

Deep Geothermal Technology Roadmap: Structure and content



ETIP-DG

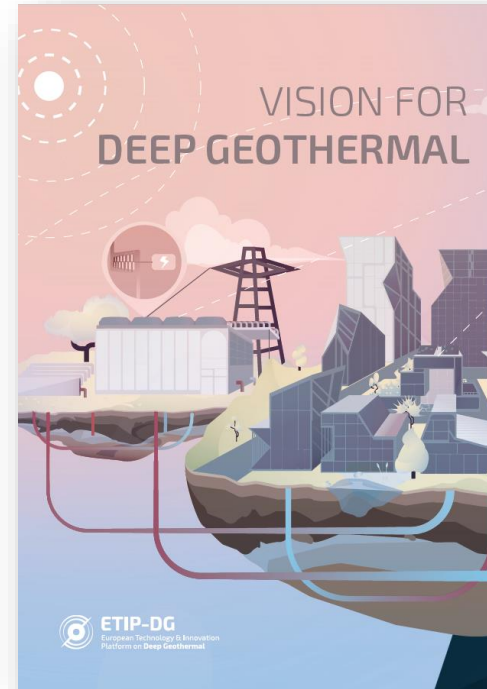
European Technology & Innovation
Platform on **Deep Geothermal**

www.etip-dg.eu



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Primary objectives of ETIP-DG





Summary of key aspects

- The Vision and SRA express our targets and R&D needs.
- The Implementation Roadmap describes *how we plan to achieve the targets*: activities and projects
- **Give priority to R&I topics**
- Draw support from a range of financial sources (not only Horizon Europe).

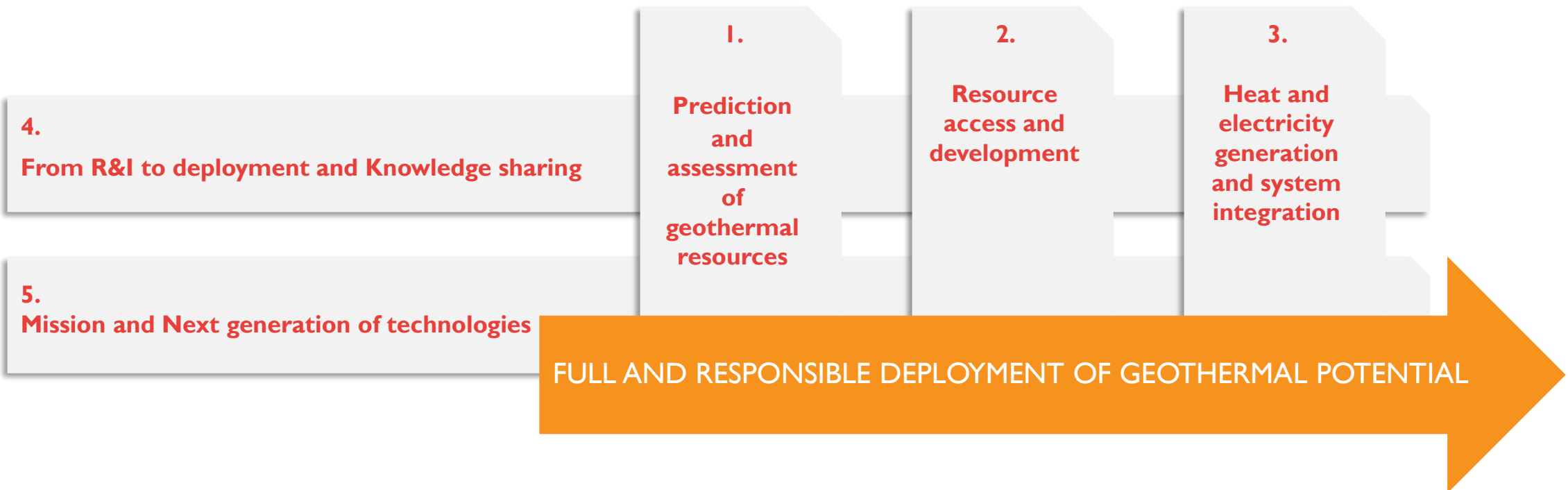
Summary of key aspects

- Define technology objectives: power & heat
- Estimate their costs
- Present indicative key performance indicators quantitative : technology cost reduction, improve efficiency & lifetime, upscaling **+qualitative: acceptance, sustainability**
- Funding repartition at EU, National levels and industry contribution
- Draw a flowchart 2020-2030

Novel technologies for full and responsible deployment of geothermal potential

> Technologies beyond H2020

> While targeting the EU long-term goal of **reducing costs** and **increase performance** of geothermal technologies and installations, RD&I pursue all opportunities for complete deployment of geothermal resources, aiming at various advancements



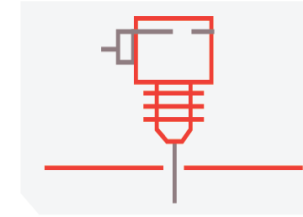
Objectives of the WGs for the Roadmap

Objectives of the WGs for the Technology roadmap

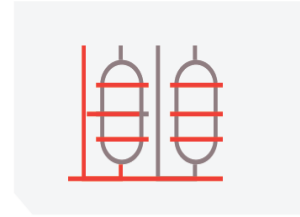
- **Phase 1 (January 2019 - March 2019): Collect data and discuss RD&I priorities for the relevant theme of the WG, taking the SRA as a basis.**
- **Phase 2 (March 2019 - April 2019): SC prepare a list of topics to be included in the Roadmap. Questionnaire**
- Phase 3 (May-June 2019). Validation of the Roadmap during an open consultation process and publication.



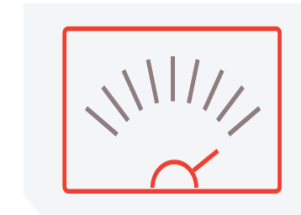
Exploration



Deep Drilling



Production technologies



Surface systems



Non-Technical

Table of Content (Roadmap)

Executive Summary

Introduction

The context: EU, Vision, SRIA

The targets and KPIs

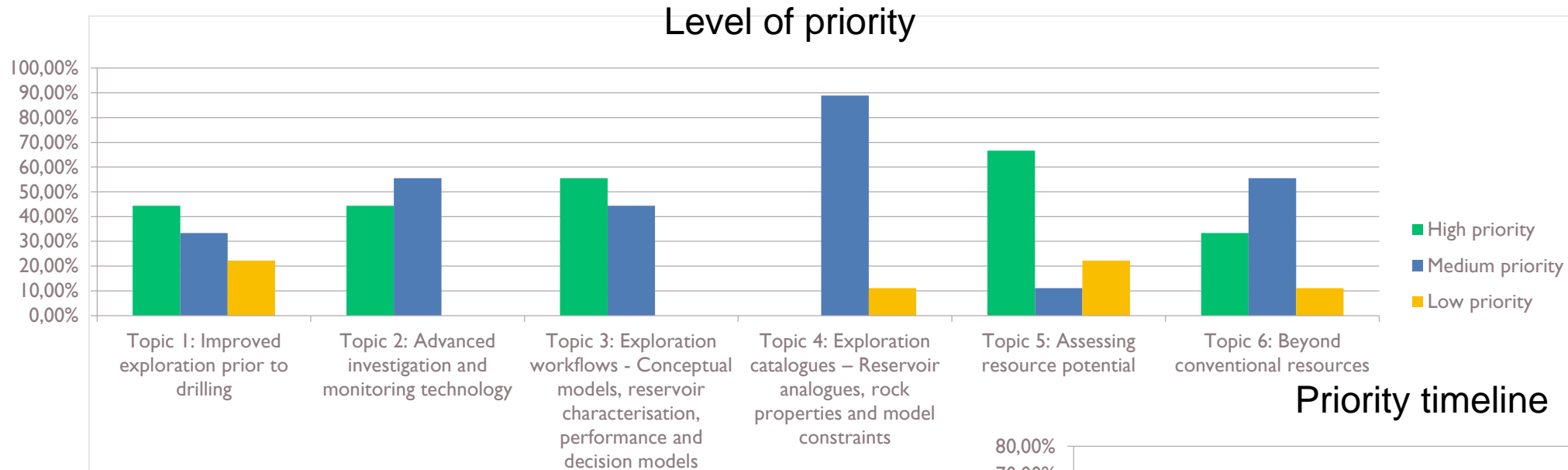
MISSION OBJECTIVES:

- **'unlocking' GT energy**
 1. Better Prediction and assessment of geothermal resources
 2. More efficient Resource access and development
 3. Deploy Heat and electricity generation and system integration
- **improving social welfare**
 1. From R&I to deployment
 2. Knowledge sharing

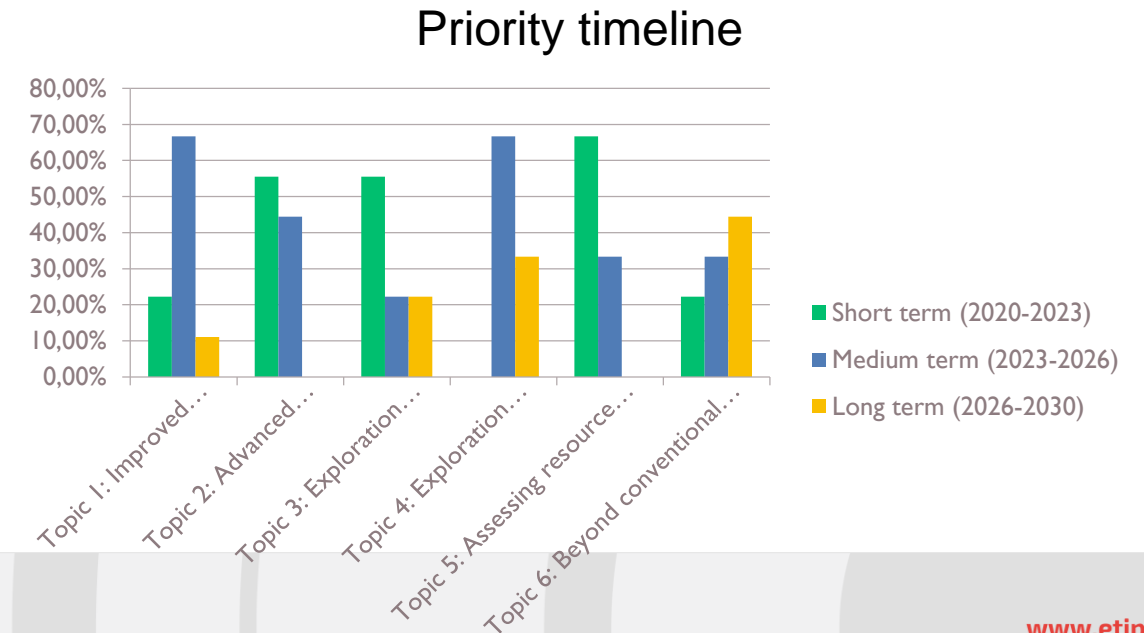
Financing the roadmap

Results of the Consultation: SC ETIP-DG

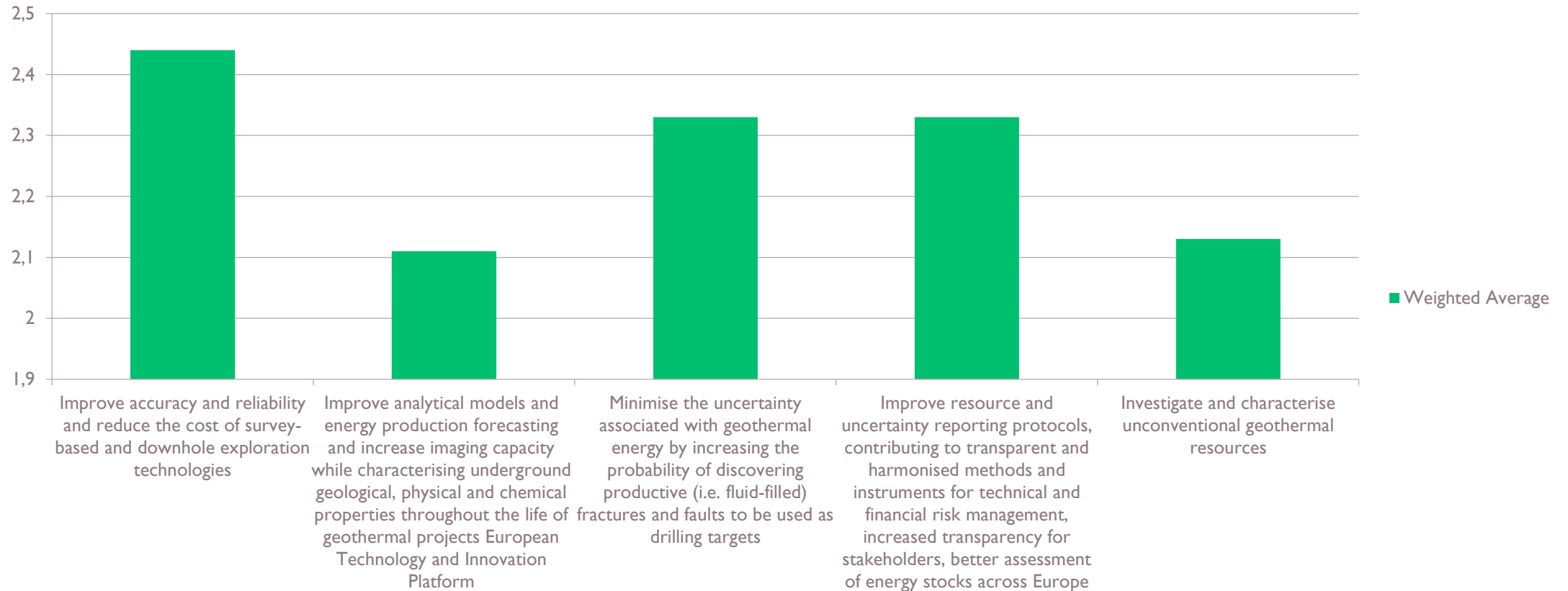
Priorities for PREDICTION AND ASSESSMENT OF GEOTHERMAL RESOURCES



Merge 1 & 2 + topics 1&5 from chapter 2
 Merge 3 & 4
 Highlight 5 as main priority
 Put 6 at LT

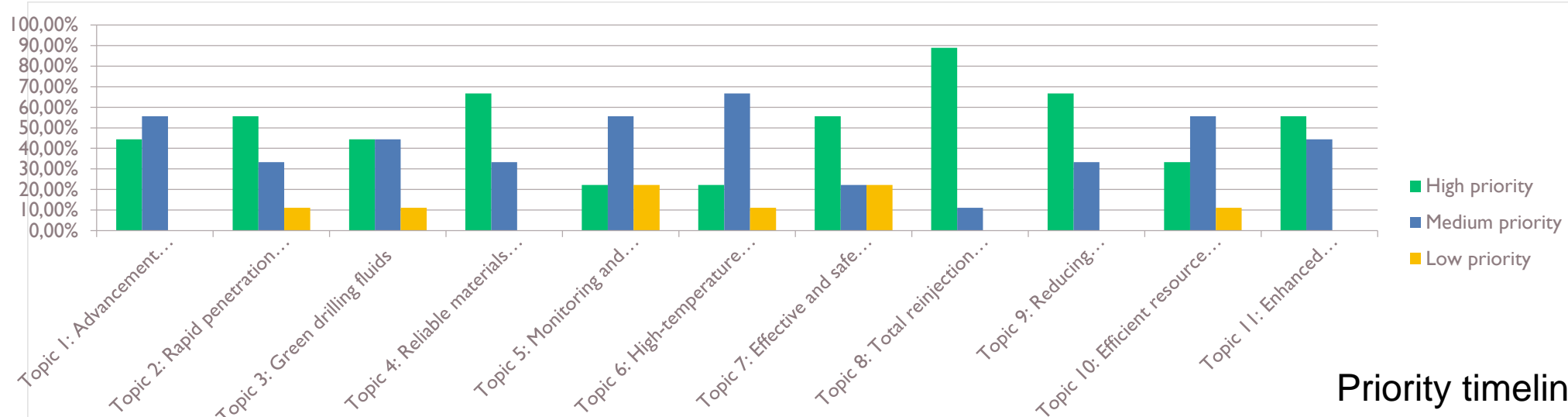


Targets for PREDICTION AND ASSESSMENT OF GEOTHERMAL RESOURCES



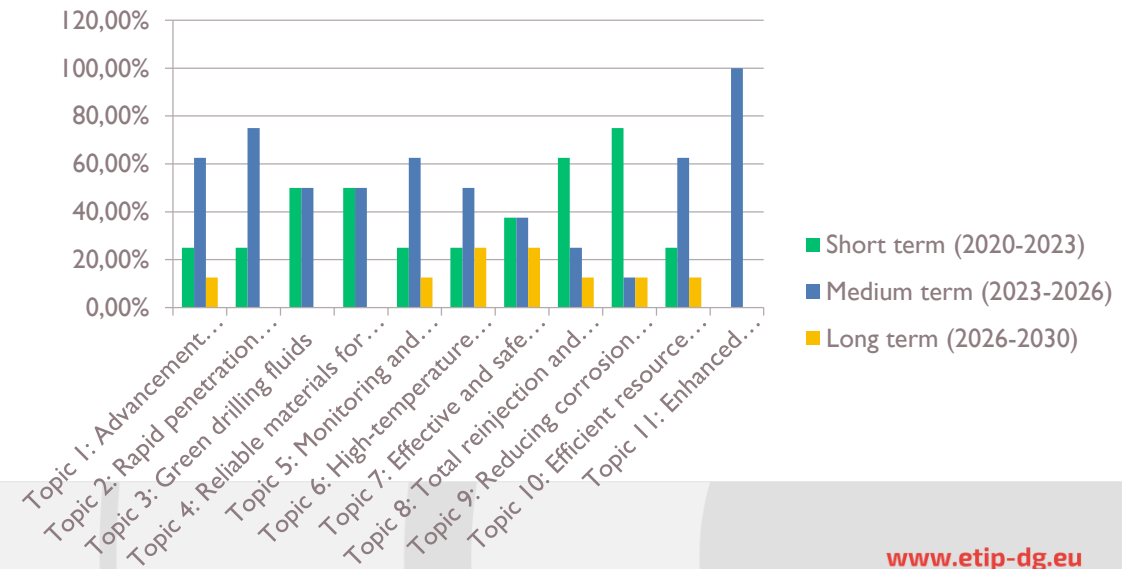
Priorities for RESOURCE ACCESS AND DEVELOPMENT

Level of priority

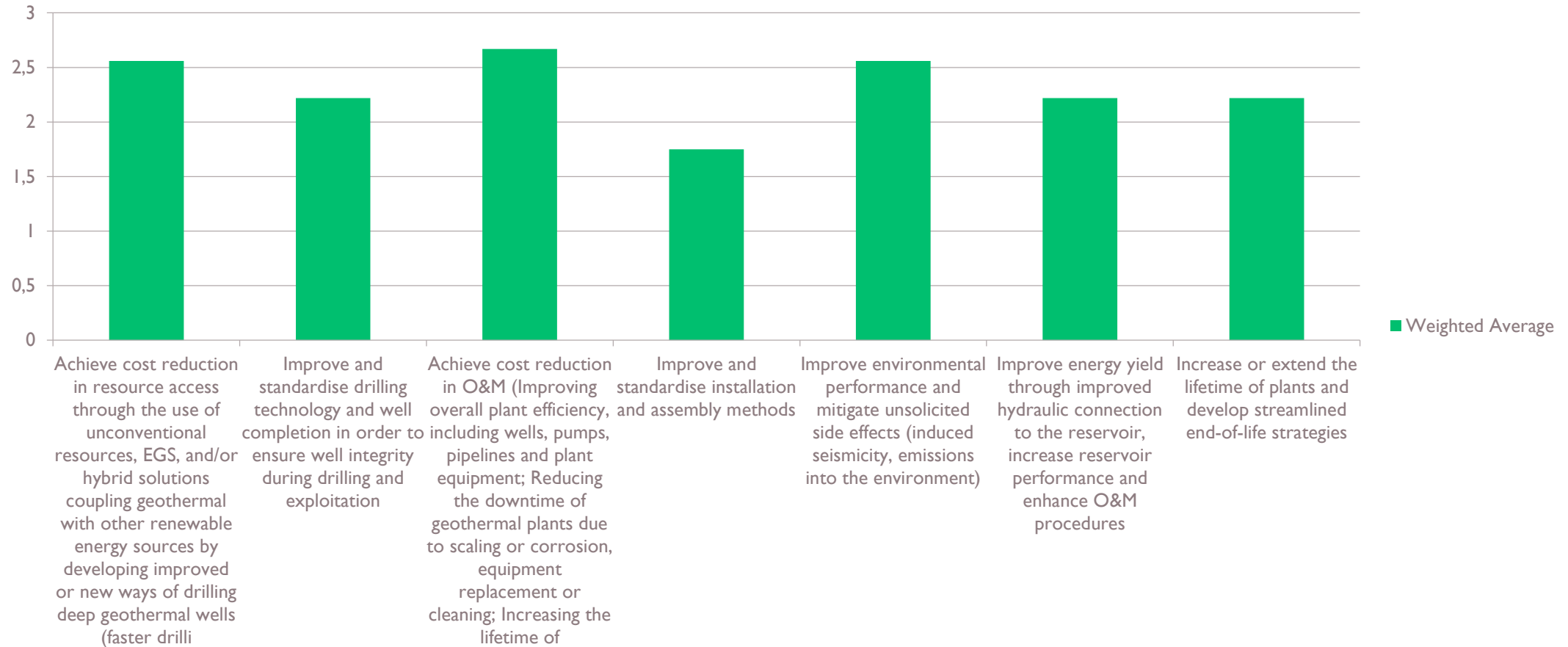


Topic 8: main priority
Topic 4 & 9: also important, combined ?
Topic 2, « 7 » and 11: 3rd level of priority
Topic 5 goes to chapter 1
Topic 1 goes to chapter 1
Topic 3 to merge with 4&9
Topic 7
Topic 10

Priority timeline

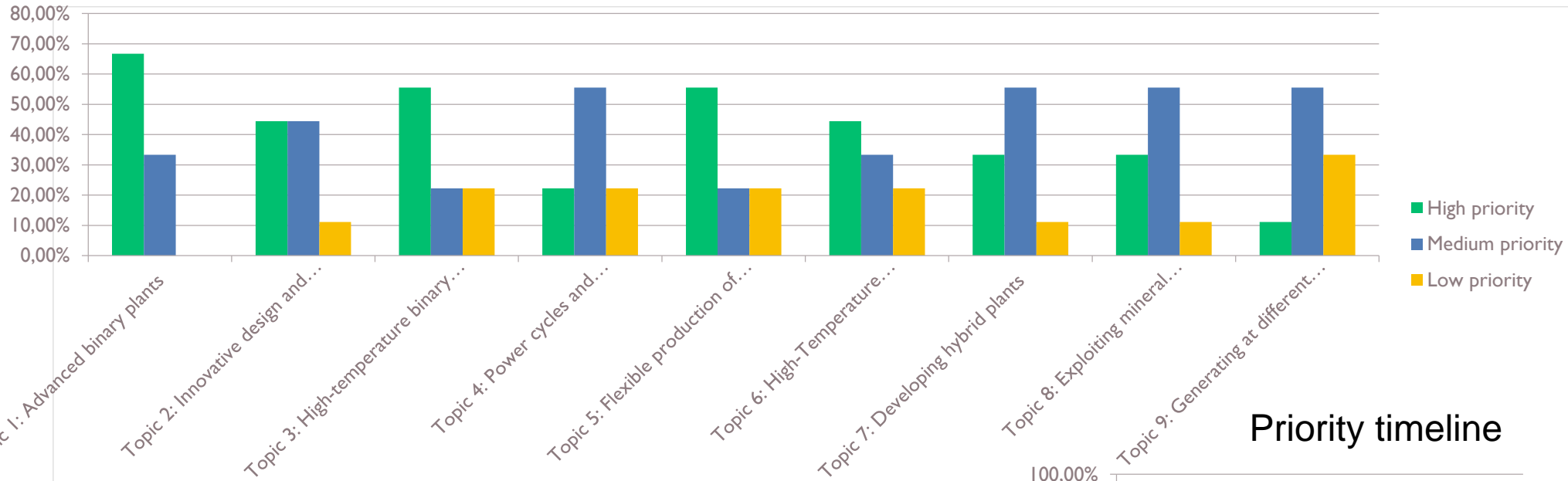


Targets for RESOURCE ACCESS AND DEVELOPMENT

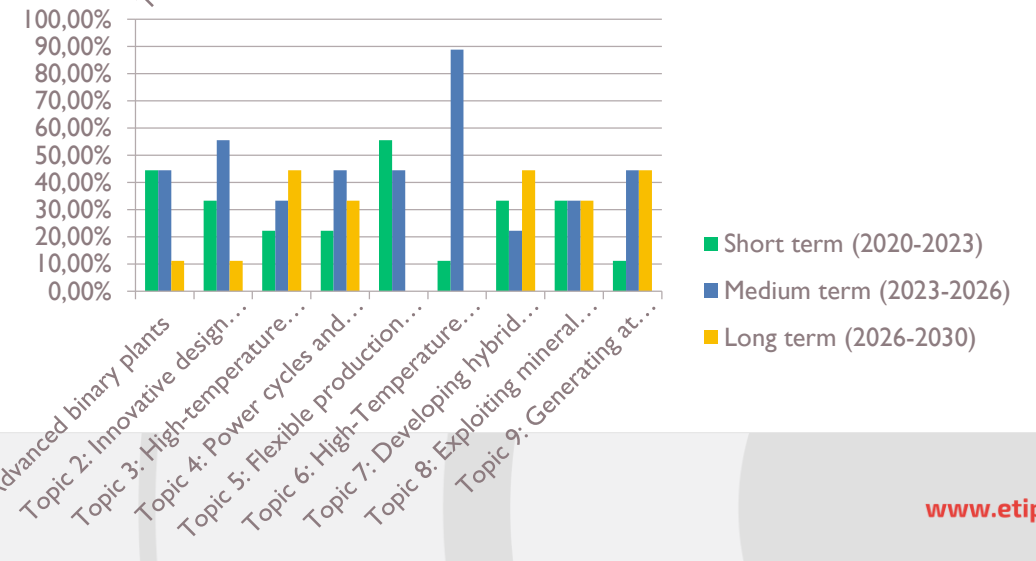


Priorities for HEAT AND ELECTRICITY GENERATION AND SYSTEM INTEGRATION

Level of priority



Priority timeline



Topic 1: main priority, merge with topic 2 & 3 ?

Topic 5:

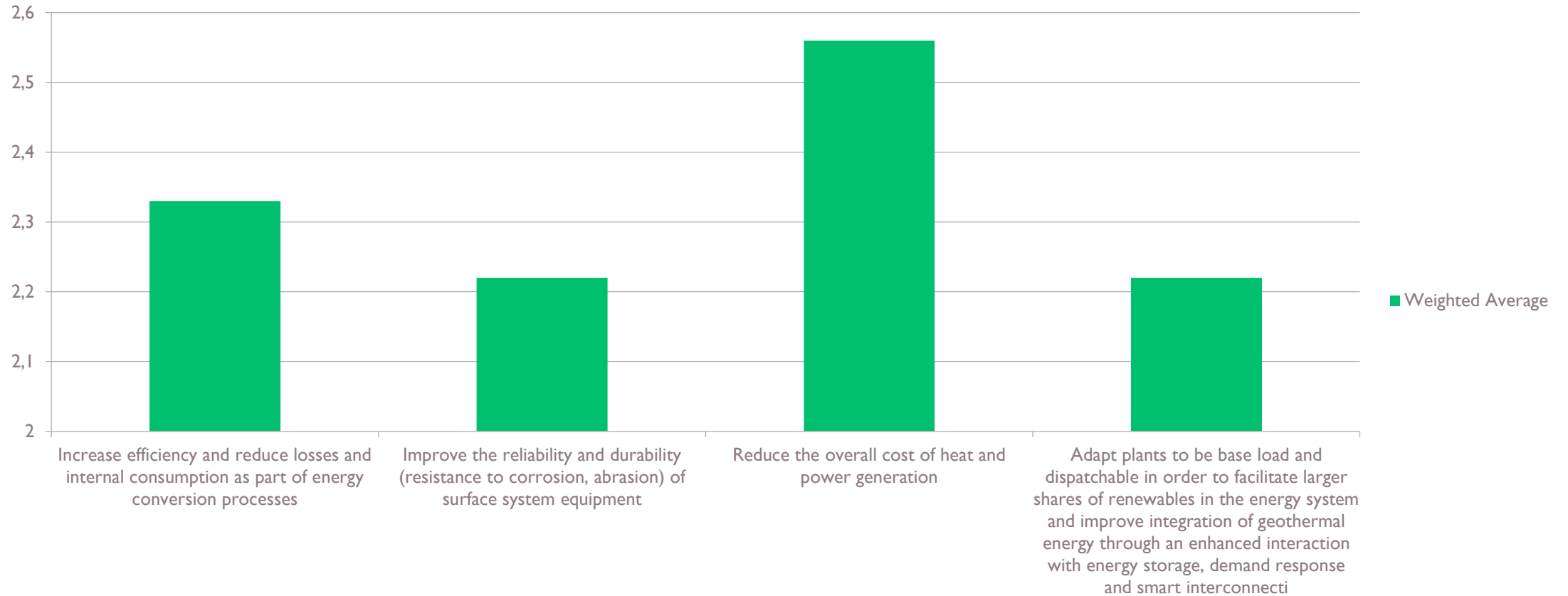
Topic 6:

Topic 7

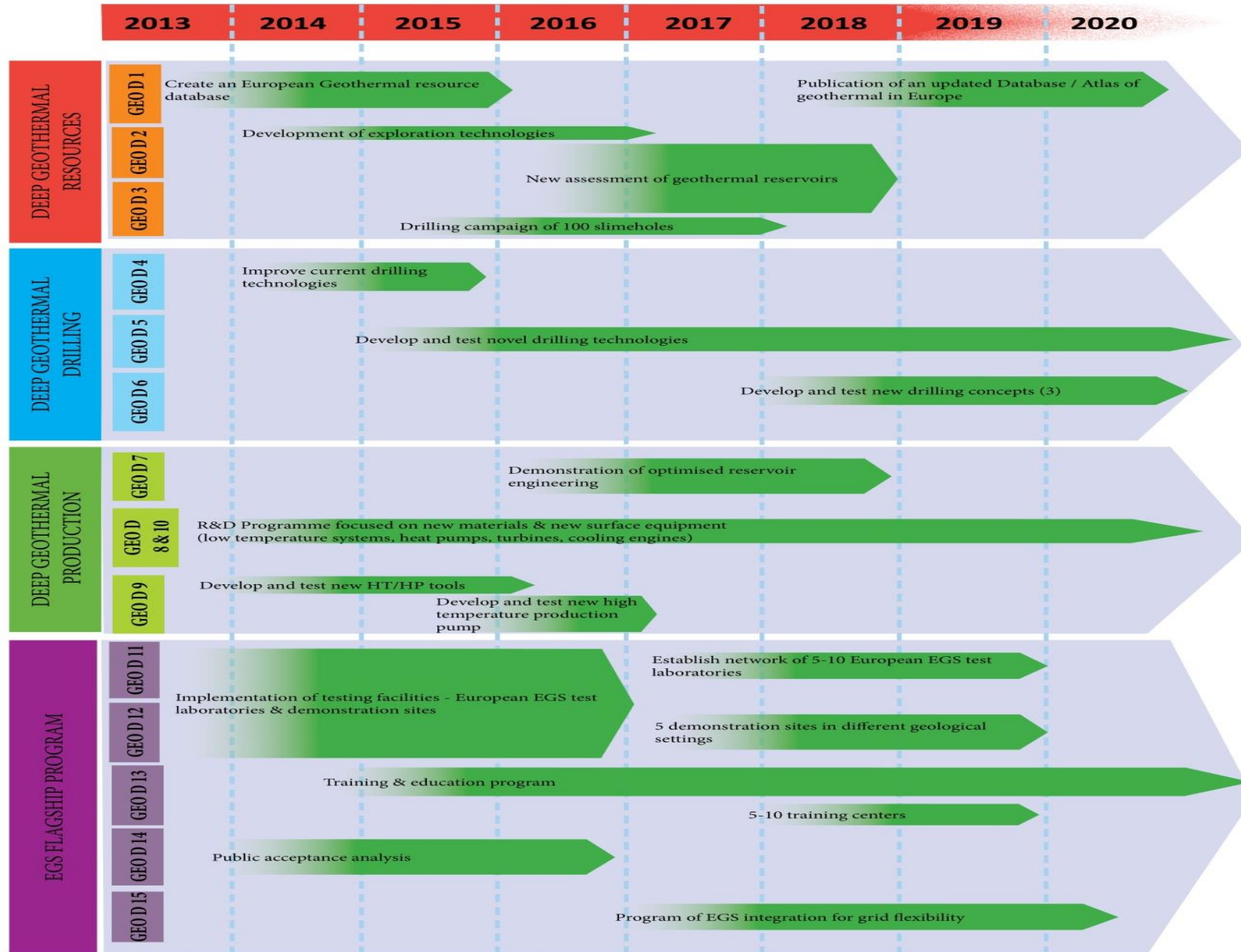
Topic 8

Topic 9 > mission

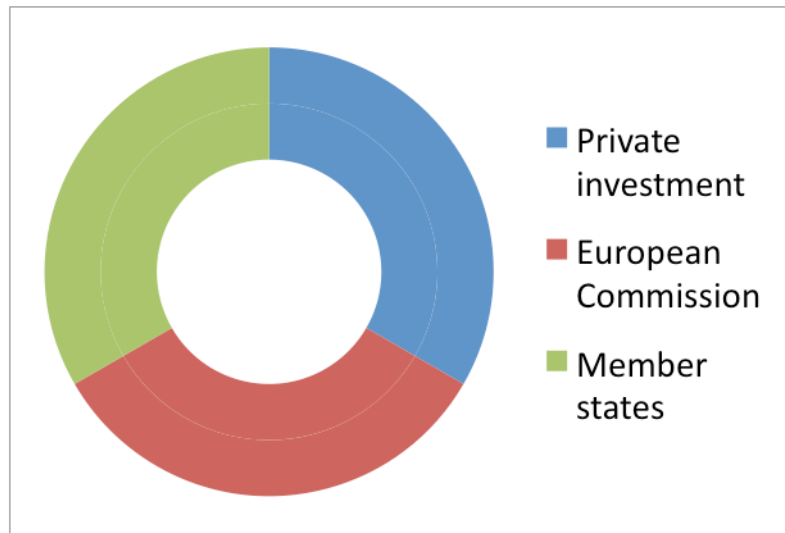
Targets for HEAT AND ELECTRICITY GENERATION AND SYSTEM INTEGRATION



Technology Roadmap 2013-2020



Budget overview to implement the geothermal's SRA between 2014 and 2020



The total amount of R&D money spent by industry within Horizon 2020 (2014-2020):	Around 400 Mio EUR
Horizon 2020 and member states	Around 740 Mio EUR
Total R&D investment needed between 2014 and 2020:	1140 Mio EUR

	Implementation Roadmap 2020	Status 2018
Budget	<p>Industry: ca 400€mio</p> <p>Public (regional, national and European): ca 740 €mio</p>	<p>H2020:</p> <ul style="list-style-type: none"> - EU – contribution: 160,675 €mio - Private contribution: 85 €mio <p>Geothermica (ERANET): 50mio€, half public and half private funding</p> <p>around 300 €mio + Industry, regional and other national instruments</p>
Number of projects	<p>32 on deep GT 30 on shallow GT</p> <p>= a total of 62 projects co-funded by public money</p>	<p>36 projects co-funded by public money from H2020 calls on RES&EE, Industrial leadership ; from SME-instrument; from INTERREG and ERASMUS+.</p>



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