Preliminary results for the Global Storage Gap Analysis for Policymakers Study

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Introduction

- Study being undertaken by Geogreen, and funded by GCCSI, commenced 2010, in progress
- Primary objective - Alert policymakers to the scale, cost and timing of the storage resource assessment, required to enable deployment of commercial-scale CCS projects by 2020: 20 projects envisaged by G8 Leaders, and 100 projects in IEA CCS Roadmap.

Structure of Study

- Task 1: Reference framework deduced of developed countries CCS experience

  Complete

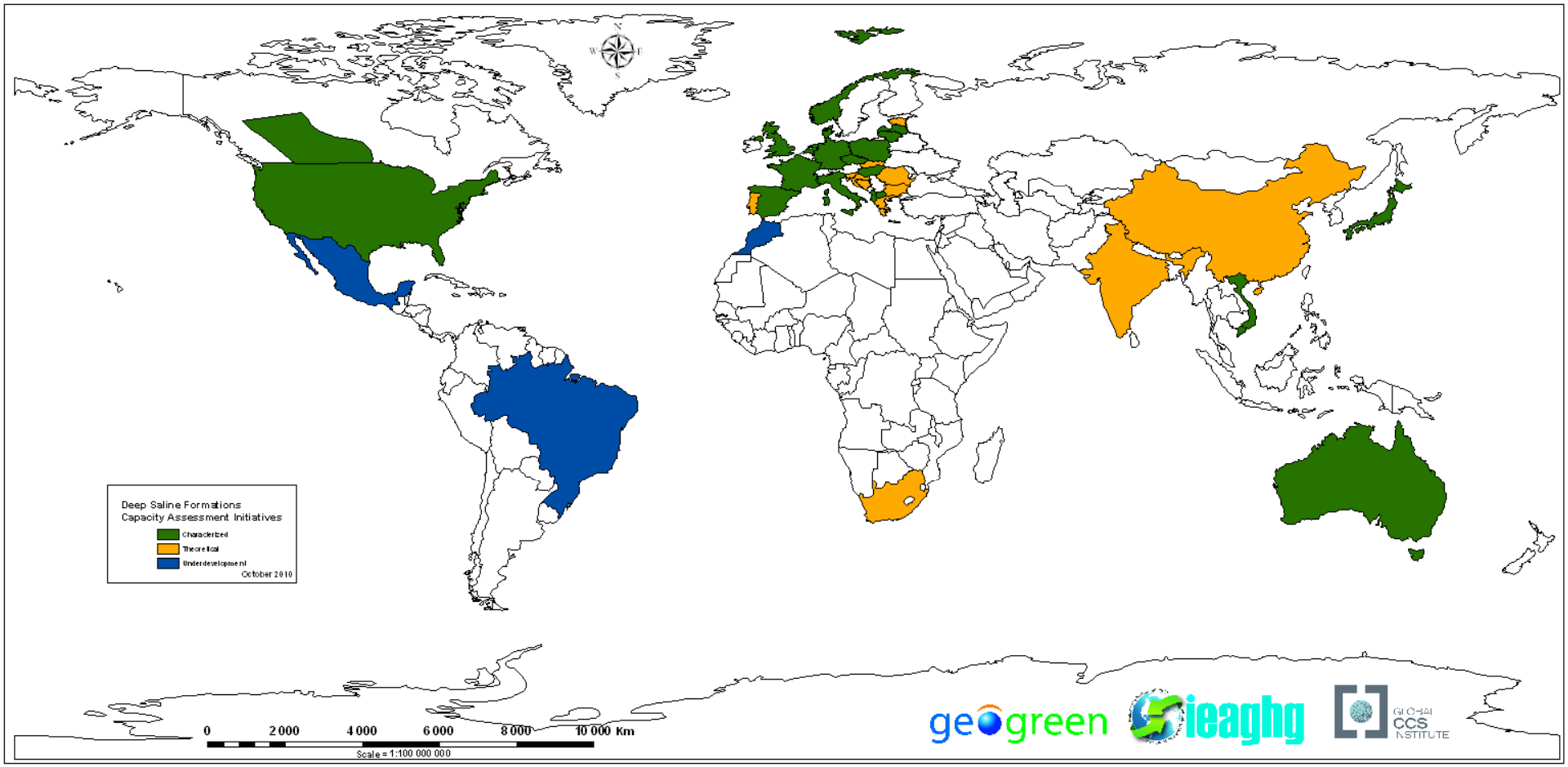
- Task 2: Resources Gap Analysis in Target Countries

  In Progress

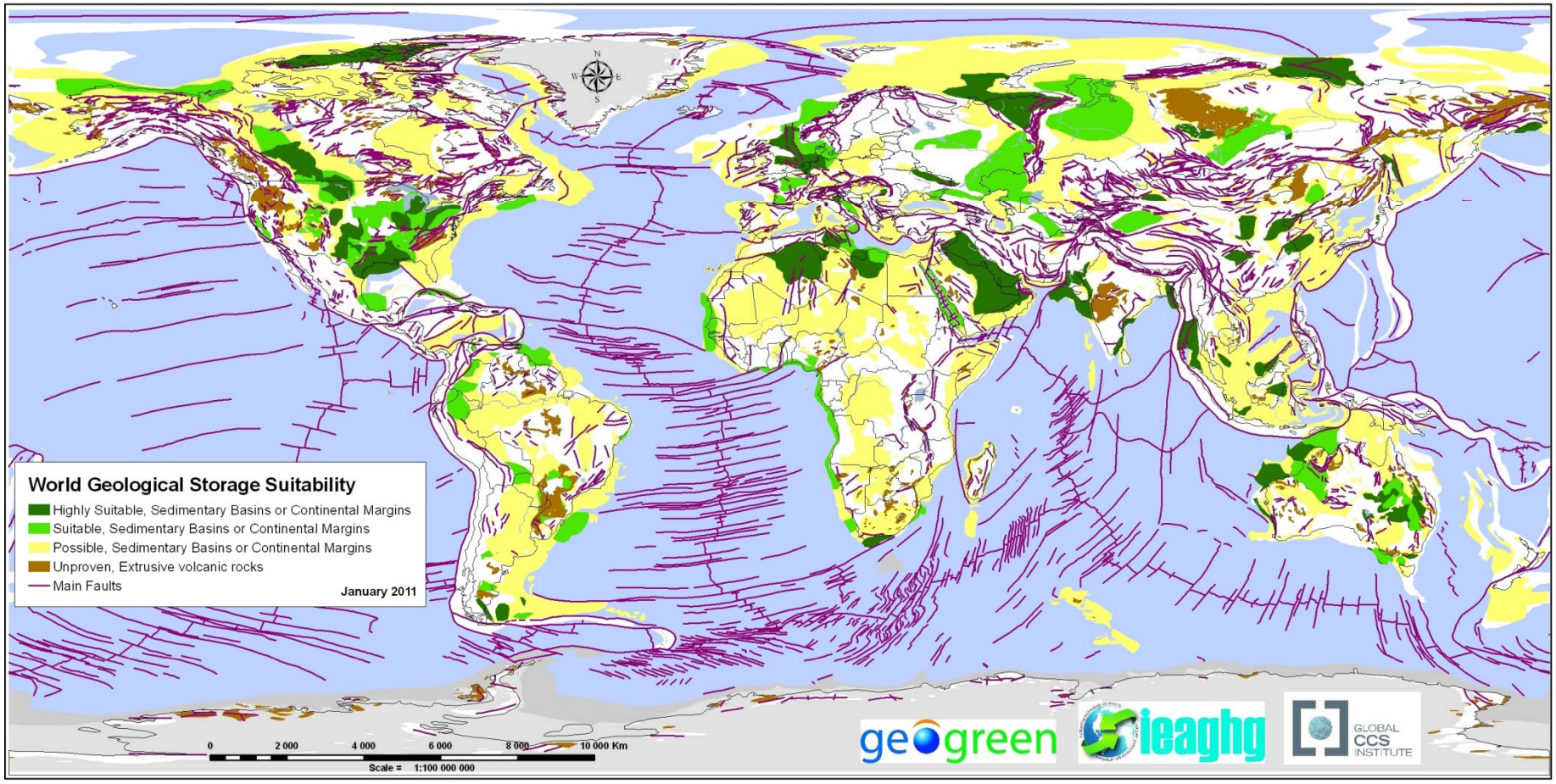
- Task 3: Answering the questions – recommendations for policy makers

  In Progress

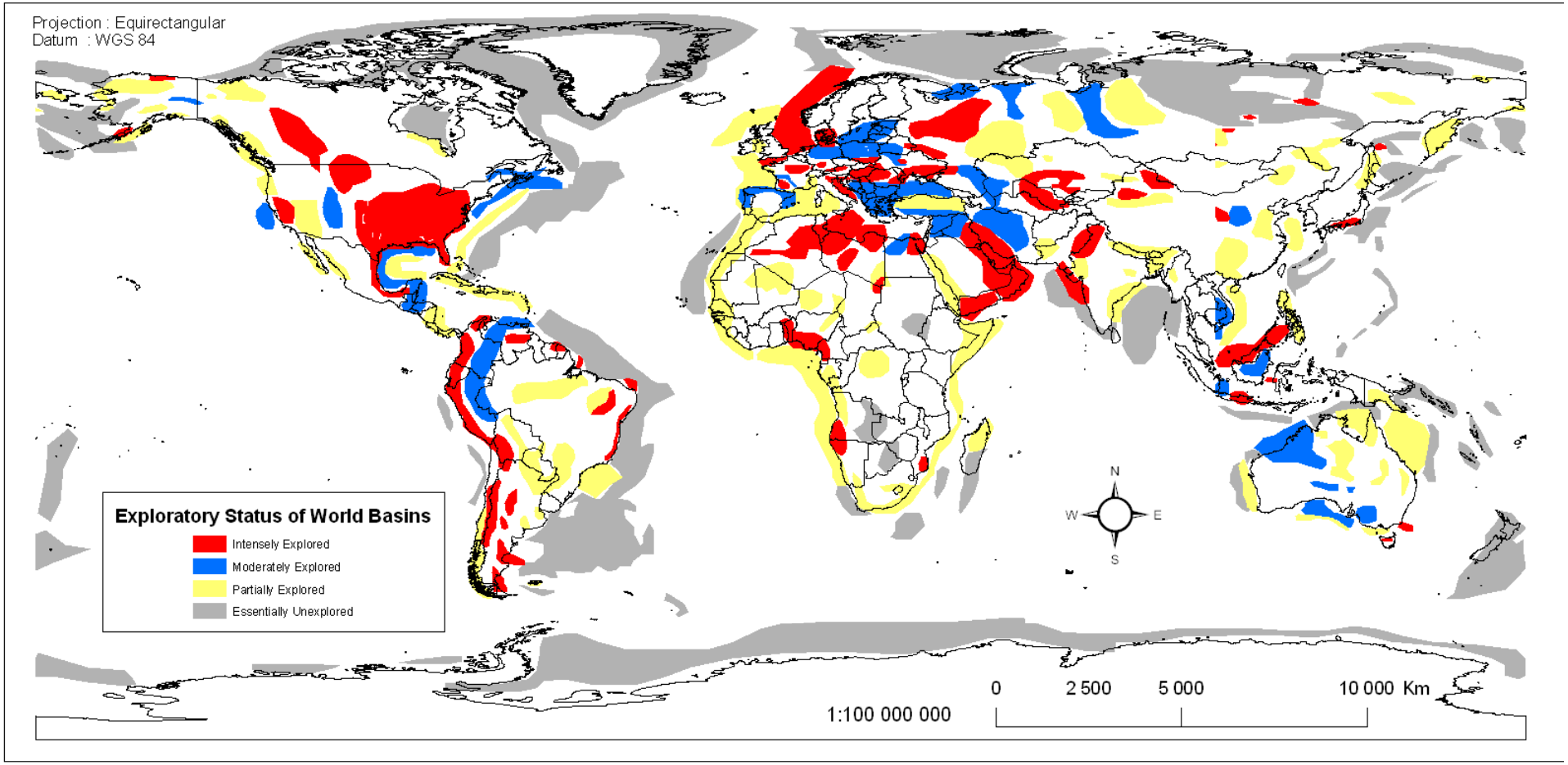
Capacity assessment initiatives



Suitability Map



Basin Exploration level



Estimated project time line

Deep Saline Formation	IEA GHG Timing min	IEA GHG Timing max
Phase 1 Desk Based assessment	0.5	1
Licensing Exploration Permit	1	2
Phase 2 Site confirmation & characterization	1	4
Phase 2 Injection Test	1	4
Bankable		
Licensing Demo	1	2
Phase 3: Construction and Start up	1	3
Injection & Storage Demo	1	5
Bankable		
Detail design Commercial	1	2
Licensing Commercial	1	3
Phase 4: Construction and Start up	1	3
Injection & Storage Commercial	5	50
Closure		

Depleted Oil and Gas Field	IEA GHG Timing min	IEA GHG Timing max
Phase 1 Desk Based assessment	0.5	1
Licensing Injection Test	0.5	2
Phase 2 Site confirmation & characterization	0.5	1
Phase 2 Injection Test	0	0.5
Bankable		
Detail design Commercial	1	2
Licensing Commercial	1	3
Phase 4: Construction & Well integrity check	1	3
Injection & Storage Commercial	5	50
Closure		

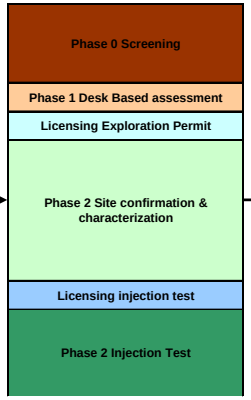
CO2 - EOR	IEA GHG Timing min	IEA GHG Timing max
Phase 1 Desk Based assessment	0.5	1
Licensing EOR Test	0.1	0.5
Phase 2 Construction and Well assessment	0.5	1
Phase 2 Injection Test	0	0.5
Bankable		
Detail design Commercial	1	2
Licensing Commercial	0.5	1
Phase 4: Construction & Well integrity check	1	3
Injection & Storage	5	10
Closure		

DSF Bankability workflow

Type of study	Phase	Major costs items
National based *Non exclusive surveys*	Phase 0 Screening	First desktop studies
Project based *Exclusive surveys*	Phase 1 Desk Based assessment	Desktop studies, where possible seismic reprocessing and existing logs analysis (inluding communication on project)
	Licensing Exploration Permit	Admistrative engineering and follow-up
	Phase 2 Site confirmation & characterization	Studies and engineering for this phase (including monitoring actio equipments and monitoring (soil, gravimetric, Insar)) Seismic acquisitions 2D Seismic acquisitions 3D (on CO_2 future plume only) Civil Engineering Drilling CO_2 well with rotary rig (including 20% contingency includi Mob/demob)
	Licensing Injection test	Injection test permitting
	Phase 2 Injection Test	Studies and monitoring Injection test duration CO_2 injection cost
Bankable		

How many project will be bankable in 2015? in 2050?

Projects data base

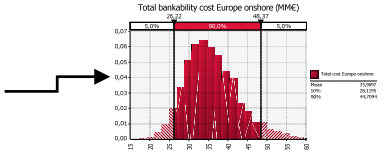


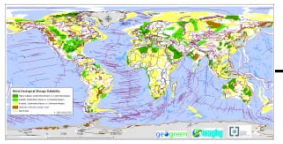
Number of projects financed in 2020

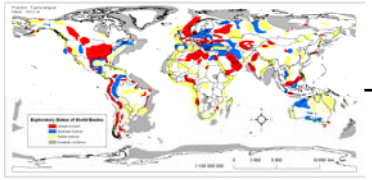
Development time model

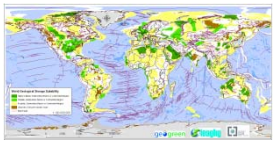
How many projects to finance to match development objectives?

cost









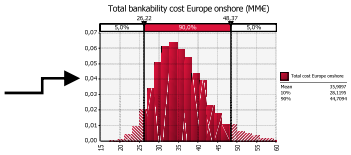
CO_2 sources data base

Development time model + success rate to 2015

Number of projects to finance to achieve 2050 objective

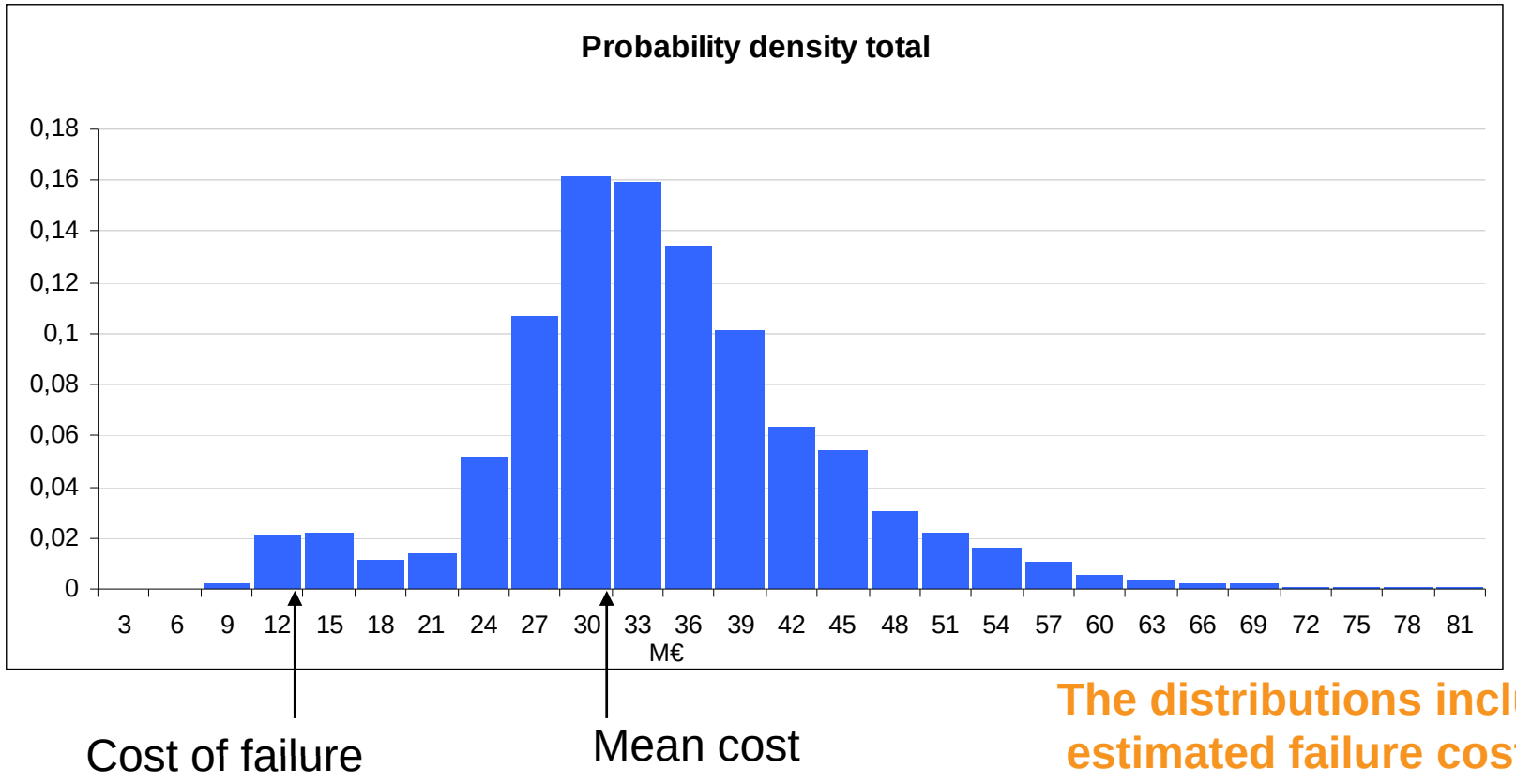
Development needs in 2030 - 2050

cost



DFS European project cost

Total cost distribution for onshore bankability for an intensely explored area



The distributions includes estimated failure costs of data acquisition, wells…

Costs

- Cost models are considered for onshore and offshore storage options both in Deep Saline Formations and Depleted Oil and Gas Fields
- Take account of failed storage sites
- Numerous possibilities for each site to reach a successful path
- Cost models include an assessment of the economic uncertainties of project bankability

- Draft Report expected February 2011

Other IEAGHG Studies

- Pressurisation and Brine Displacement; Permedia, Final Report to be published early 2011
- The Effect of Impurities on Geological Storage; NRCan, Final Report to be published early 2011
- Potential Impacts on Groundwater Resources of CO_2 Storage; CO_2GeoNet, Draft Report due December 2010
- Caprock Systems for CO_2 Geological Storage;CO2CRC, Draft Report due December 2010

Thank you