



Scotland experiences to date

Lessons for Ireland?

2012.02.10

MRIA Forum

Harvey Appelbe, Ocean Energy Program Manager, UK & Ireland

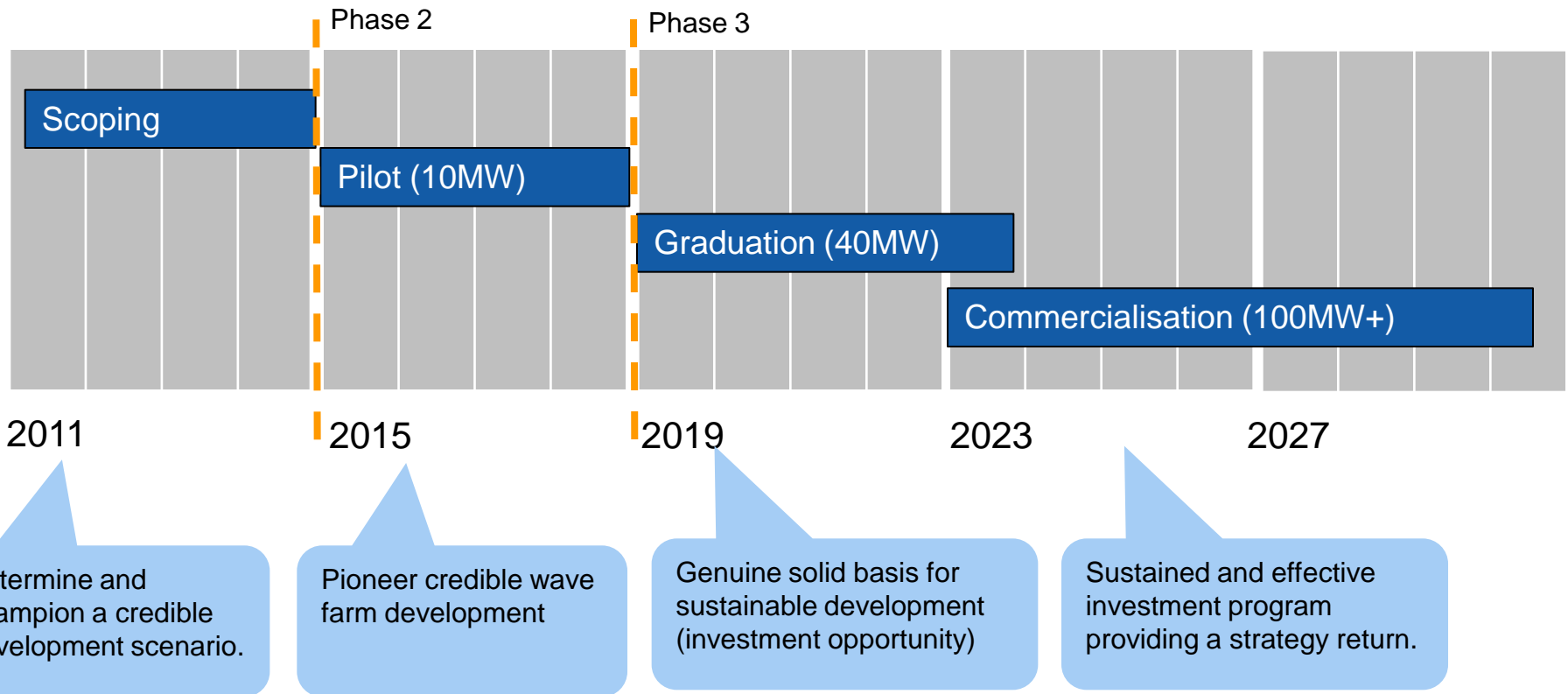
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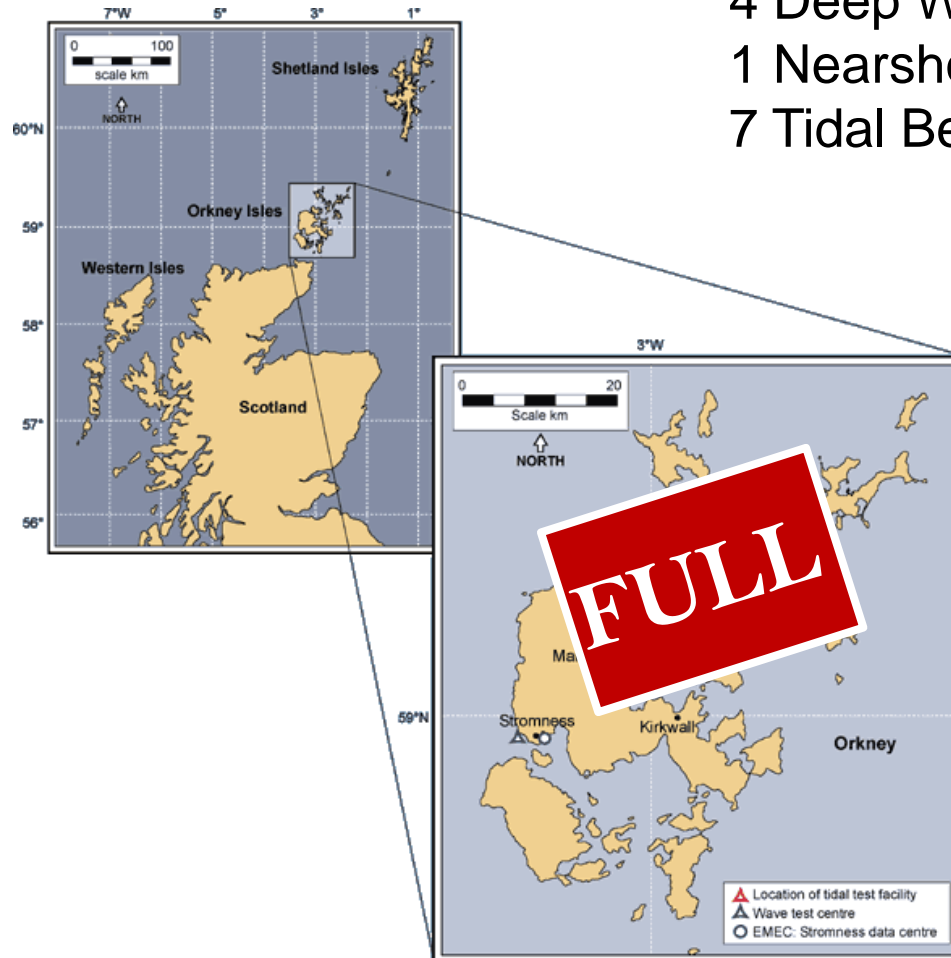
Consenting

Grid

P - Factor

EMEC:

4 Deep Wave Berths
1 Nearshore Wave Berth
7 Tidal Berths



Scottish Ingredients

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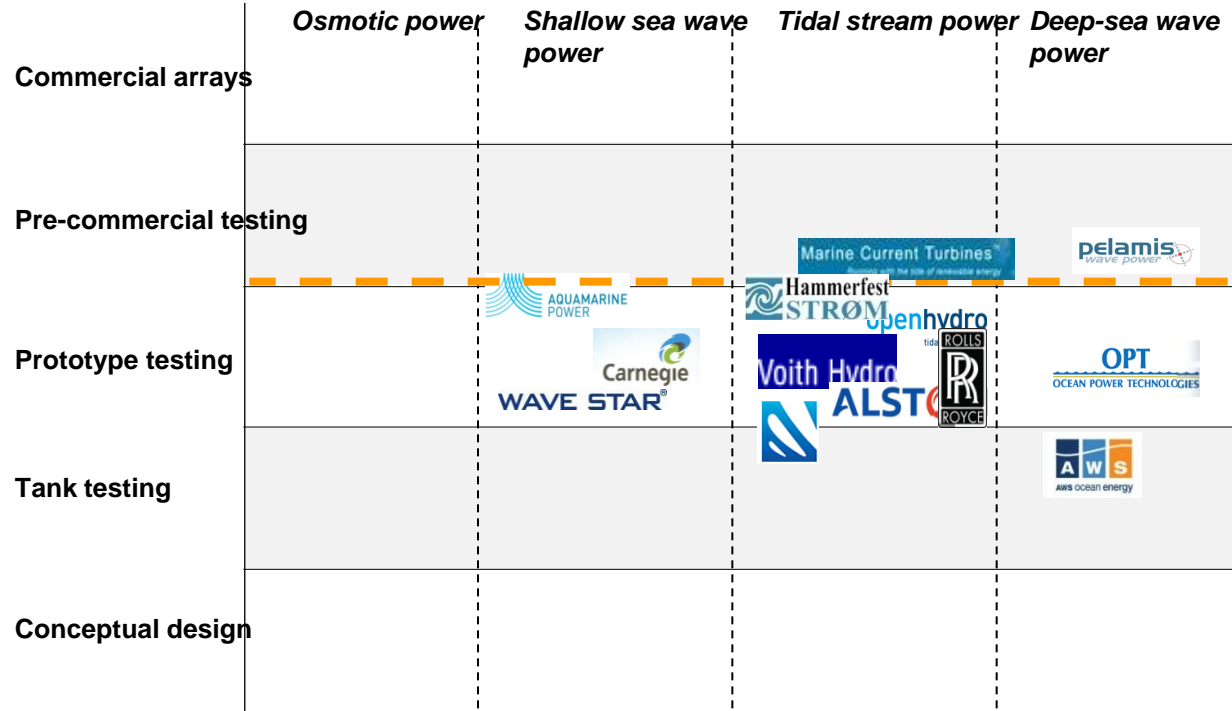
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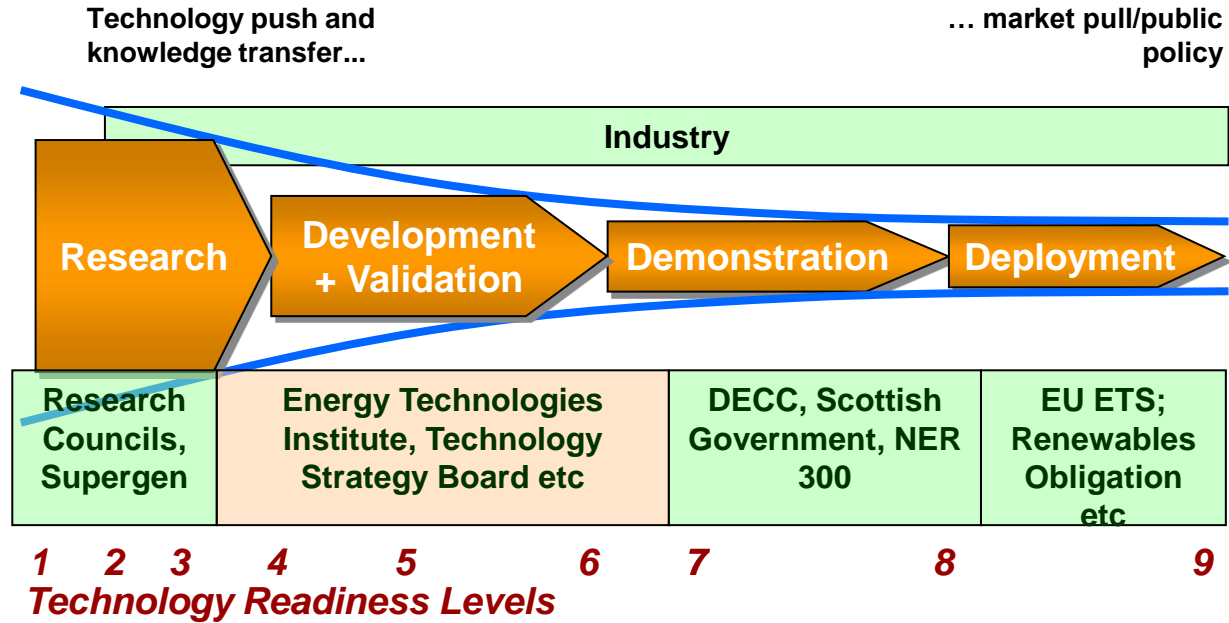
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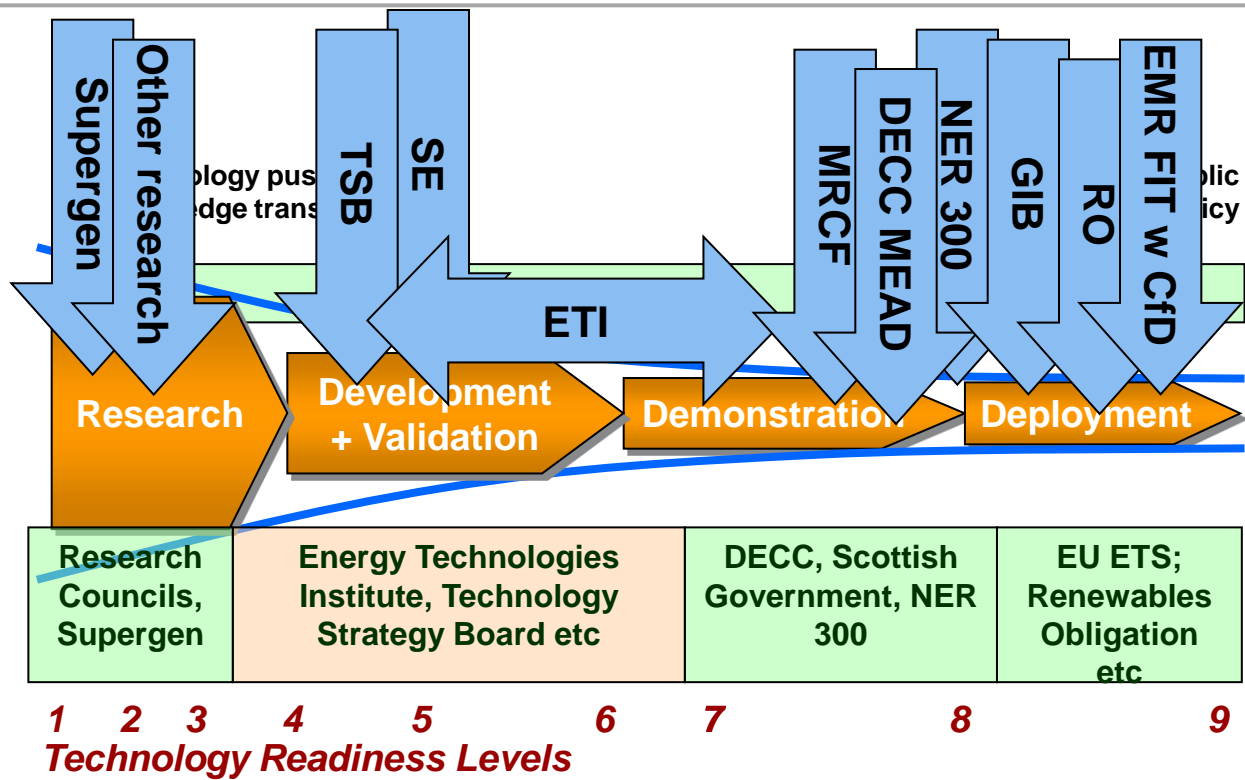
Supply Chain

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- WATERS - £13m capital grant scheme
- RO – 5 ROCs wave and tidal
- MEADS - £20MW array deployment grant
- MRCF - £18M Array deployment fund
- ETI - £10M technology development and deployment
- Carbon levy fund - £103M

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10MW pilot array (2014)

- >£60M for MEC + O&M
- 5 units per year

50MW project (2018)

- >£200M for MEC + O&M
- 25 units per year

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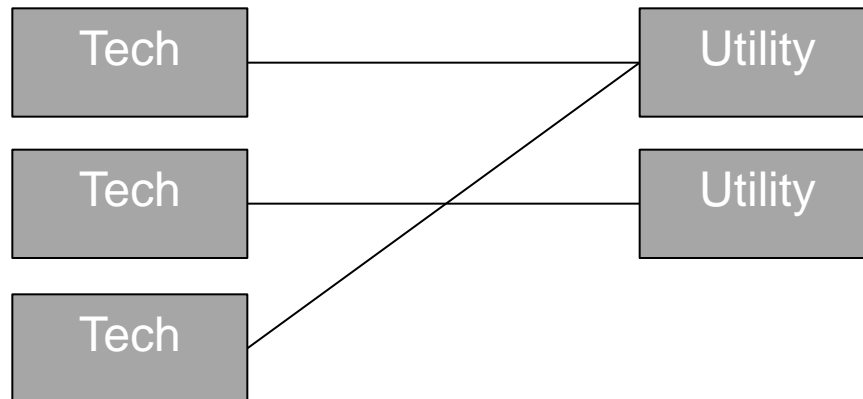
Tidal:

ALSTOM



SIEMENS

Wave



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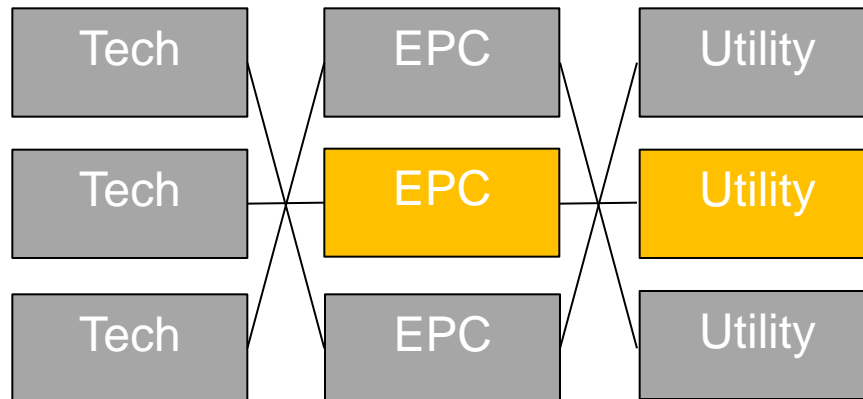
Tidal:

ALSTOM



SIEMENS

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Coastal communities actively pursuing ocean energy (£).
Expect some ownership of it, control and share.
Fishing community naturally cautious.

Shetland Council, Shetland Charitable Trust:

Partnership with Vattenfall
Joint spatial plan led approach
Community owns up to 50%
Use the 10MW as a learning experience



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Site exclusivity and leasing terms:
= The Crown Estate (and/or Shetland)

Consenting:
= Marine Scotland (Consultees)

Proportional:
= Survey Deploy & Monitor

Spatial plan led:
= Marine Spatial Plan
= Regional spatial plan

Information gaps:
= Public funded research
= Joint industry projects



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Tidal

2013	2014	2015	2016	2017
10				
	20			
	10			
	8			
			30	
				25
				30
				10
10	38	0	30	65

Wave

2013	2014	2015	2016	2017
2				
	3	7		
			10	
			10	
			10	
			15	15
			9	
			9	
			10	
				25
2	13	7	64	40

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Irish ingredients

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Scotland

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

Enterprise Dimension

Needed something radical
...last year

Energy Dimension

Big opportunity
Well placed
Time to make it happen

We are not alone

Ranking	Country	Wave Resource	Tidal Resource	Incentive	Grants, public support	Momentum	Comment
1	UK	+++	+++	+++	+++		Benchmark, grid main/only negative factor
2	Ireland	+++	+	++	(+)		No activity = negative direction.
3	France	++	+++	+	+(+)		Robust actors, newly developing sector One to watch
4	Portugal	++	None	+(+)	+		FiT drops for larger installations. Been at it for a while.
5	Spain	+(+)	None	?	++		The “negotiable” tariff is an unknown. Very domestic profile for sector.
6	Norway	+++	+	-	-	N/A	There is a near total lack of governmental interest
7	Rest of Europe	-	-	-	(+)	N/A	Grants for industrial, export oriented projects

Thank you

W: <http://www.vattenfall.com/en/ocean-energy.htm>