Ocean Energy – Opportunities for California

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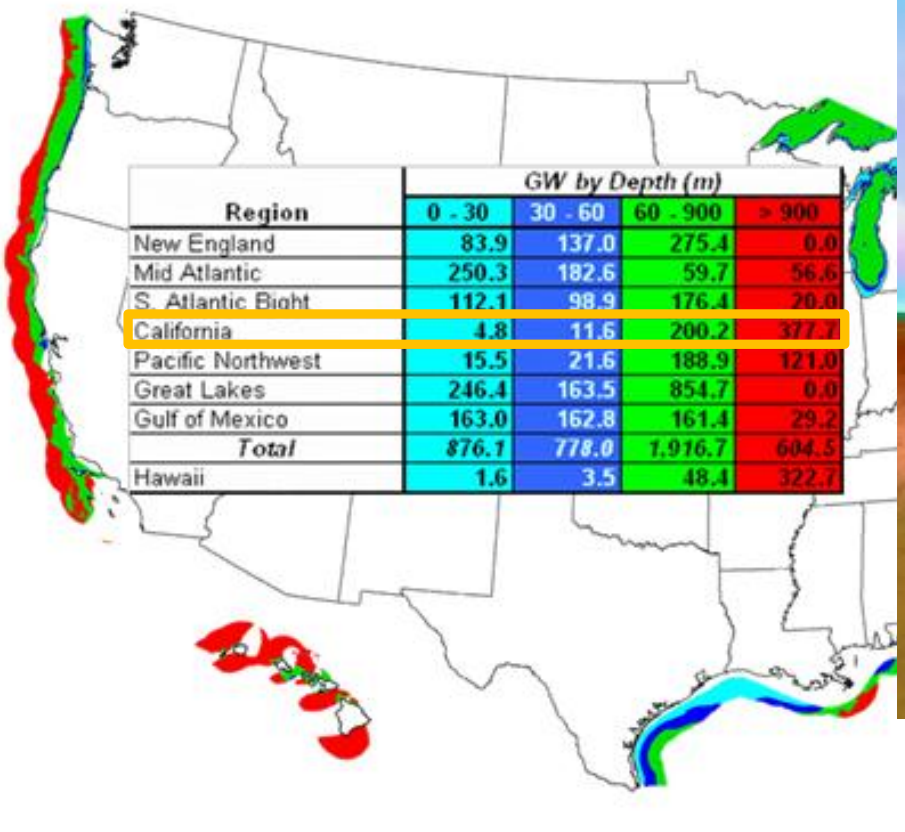
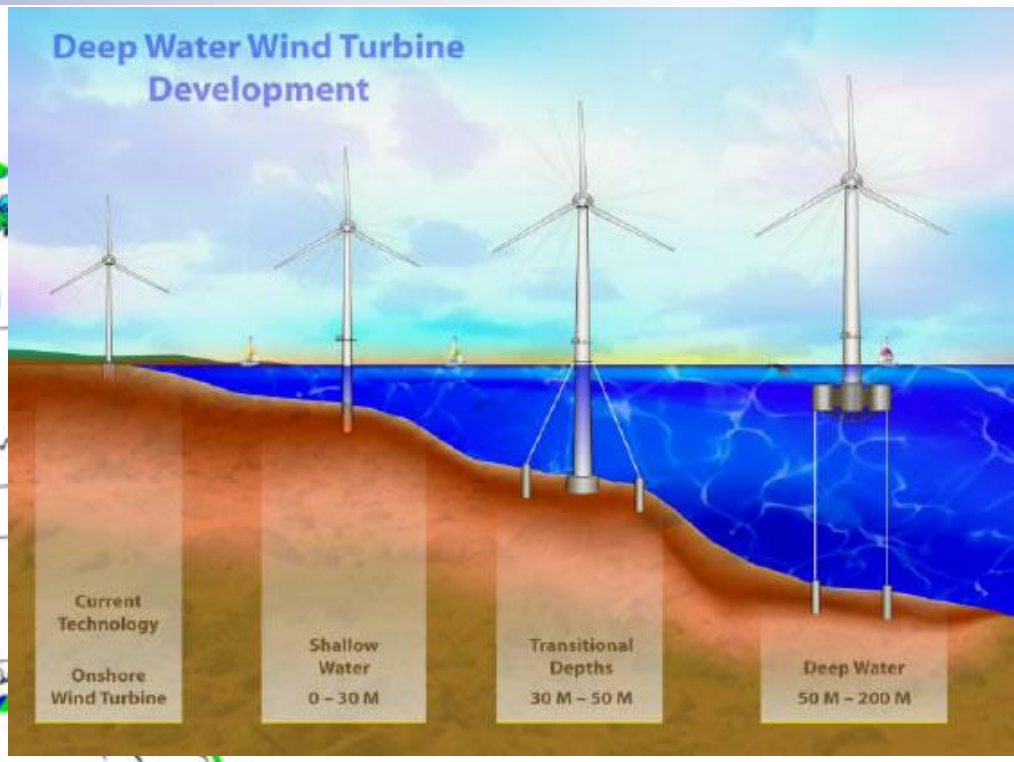
Wind Energy



Region	GW by Depth (m)			
	0 - 30	30 - 60	60 - 900	> 900
New England	83.9	137.0	275.4	0.0
Mid Atlantic	250.3	182.6	59.7	56.6
S. Atlantic Bight	112.1	98.9	176.4	20.0
California	4.8	11.6	200.2	377.7
Pacific Northwest	15.5	21.6	188.9	121.0
Great Lakes	246.4	163.5	854.7	0.0
Gulf of Mexico	163.0	162.8	161.4	29.2
Total	*876.1*	*778.0*	*1,916.7*	*604.5*
Hawaii	1.6	3.5	48.4	322.7



Bathimetry showing offshore wind resources Wind Class 4 and greater by depth (Source: internal report obtained from NREL)

Assumes: 5MW/km^2

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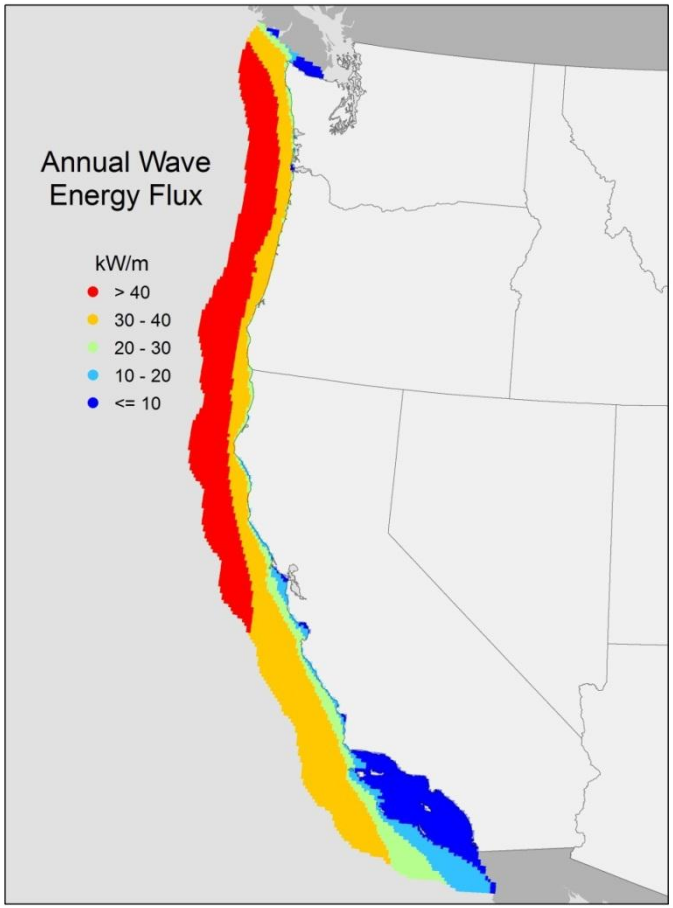
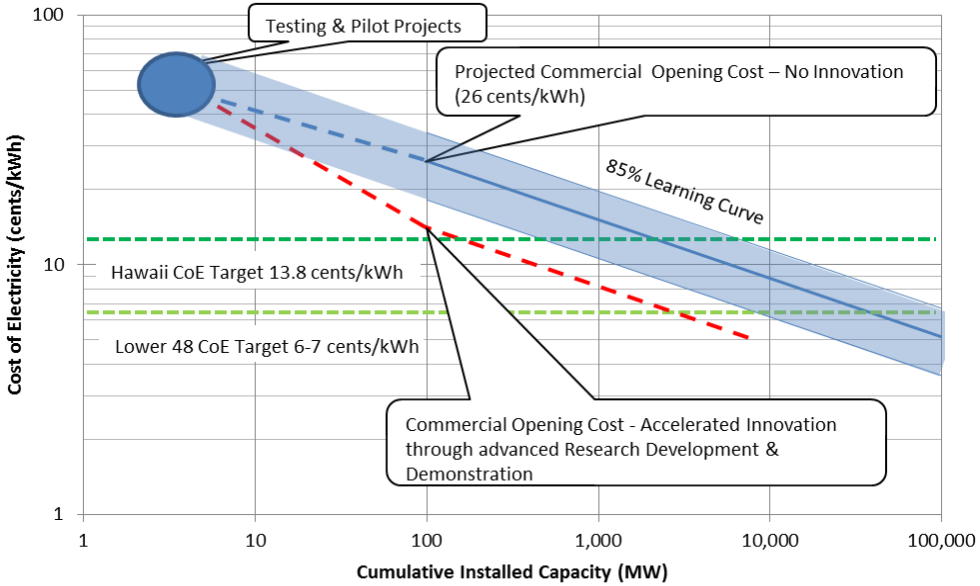
Wave Energy



State	Coast Length	Pave (kW/m)	Average Available Power (MW)	Average Extractable Power (MW)
California	1200 km	30	36,000	5,400
Oregon	280 km	30	8,400	1,260
Washington	150 km	30	4,500	675
Total			49,000	7,350



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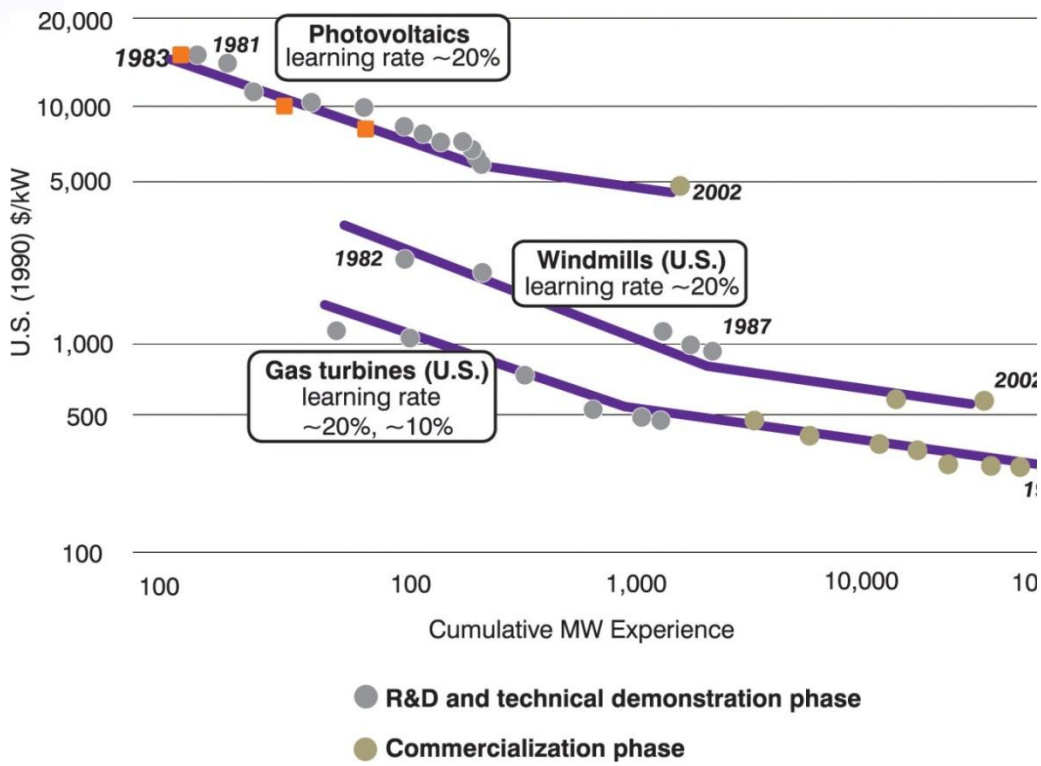
Next Steps & Needs



Source: Learning Curves – July 2008 Issue of ProjectFinance

Needs

•"Experimental Playgrounds" to optimize technology and operational strategies at pilot and early commercial scale (i.e. < 10MW). Once technology has been proven at smaller scale, they can be adopted at more significant scale at different sites

•Appropriate subsidies need to be provided to support this early adoption of technology and allow for technology to be optimized and mature

•A flexible regulatory framework that allows pilot and early commercial projects to be sited rapidly, allows for adaptive management of environmental effects and insures operational safety.

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Ocean Energy can play an important long-term role in securing CA's energy future. At the federal level they are pursued strategically and if CA made it a strategic priority it could leverage federal funds in this area.

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