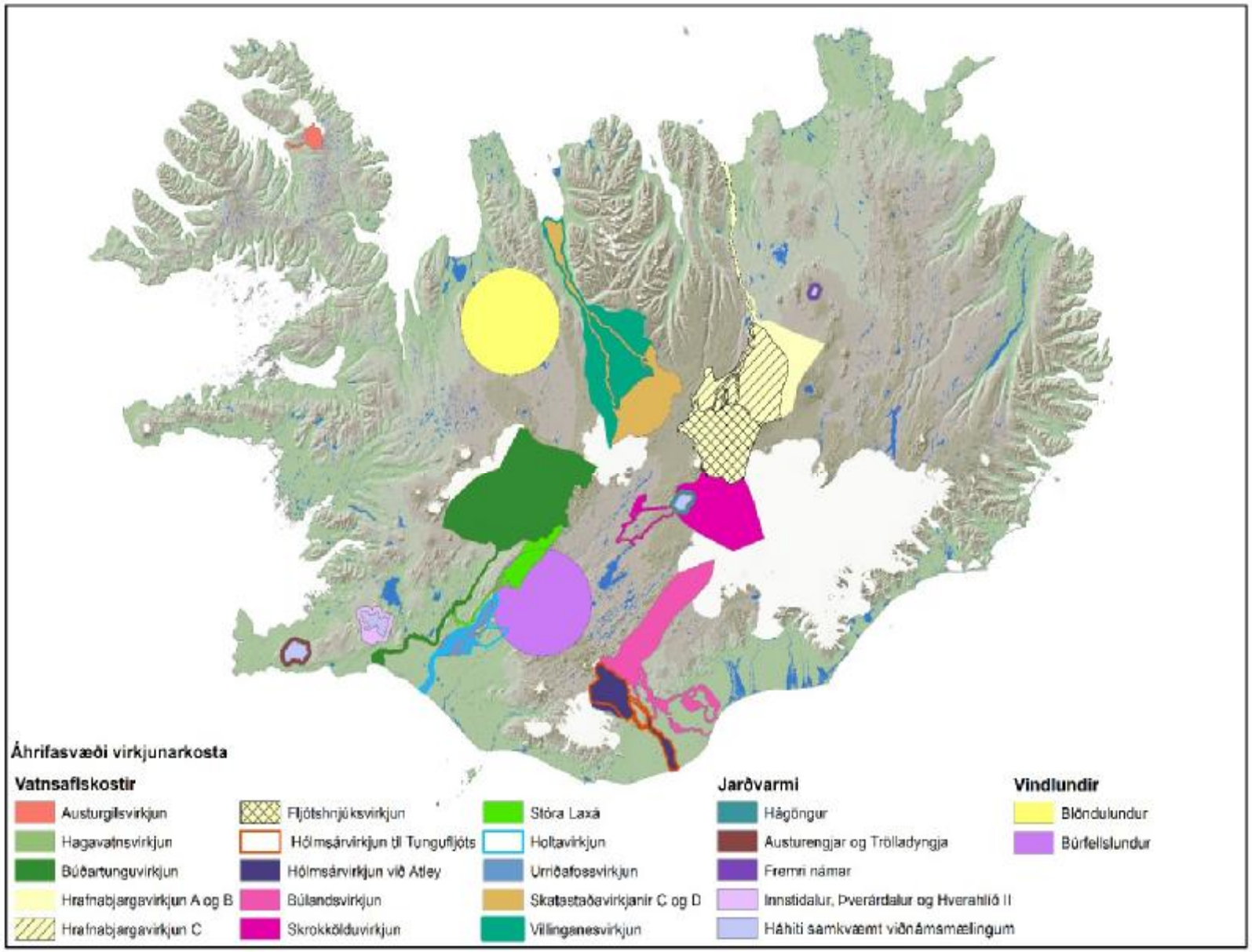
Steering committee

- Is responsible to guarantee that "*... the utilization of geographical areas where there are power plant options is based on long-term views and on a comprehensive assessment of interests ... having sustainable development as a guide*"
- Work is based on expert evaluations and consultation with stakeholders and the public
- Areas and power-plant options are ranked
- Propose categories for areas and power plant options: *(1) conserve – (2) on hold – (3) use (for EIA)*
- *Conservation* category is fundamental

6 persons‘ Steering commitee combines results of Expert Groups and classify areas and power plant ideas into *conserve*, *on hold* or *use* categories



Impact areas of power plant proposals in the 3rd cycle

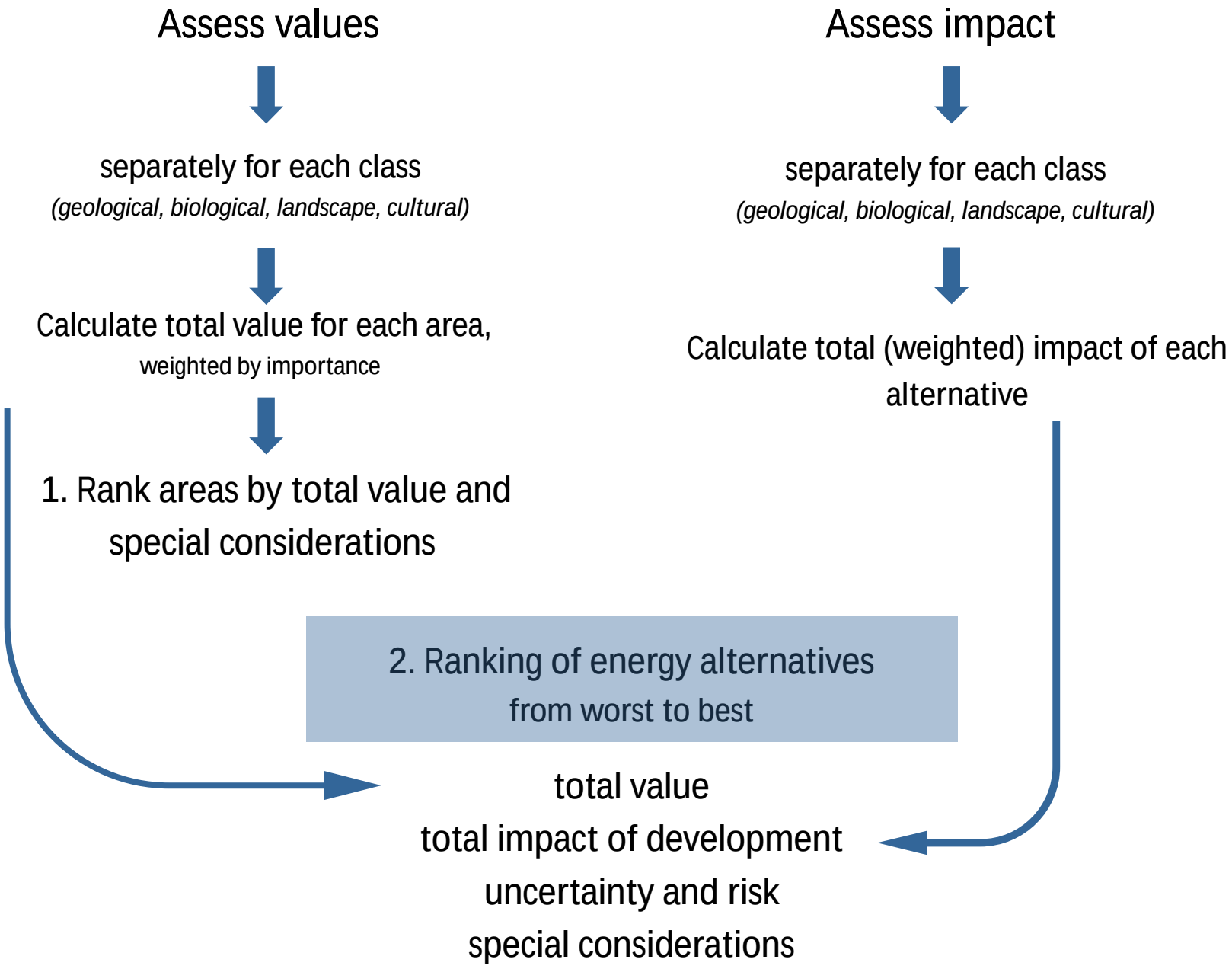


Values

Classes	subclasses	Attributes: richness, diversity	rarity	size, completeness fragmentation disturbance	inter-national responsi-bility	information & symbolic value	visual value
Geology & hydrology	bedrock unconsolidated sediments & processes subterranean water (incl. groundwater & geothermal) rivers & lakes						
Species	vascular plants birds freshwater fish freshwater invertebrates thermophilic microbes						
Ecosystems and soils	ecosystems/habitats soils						
Landscape & wilderness	wilderness Landscape						
Cultural heritage	archaeological, historical, legends, superstitions						

Scale 1, 4, 8, 13 and 20. Relative estimates based on best information and expert knowledge

Scores are weighted, and total scores calculated


Assess values
separately for each class
(geological, biological, landscape, cultural)
Calculate total value for each area,
weighted by importance
1. Rank areas by total value and special considerations
Assess impact
separately for each class
(geological, biological, landscape, cultural)
Calculate total (weighted) impact of each alternative
2. Ranking of energy alternatives
from worst to best
total value
total impact of development
uncertainty and risk
special considerations

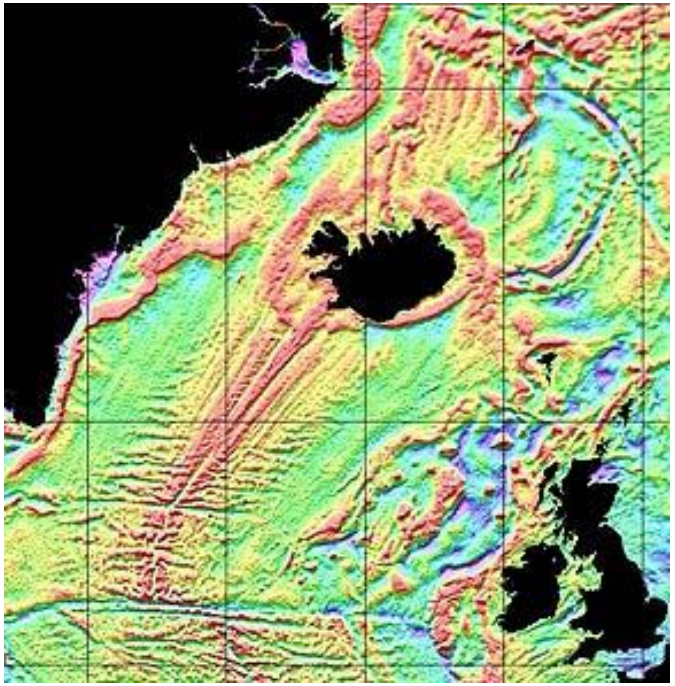
What reflects the value of an area?

- Estimations of diversity are fundamental, e.g. in conservation acts and management plans worldwide
- Biological diversity refers to diversity among organisms from diverse origins, including ecosystems and their combinations: this applies to diversity within species, among species and ecosystems (Rio 1992)
- Geological diversity has been approached similarly; from rock forms to tectonic, volcanic and erosion processes
- Cultural diversity is important e.g. in UN declarations of human development – *without diversity there are no choices*
- Geological diversity is reflected in biological and cultural diversity

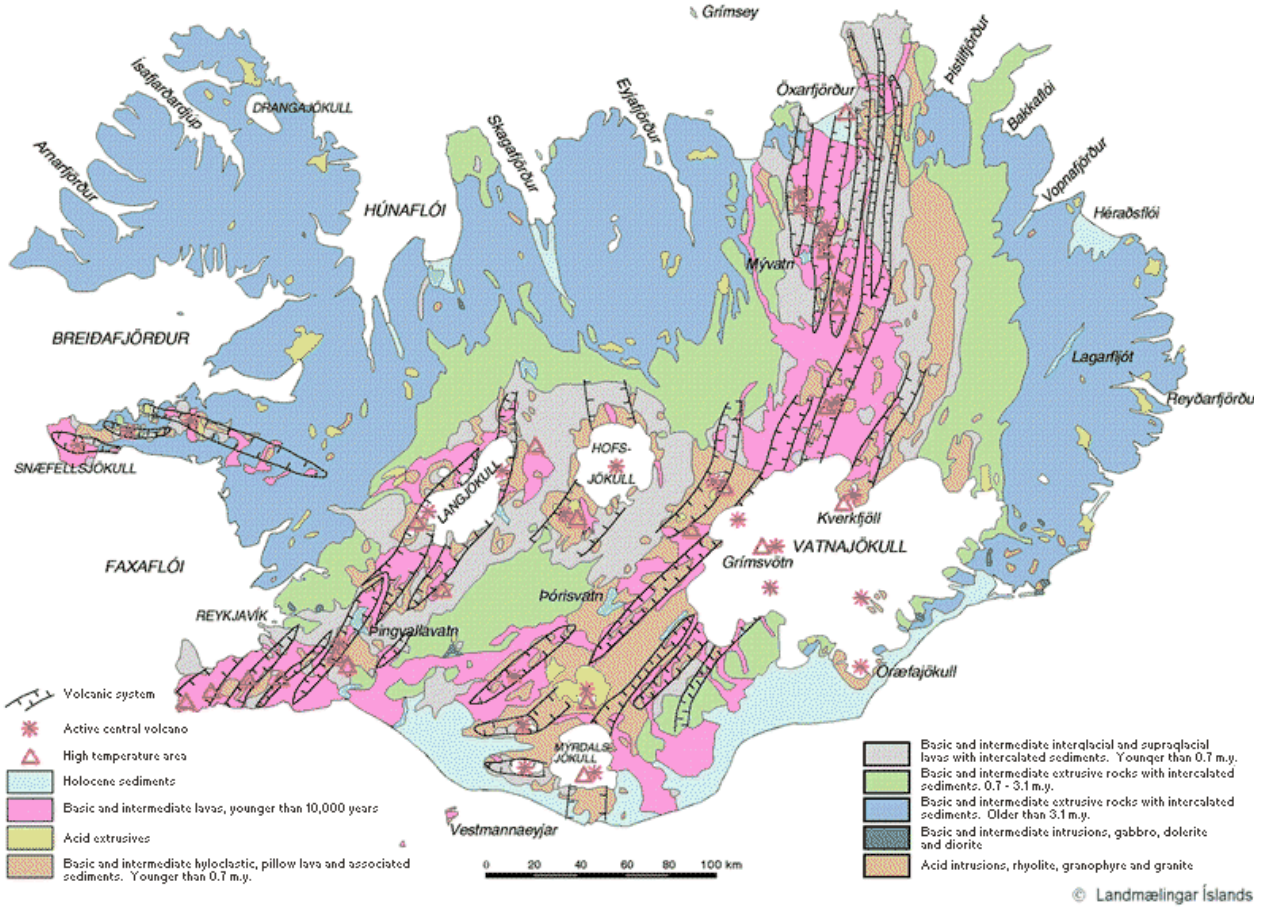
What reflects value of an area?

- Concepts of diversity have strong conceptual/ philosophical foundation, relating to the organization of the world and our perception of it
- A dynamic view of diversity is growing; seeing patterns, but also relations and processes
- Iceland is unique when it comes to nature‘s diversity – e.g. volcanism and geographic isolation, that stimulate dynamic processes, e.g. in terms of evolution of life, geological formations, landscape and culture

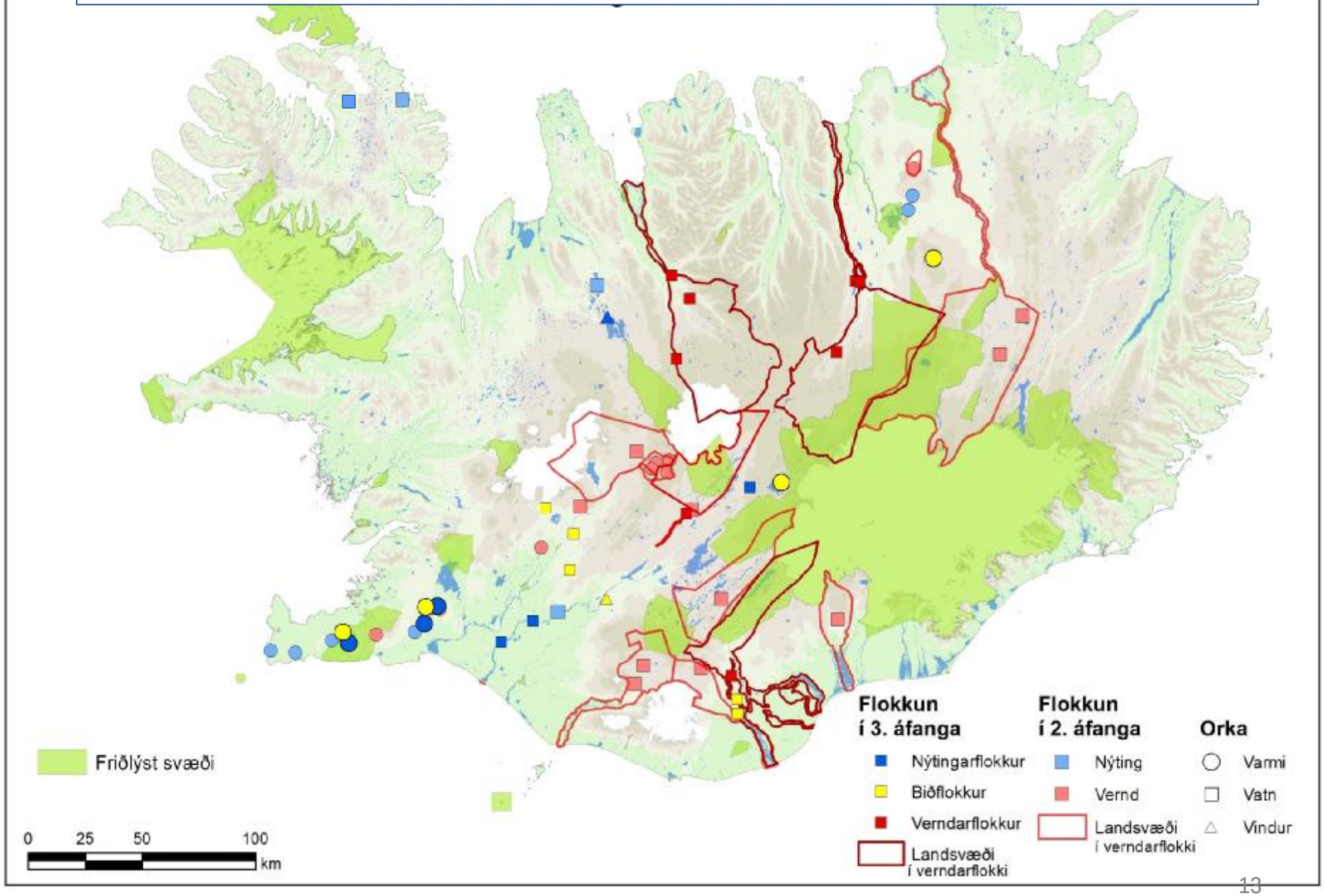
Geographic isolation, tectonism and volcanism characterize Icelandic nature



103 000 km^2 Lakes and rivers 1 400 km^2 (1.4%)



Conclusion from Steering committee 2016



Concluding remarks

- The Icelandic Master Plan has had major positive effects on land use for power plants
- It is a major leadership task
- Its methodology needs constant attention; e.g. now more sophistication in how value of area is assessed
- More knowledge of nature is needed
- Tourism is an important player; broader assessment of area values should be considered
- Public an political views of nature are changing, e.g. now majority for the highlands as a national park

Thank you!

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