

LAW AMENDMENTS COMMITTEE

Red Chamber, Province House

Tuesday, October 15, 2019

Bill #177 - Public Utilities Act (amended)

No representation

Bill #169 - Expropriation Act (amended)

6:00 p.m.

1. John Traves, Counsel
Halifax Regional Municipality

Bill #175 - Marine Renewable-energy Act (amended)

6:15 p.m.

2. Colin Sproul
Bay of Fundy Inshore Fishermen's Association

6:30 p.m.

3. Jason Hayman, Managing Director
Sustainable Marine Energy

Bill #180 - Fatality Investigations Act (amended)

6:45 p.m.

4. Harry Critchley
Hanna Garson
East Coast Prison Justice Society

7:00 p.m.

5. Darlene MacEachern
Elizabeth Frye Society
6. Michael Perry, Councillor
Municipality of East Hants

Bill #187 - House of Assembly Act (amended)

7:15 p.m.

7. Norbert LeBlanc, President
Marie-Claude Rioux, Executive Director
Fédération acadienne de la Nouvelle-Écosse

- 7:30 p.m. 8. Evelyn LeBlanc-Joyce
 Société acadienne de Clare
- 7:45 p.m. 9. Lisette Aucoin-Bourgeois, Executive Director
 La Société Saint-Pierre
- 8:00 p.m. 10. Josette Marchand, Directrice générale
 La Picasse
- 8:15 p.m. 11. Luc d'Eon
 Conseil acadien de Par-en-Bas

Bill #169 - Expropriation Act (amended) (continued)

- 8:30 p.m. 12. Robert Pineo
 Patterson Law

Bill #187 - House of Assembly Act (amended) (continued)

- 8:45 p.m. 13. Réjean Aucoin, Q.C.
 Réjean Aucoin Avocat-Barrister Inc.

Bill #180 - Fatality Investigations Act (amended) (continued)

- 9:00 p.m. 14. Dolly Mosher
 Silent Witness Nova Scotia

Bill #187 - House of Assembly Act (amended) (continued)

- 9:15 p.m. 15. Patrick Sullivan, President and CEO
 Halifax Chamber of Commerce

Bill #180 - Fatality Investigations Act (amended) (continued)

- 9:30 p.m. 16. Dr. Leah Genge

INTEGRATED TIDAL ENERGY


**SUSTAINABLE
MARINE ENERGY**

POWERED BY

SCHOTTEL
HYDRO



INTRODUCTION TO SME
JASON HAYMAN
MANAGING DIRECTOR

INTRODUCTION TO SUSTAINABLE MARINE ENERGY

- Sustainable Marine Energy designs, delivers and operates turnkey tidal energy systems to provide island and coastal communities with a source of reliable, predictable and clean power.
- Founded in 2012; largest shareholders are SCHOTTEL HYDRO and Scottish Enterprise, alongside other UK-based investors
- 21 staff; UK, Germany, and Halifax, Nova Scotia (11 people)
- SME took over the Black Rock Tidal Power (BRTP) operation at the end of 2018 and renamed the company. BRTP, a SCHOTTEL subsidiary has been active in Nova Scotia since 2014.
- Sustainable Marine Energy (Canada) is responsible for the delivery of our projects in Canada, including;
 - Grand Passage demonstration project - 280kW PLAT-I
 - 9MW project at Fundy Ocean Research Centre (FORCE), co-development with Minas Tidal; Pempa'q Project, which will commence in 2020, and be built out in phases by 2023



GRAND PASSAGE – INSTALLATION BY HUNTLEY'S SUB-AQUA CONSTRUCTION



- Local vessels used; 65' self-propelled barge KIPAWO and local lobster boats used for towing and support

GRAND PASSAGE – ASSEMBLY AT A. F. THERIAULT



- Modular design enables rapid assembly and outfitting using local boatyards
- Can be launched as an entire unit, or final assembly can take place on the water if loaded out by water

GRAND PASSAGE – COMMISSIONING & OPERATIONS



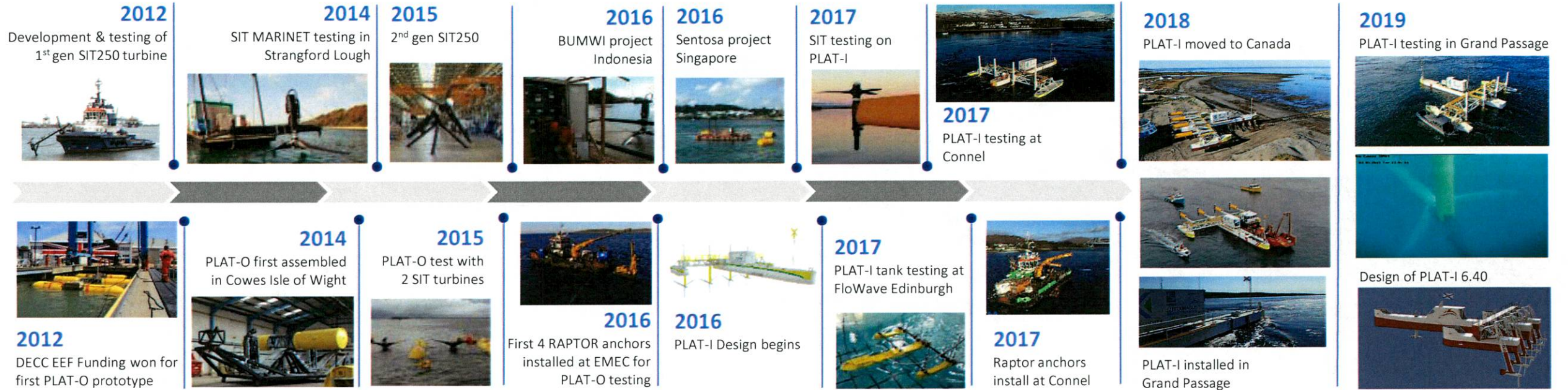
- Ability to perform on-water commissioning and maintenance proven
- Accessible throughout the winter
- As operations are repeated the time to perform them has reduced and working windows increased – substantially
- SME now has an operations base in Westport with one full-time local employee (vessel operator)

RESULTS FROM GRAND PASSAGE DEPLOYMENT - ENVIRONMENTAL



- Operated under an authorization from Department of Fisheries and Oceans until May 24th
 - Results being shared and new authorization for longer period applied for
 - Operation of turbines during daylight hours only
 - EMP largely based on visual observation;
 - Staff monitoring during turbine operation from onboard or shore station, with marine mammal observations performed every 30 minutes
 - Four cameras recording all turbines
-
- We did not observe, or see any evidence of, any marine animals passing our turbines, except for some jellyfish
 - No contact between marine animals and the turbines observed
 - Aquatera conducted a detailed review of representative segments of video from each day of operation
 - Early days but promising; next steps are to test passive and active acoustics – necessary for FORCE

TIDAL ENERGY SYSTEMS R&D HISTORY



INTRODUCTION TO SUSTAINABLE MARINE ENERGY (CANADA)

FORCE

- Pilot array project
- SMEC Berth (5MW)
- MTLT Berth (4MW)
- Grid connection in place (64MW)
- Feed in Tariff CAD530/MWh

GRAND PASSAGE

- Test and demonstration site
- Moderate resource
- PLAT-I 4.63-280kW

Parrsboro

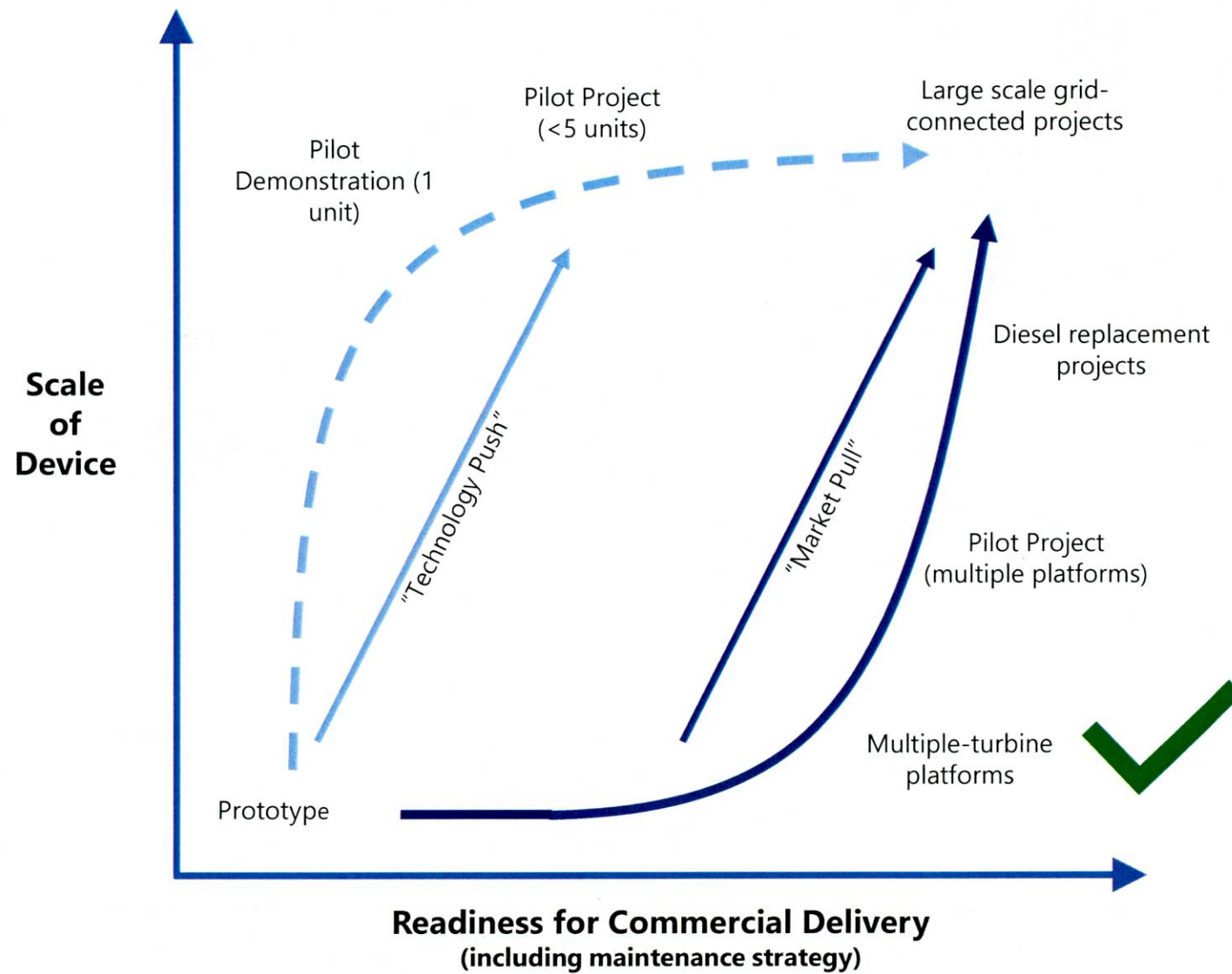
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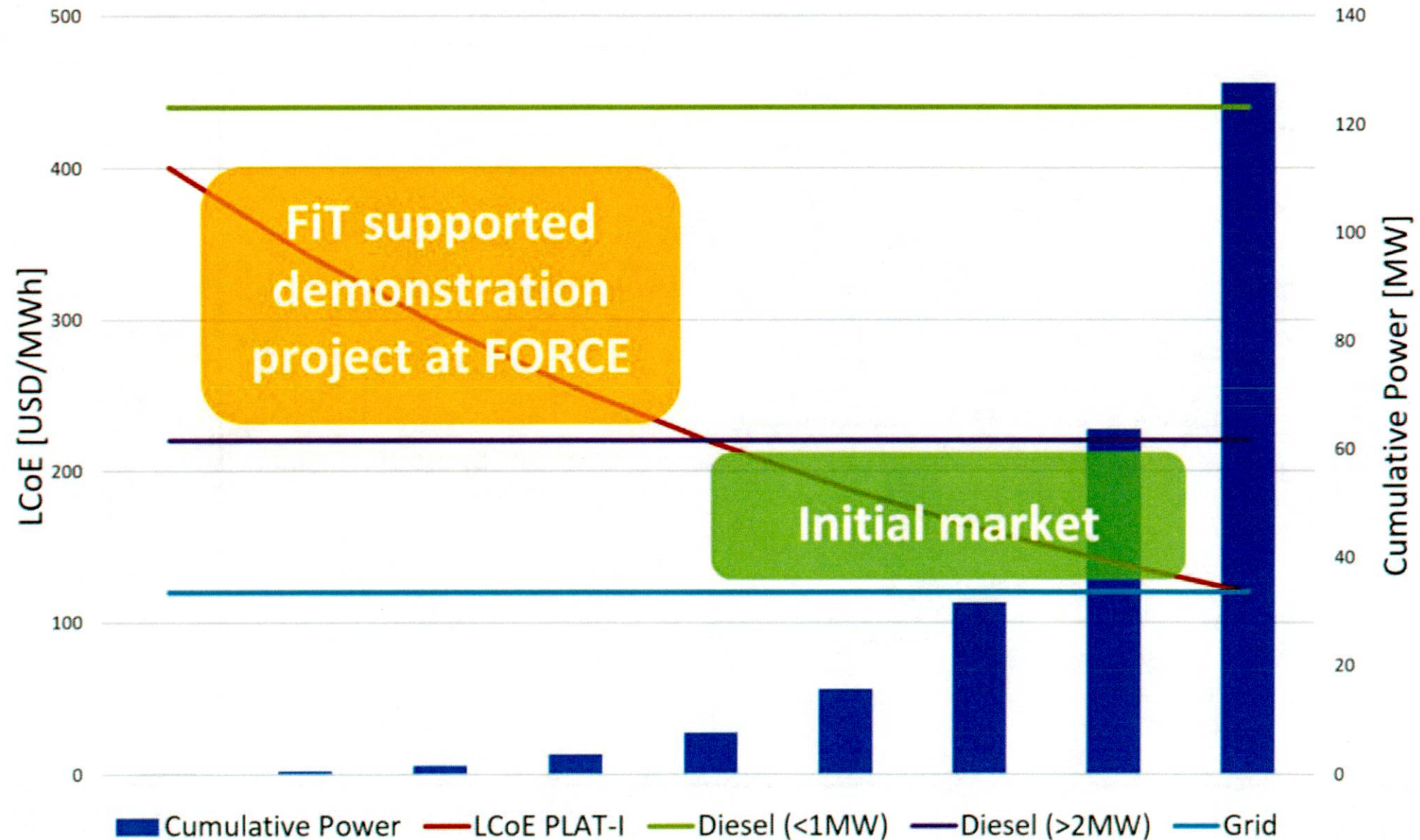
- SME Canada HQ
- Commercial centre for NS
- Logistical hub for projects



THE COMMERCIALISATION JOURNEY AHEAD



THE COMMERCIALISATION JOURNEY AHEAD



PEMPA'Q TIDAL ENERGY PROJECT

9MW demonstration project, utilising adjacent berths at the Fundy Ocean Research Center for Energy (FORCE)

- Sustainable Marine Energy (Canada) Ltd; 5MW
- Minas Tidal LP (MTLP); 4MW

Staged build-out to de-risk project and incorporate learning from each phase:

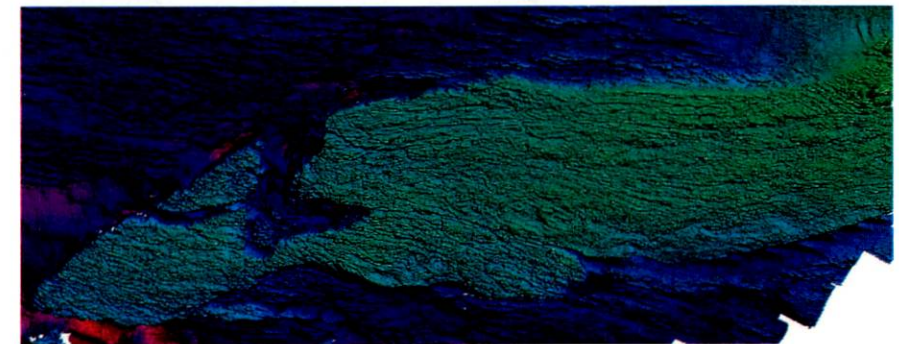
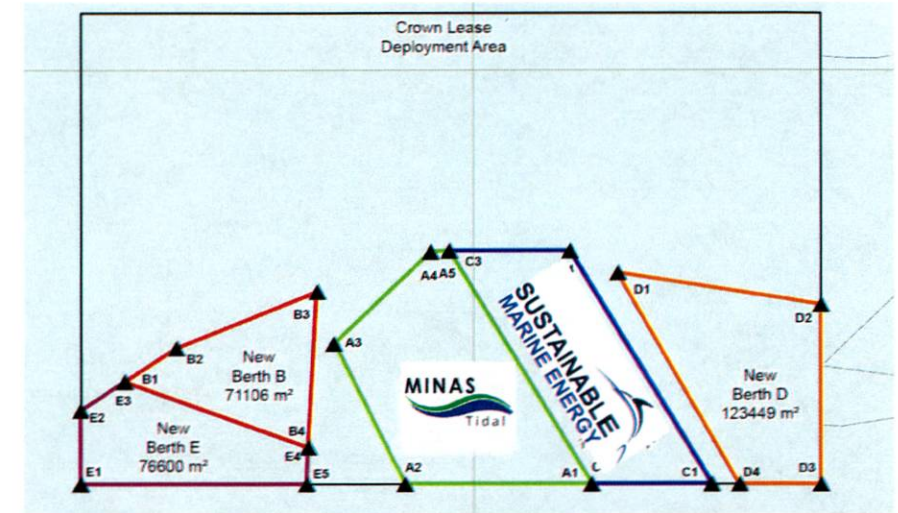
- Phase I – 1.26MW by early 2021
- Phase II – 2.52 MW by end of 2021
- Phase III – 5.04 MW by end of 2022

License for Phase I has been issued by NSDEM; current deadline for CoD is Dec 2020

Negotiating final details of a Design, Build and Operate (DBO) contract with reconcept for Phase 1; reconcept is an independent, owner-managed company and one of Germany's pioneers in investments in renewable energy assets

Certainty over revenue, and the extension of the deadlines for activation of the current PPA's is required by project financiers to pull investment (~\$100m) to deliver what will be the world's first floating tidal array, and Canada's first instream tidal energy array.

Almost all of this will be inward investment into Nova Scotia, and we only get paid if we deliver, therefore very low risk for the Province of Nova Scotia, and lots of upside.





Thank You

jason.Hayman@sustainablemarine.com

INTEGRATED TIDAL ENERGY

**SUSTAINABLE
MARINE ENERGY LTD**

POWERED BY
**SCHUTTEL
HYDRO**



marine
renewables
canada

Marine Renewables Canada Submission regarding Bill No. 175 – Marine Renewable-energy Act

Submitted to: Law Amendments Committee

Submitted by: Elisa Obermann, Executive Director, Marine Renewables Canada

October 14, 2019

Marine Renewables Canada (MRC) is the national industry association for wave, tidal, offshore wind and river current energy, representing technology and project developers, utilities, researchers, as well as businesses in the marine and energy supply chain. On behalf of our members, we are pleased to write in support of Bill No. 175.

Tidal energy presents an important opportunity for Nova Scotia. Harnessing the Bay of Fundy's tremendous tidal energy resource can provide clean energy to the grid, displacing the use of fossil fuels and GHGs to address climate change. As the Atlantic region moves towards increased electrification, tidal energy can also support more efficient grid use and management. The predictability and reliability of tidal energy offers a complementary form of renewable energy, as it is able to 'flatten out' the load on the grid, and therefore improve the synchronicity of electricity supply and demand. Finally, the development of tidal energy presents significant economic opportunities to engage the local supply chain. Many studies have identified that 60-70% of projects costs would be incurred in proximity to a project site.

Over the past decade, Nova Scotia has been working towards advancing tidal energy development. There have been successes and setbacks, but overall there has been fundamental progress on many fronts. Through both provincial and federal support, industry can use shared infrastructure and services provided by the Fundy Ocean Research Center for Energy (FORCE) which helps to de-risk aspects of development. The Government of Nova Scotia has implemented a feed-in tariff (FIT), established legislation that outlines licensing and permitting processes, and supported ongoing R&D to address environmental, technical, social, and economic questions around tidal energy development. More recently, the Government of Canada awarded one of the FORCE tidal energy developers, DP Energy, \$29.7 million to develop a 9 MW project.

While there has been some concern that the industry isn't moving quickly enough, tidal energy is no different than many other emerging clean technologies. It takes time to attract investment, demonstrate and prove technologies, drive costs down, and reach commercialization. But, with an increasing interest and readiness by tidal energy developers to make significant financial commitments, upwards of \$200 million that would be invested in Nova Scotia over the next few years, it's clear that the support, investments, and enabling measures in place, are working. The industry is ready to move forward.



marine
renewables
canada

Bill No. 175 and the amendments proposed under the *Marine Renewable-energy Act* will help ensure that industry does exactly that – build, deploy, and operate projects that have already been permitted and planned. The issuance of new power purchase agreements (PPAs) to existing FIT holders ensures that industry has the predictability and pathway to build on previous investments, attract additional support, and ensure that planned projects advance successfully.

Without this assurance, developers could potentially lose investment, fail to attract future investment, and ultimately be challenged to develop projects. This would not only negatively impact industry, but all of the supporting and enabling organizations that have invested the time, resources, and finances into getting tidal energy development to this point of readiness. After the great amount of work that has gone into developing this resource in Nova Scotia, it would be extremely unfortunate to risk stranded assets.

Tidal energy is a new technology with high costs and risks. The only way to eliminate those and ensure that tidal energy can significantly benefit Nova Scotia is to solve the current challenges that the sector faces. The planned projects at FORCE and in the Bay of Fundy present the opportunity to tackle these challenges and that's critical for the industry to evolve and advance. Marine Renewables Canada is pleased to see the Government of Nova Scotia recognizing the importance and significance of these projects to the developers, the province, and the industry as a whole.

Contact: Elisa Obermann
Executive Director
Marine Renewables Canada
902-817-4317
elisa@marinerenewables.ca