

Renewable Energy Innovation Chain Workshop

Friday 13 September

The Carbon Trust - 4th Floor, Dorset House
27-45 Stamford Street, London, SE1 9NT



Workshop agenda

8:30 - 9:00	<i>Breakfast</i>
9:00 - 9:30	Introductions
9:30 - 10:10	Barriers to innovation in emerging renewables
10:10 - 10:25	<i>Break</i>
10:25 - 11:25	Solutions to overcoming barriers including learning from experience with more mature renewables
11:25 - 12:05	Areas where this study should focus
12:05 - 12:15	Round-up
12.15 - 13.00	<i>Lunch</i>

Chatham house rules: participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.

Welcome

Lena Pedersen, Enova, Steering Group Chair

Tom Delay, Carbon Trust CEO

Accelerated investment in innovation to reduce technology cost before it is deployed at scale would lower future energy costs

Pre-commercial technologies/markets

- Initial investment to achieve proof of concept and drive cost reduction
- Examples: Wave and tidal, advanced biofuels, Fuel cells

Quasi-commercial technologies/markets

- NPV sustained by incentives
- Scale up investment needed to de-risk then deploy
- Examples: offshore wind, carbon capture and storage

Commercial, mature technologies/markets

- NPV positive
- Infrastructure investment with long term payback
- Examples: energy efficiency, gas storage, grid

OPTION CREATION

E.g.

- Pre-commercial venture capital
- Contingent R&D grants and incubators
- Technology cost reduction initiatives
- Proof of concept and demonstration

SCALE DEPLOYMENT

E.g.

- Energy efficiency loans
- Infrastructure financing tools
- De-risking construction
- Advice and accreditation

Round-table introductions

- Company
- Technologies of interest

This project will provide IEA-RETD governments with actionable policy recommendations

Project objective:

- › Recommend policies for each step of the innovation chain for the more emerging technologies which can be applied in the period of time up to 5 to 10 years from now...
- › ...informed by lessons learned from policies given to the currently relatively mature renewable energy technologies...
- ›given current market dynamics and reduced government budgets...
- ›and the needs of the current market players such as financiers, utilities, and technology developers.

This workshop will help us focus on useful areas of innovation policy, for the next project stage

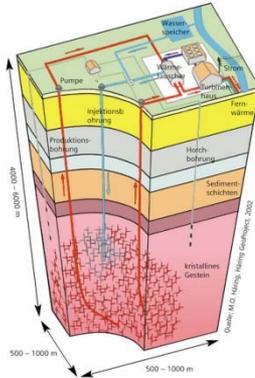
Task 1	We have already produced a synthesis paper, which provides a 'quick scan' of existing literature and identifies key questions for following tasks
Task 2	This framing workshop with market representatives will sharpen project focus and objectives, alongside the synthesis paper
Task 3	The largest segment of the project, addressing key questions highlighted in tasks 1 and 2
Task 4	Midterm workshop to present task 3 findings to relevant government and industry stakeholders
Task 5	Production of the final report and policy recommendations

To encourage a free and open conversation we will apply 'Chatham House Rules'

Focusing on four emerging renewable energy technologies...

Pre-commercial

Enhanced/Deep Geothermal



Marine: tidal, wave



Quasi-commercial

Concentrated Solar Power (CSP)



Offshore wind



Taking lessons from successes & failures supporting more mature renewables

Solar PV



Hydroelectric power



Onshore wind



We want to focus on policies which could meet the following four criteria:

Have impact

Does the policy family have a strong record of innovation success that is likely to be relevant to emerging technologies over the next 5 – 10 years?

Be additional

Would new research make a meaningful and additional contribution to the existing body of work?

Be replicable

Would new policy recommendations need bespoke design to account for a country's existing suite of policies?

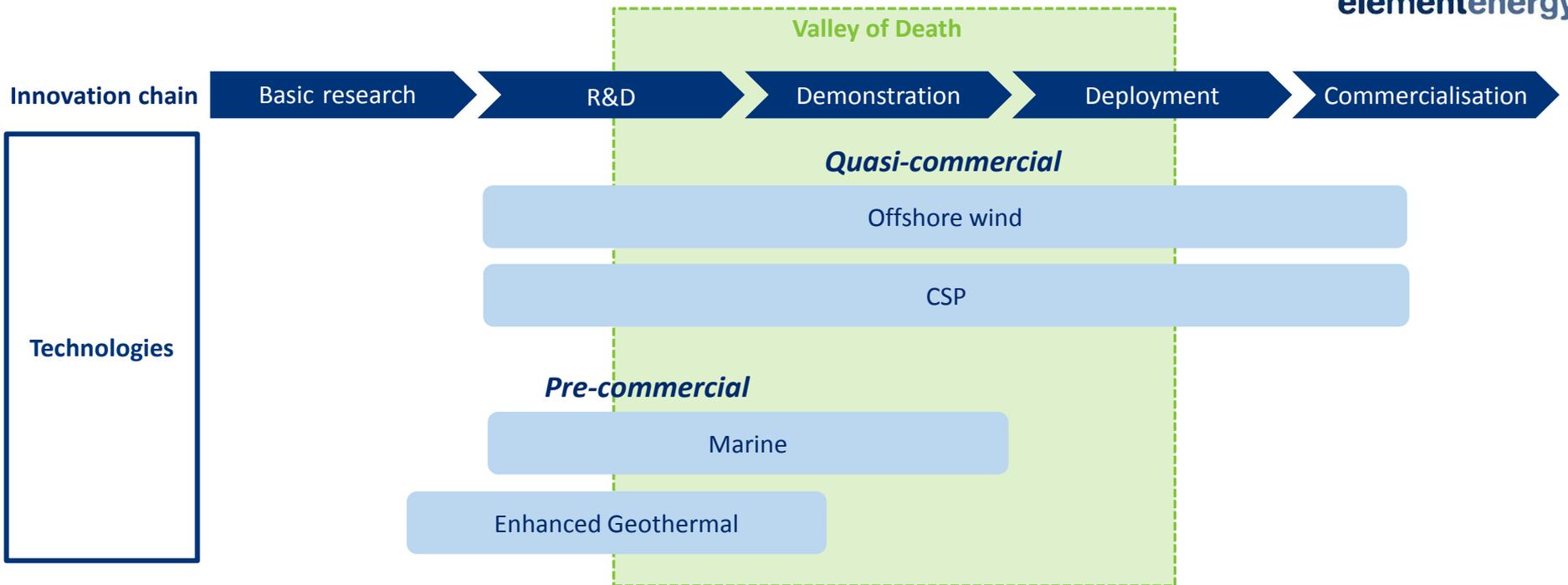
Be
implementable

Are policy recommendations likely to be implemented given national priorities?

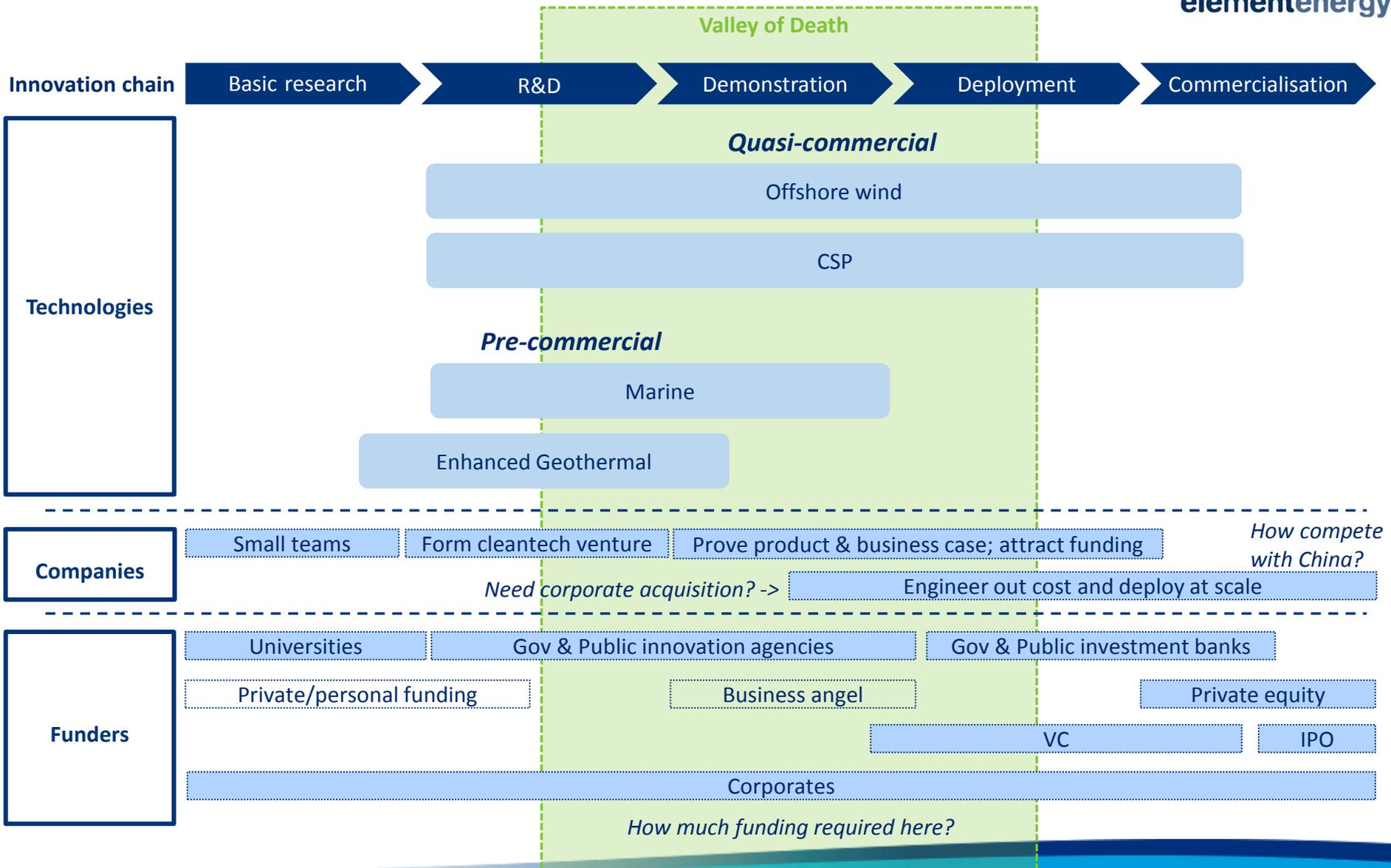
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What are the barriers to innovation along the innovation chain?



...for different companies and funders?



What barriers do you think are preventing innovation in emerging renewables?

Traditional market barriers to technology innovation:

Technology investors are unwilling to invest	Investors see too much risk in a technology's future market and are unwilling to invest without risk mitigation measures or greater confidence in the technology area
Supply chain not fully engaging with innovators	Suppliers of components and integrators and installers of devices do not have enough confidence in a technology to develop their offerings to match innovators' needs
Organisations lack skills and resources to grow	Without confidence in future market prospects, the right business or technology skills do not migrate towards smaller and earlier stage organisations, impeding growth
Insufficient (or hard to capture) returns to RD&D	Insufficient returns to RD&D is caused by uncertain future economic conditions e.g. due to lack of clarity about future energy policy or spill-over risks
Lack of co-ordination amongst players	The absence of common purpose means that players within a sector may not be aware of each other, so opportunities for complementary work are missed
Key component technologies are missing	The absence of an overall framework means that key pieces of the picture may be missing, while too much focus is applied to other areas
Enabling infrastructure and facilities are unavailable	Physical infrastructure may be necessary for the development, testing or deployment of a technology, but are far too expensive for a single organisation to build
Existing regulations obstruct testing and demonstration	Regulations created for other purposes (e.g. health and safety regulations) may make it unnecessarily difficult to test or demonstrate low carbon technologies

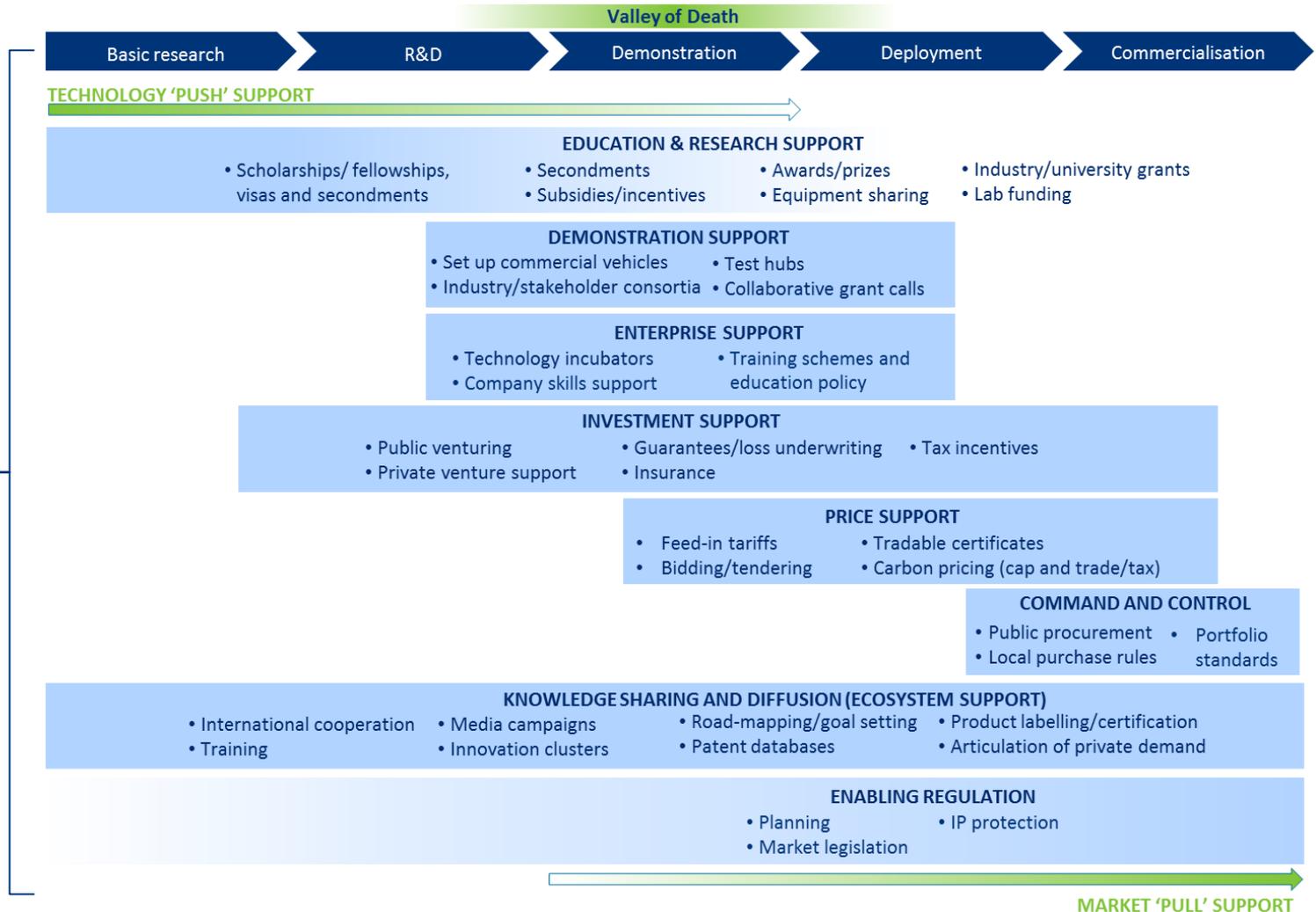
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Solutions to overcoming barriers...including learning from experience with more mature renewables?

Policy themes

- International collaboration
- Certainty and stability
- Corporate leadership
- Build an “Innovation ecosystem”



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Using today's output to guide future research in this project

- › Which policy families should we focus on?
- › Which policy themes should we investigate?
- › Do you have any specific 'policy-country-technology' case studies we can assess?
- › Can you provide suggestions of people to interview in different countries?

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Thank you for your time today

- › Findings from the synthesis paper and this workshop will be presented to the IEA-RETD Executive Committee (ExCo) on 24 September in Oslo
- › We will continue with tasks 3 – 5 of this project, to be completed in Spring 2014, and will circulate the final report to you
- › May we interview you again as part of our research for task 3?

Task 1

‘Quick scan’ of existing literature and key questions for following tasks

Task 2

This framing workshop

Task 3

The largest segment of the project, addressing key questions highlighted in tasks 1 and 2

Task 4

Midterm workshop to present task 3 findings to relevant government and industry stakeholders

Task 5

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