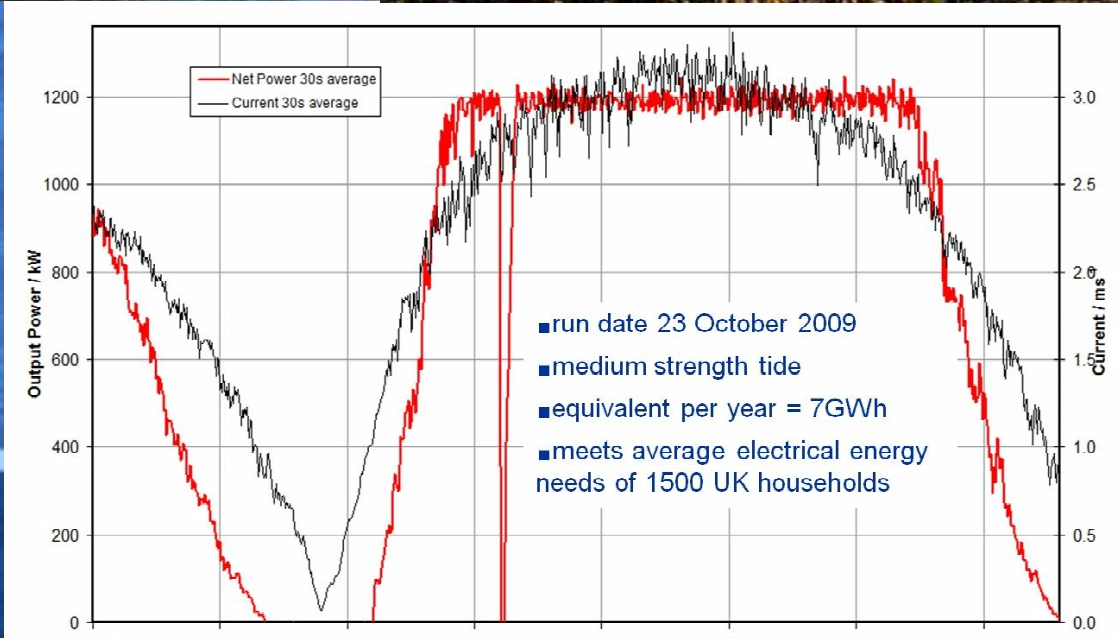




BC Emerging energy FITs: Valuing diversity and economic opportunity or simply levelling the playing field?

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Correcting market failure

- Incumbency
 - The sunk cost of hydro investments 40 years ago
 - The existing transmission grid(??) location and capacity
 - The permitting challenge of new projects
- Embedded subsidies
 - Support for gas exploration etc
- Lack of accounting for externalities
 - Pricing carbon
 - Resource depletion

Valuing diversity

- Replace coal-generated imports
 - Hedge against Carbon mitigation costs
- Broaden portfolio of renewable resources (BC largely precipitation-based)
 - Tidal
 - Driven by gravity, entirely predictable, climate change +/-
 - Wave
 - Driven by oceanic winds, forecastable, winter peaking, climate change + (?)
 - In-stream
 - Driven by kinetic energy in river flows, forecastable, 24/7/365, climate change ?
- Regional/distributed generation
- System value of integrated variable renewable supplies

Economic opportunity!

- Ocean Energy will be cost competitive
 - Average energy density up to 50 times that of wind, and 100 times solar PV
- Canada will have a renewable ocean energy supply
 - It has the world's best resources
 - Canada needs the non-emitting energy
 - The US needs clean energy
 - Demand will jump through fuel switching

Will we be spending or earning billion\$?

Targets

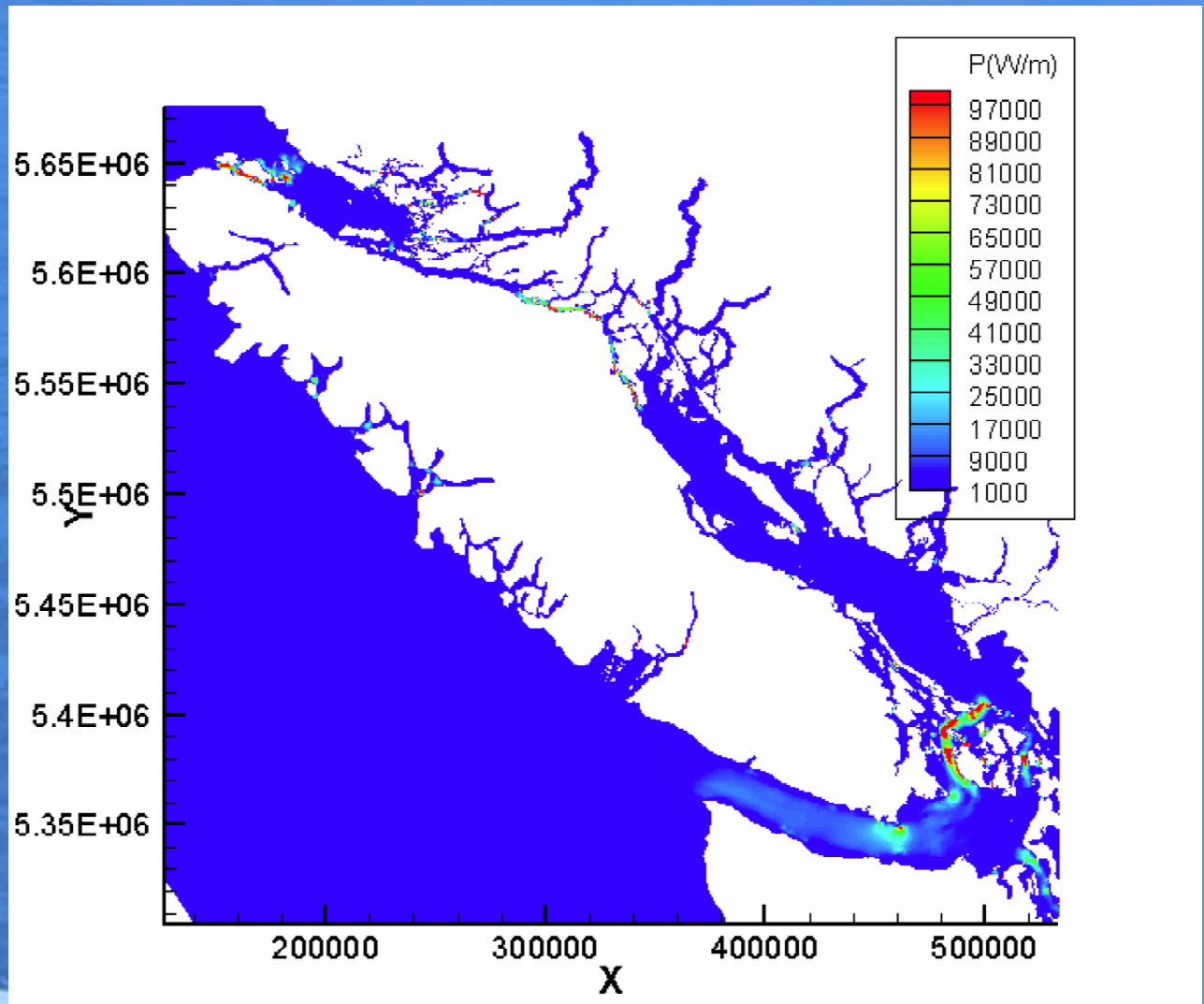
- National Roundtable – 2050
 - 4,000 MW of tidal – $\frac{3}{4}$ in British Columbia
 - 10,000 MW of wave



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Tidal
4,000 MW
mean power



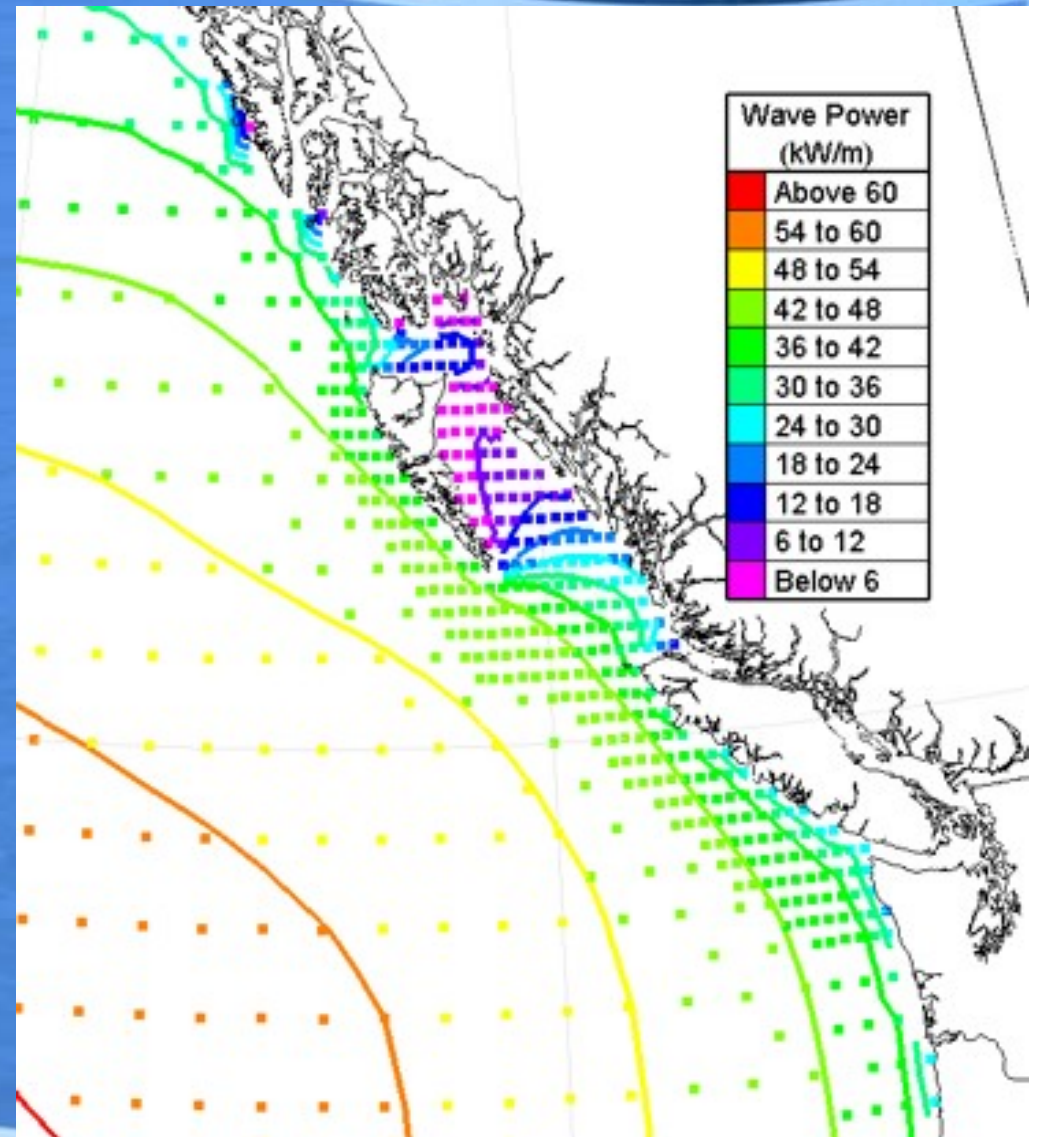


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Wave

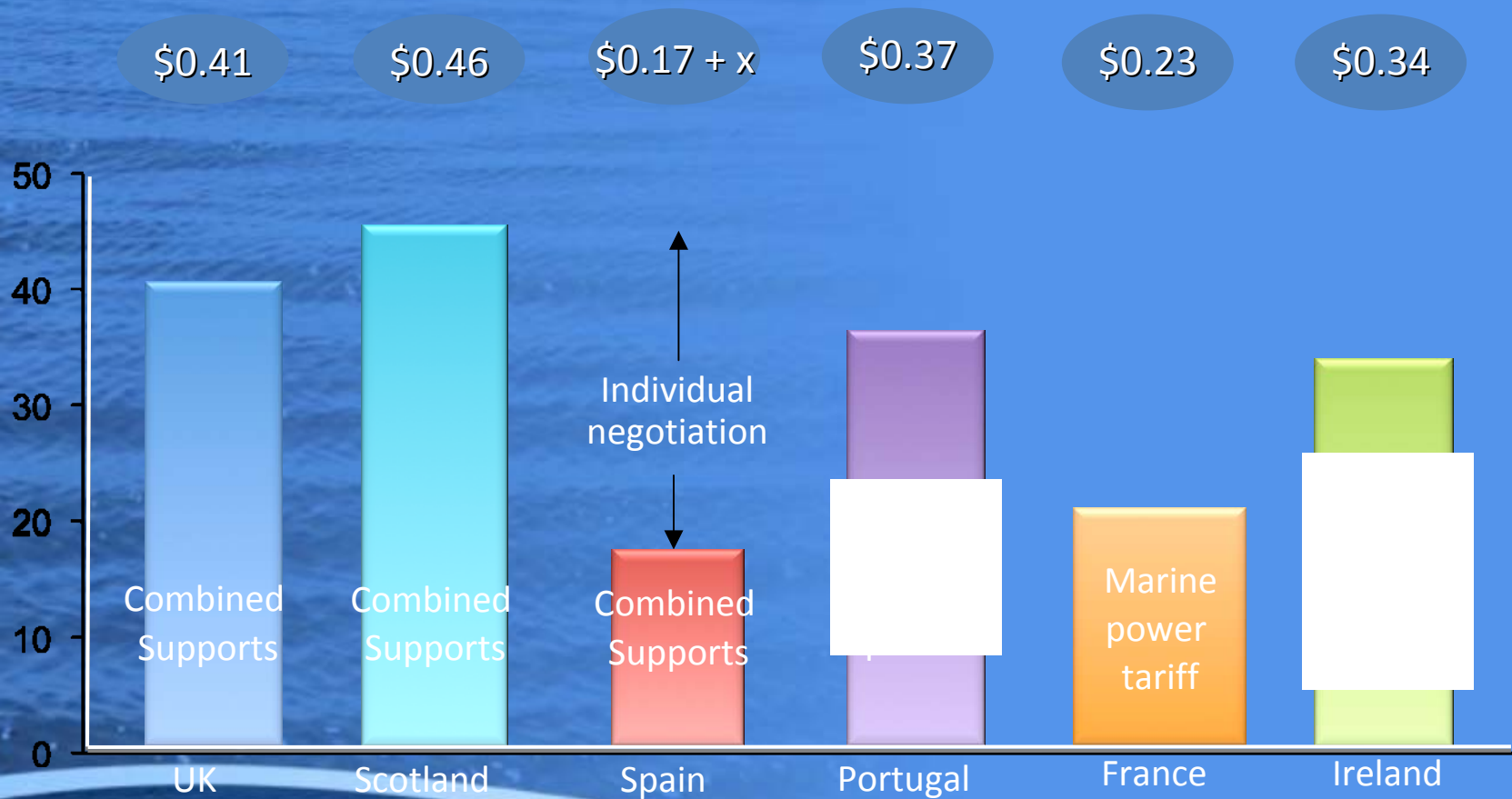
- 10,000MW – QCI
- 10,000MW - VI



Building an industry, being part of the solution

- “failure to start implementing the technologies ... greatly impede Canada’s ability... in the long run”
- “significant opportunities to sell this type of technology in international markets ... these technologies should continue to be tested domestically through technology platforms to demonstrate commercial success and export viability”

Driving forward – the competing environments



BC FITs?

Aspect	Response
Focus on emerging resource/technology	Good for BC
BC Hydro to deliver a FIT programme, or FIT-enabled projects?	Clarify regulation to focus on outcomes
5 MW project cap?	Too small for wave and large-scale tidal
One time \$25m expenditure increment?	1) Too low to attract ocean energy ~ might be << 15-20MW 2) Expect to be used up before many of the needed ocean projects are ready
Setting FIT prices for ocean energy is difficult because of limited experience	May need to have calls to attract best among ocean energy projects; not a competition between energy resources
Remote community clean electrification	Needed, and FITs can help find the right solution(s), but this is clearly different rules, \$, etc

Are FIT's enough?

- Facilitated permitting/match to project size/adaptive management/learn by doing
- Streamline interconnection and limit costs
- Prepare transmission interconnections
- Develop shared offshore “hubs” like FORCE (Nova Scotia)
- Develop shared environmental interaction strategic research programme/learn by doing, like OEER (Nova Scotia)

All reduces cost – more development/\$\$ of FIT

Critical signals

- That the FIT is the beginning of a market development
- That market risk is being removed so that project risk is reduced if technology and operational risk can be managed

Essential to:

- Attracting financiers (may still need loan guarantees etc.)
- Building the project development and support sector
 - Risk reduction
 - Economic opportunity

Where are the Feds?

- From RPPI to share in strategic FIT?
- Share in development infrastructure?
- Incentives for financiers?



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**The Role of Feed-in Tariffs:
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