Fundy Ocean
Research Centre
for Energy

REQUEST FOR PROPOSALS

OSIP Power System

PROJECT:	Ocean Sensor Innovation Platforms (OSIP)		
SUBJECT:	Offshore Platform Hybrid Power System		
DOC NAME	RFP-OSIP-2025-11-26	PROJECT REF:	OSIP001

Proprietary Information

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Submissions
Proposals must be submitted via MERX no later than Friday February 6th, 2026, at 5:00PM ADT.
Questions about this document may be directed to:

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This procurement is subject to applicable trade agreements, including the CFTA and CETA.

The contract will be awarded to the highest-ranked compliant proposal based on the evaluation criteria outlined in Appendix B.

1 Table of Contents

2 References

1. OSIP Floating Platform – Power Budget 20251105
2. 8468-LMC-STR-DWG-4001-D01 - General Arrangement
3. 8468-LMC-STR-DWG-4004_D01 - Deck Structure
4. Moonpool Location_4.63

3 Definitions

Client: Fundy Ocean Research Centre for Energy (FORCE)
Contractor: The entity undertaking the work
OSIP: Ocean Sensor Innovation Platforms Project

4 Introduction

Tidal energy has the potential to help Canada meet its clean energy targets, contribute to the economy, and reduce reliance on imported fossil fuels. To date, the Province of Nova Scotia has awarded a series of tidal stream energy projects in the Bay of Fundy totaling more than 25 megawatts (MW), spurring over $200 million in investment activity, and putting over 500 Canadian companies to work in the sector – companies with existing skills in electrical, civil, and marine engineering, cable installation, ocean science, and marine operations. The potential green energy resource is significant: in Minas Passage alone, the extractable energy potential is estimated at 2,500 MW, equivalent to removing one-million-cars' worth of greenhouse gas emissions.

While the industry has not converged on a singular approach to extracting this energy, at present the most critical innovation to realize this potential is an effective environmental monitoring solution. Specifically, sector growth requires an approach that assures regulators that environmental effects data can be reliably collected and provides investors a clear set of rules to understand how to move from one device to more.

The OSIP project is designed to help deliver this solution: dependable environmental monitoring in the unique conditions of Minas Passage's high flows, where devices will be deployed. This includes:

- Installation of a floating tidal energy environmental monitoring platform, providing breakthrough innovations in characterizing the risk to fish and marine life from surface-deployed tidal devices.
- Accelerated tidal data delivery made possible via wireless, sea-to-shore data transfer capabilities, coupled with innovative data management infrastructure to support the storage/archiving, post-processing and analyses of monitoring data, and the timely reporting of results to regulators.

OSIP greatly improves Nova Scotia's prospects of meeting its target of 300 MW from tidal energy and helps accelerate Canada's energy transition towards net zero emissions.

5 Site Overview

FORCE's test site is in the Minas Passage area of the Bay of Fundy near Black Rock, 10 kilometres west of Parrsboro, Nova Scotia. Minas Passage, only 5 km wide and bordered by basalt cliffs, is the entrance to Minas Basin, the region of the world's highest tides.

About 160 billion tonnes of water flows through the Bay of Fundy each tide, equal to four times the estimated flow of all the freshwater rivers in the world combined.

With the incoming tide, the current in Minas Passage can exceed 20 kilometres an hour, as approximately 14 billion tonnes of sea water flows through Minas Passage into Minas Basin, and central Nova Scotia tilts slightly under the immense load.

6 Proposal Criteria

FORCE is seeking proposals to:

- Create a plan to design, procure and install a hybrid wind/solar rechargeable power system to power the OSIP floating sensor platform in the Minas Passage.
- Implement and manage the execution of the plan, in concert with OSIP project team, until the power systems successful commissioning, including SAT, documentation and training.

The contractor should provide the following in the proposal:

1. Detailed description of the components to be included in the proposed systems including:
    a. Charging components - Rated output curve: power vs. wind speed and irradiance conditions (include expected generation at 4–10 m/s wind and typical solar conditions for Minas Passage)
    b. Charge control and load management design: description of how system prioritizes sources (wind/solar/battery) and protects against over-charge/discharge
    c. Battery chemistry, quantity, sizing and autonomy calculation; include depth of discharge, cycle life, and environmental derating
    d. Cable schedule including sizing and specification
    e. Battery storage racking components
    f. Inverters – AC/DC pure sine wave and sizing specification, Efficiency summary: overall DC-to-DC and DC-to-AC conversion efficiencies
2. Detailed plan statement for the installation of equipment within a 20” Connex Container on OSIP Platform including:
    a. Method of installation
    b. Installation schedule
    c. Container outfitting/Integration to platform at shipyard
    d. Test functionality and verify the operation of the system
3. Environmental & operational ratings:
    a. Environmental compliance report: IEC/CSA certifications, marine corrosion resistance, salt-fog and UV durability
    b. Operating conditions: temperature range, humidity tolerance, wind survivability (gust ratings), waterproofing (IP65+)
    c. Maintenance interval and service plan: recommended inspection frequency, replacement components, and O&M requirements
4. Engineering requirements to support the proposed plans including:
    a. Structural mounting locations for PV panels and wind turbine poles
5. Procurement plan of the power system and all components on the OSIP platform:

    a. Schedule to procure all power generation components, battery storage, power conversion components, and associated equipment
6. Project team and qualifications:
    a. Identification of key personnel assigned to the project, including roles, responsibilities, and project availability
    b. Summary of relevant qualifications, certifications, and experience with hybrid wind/solar systems, marine deployments, containerized integrations, and commissioning
    c. Description of the contractor's organizational capacity and any subcontractor relationships (if applicable) to demonstrate the team's ability to deliver the proposed work effectively and on schedule
    d. Identification of the personnel who will lead system training for the FORCE/OSIP project team, including their specific qualifications and experience in commissioning and operator training

The successful bidder must agree to having a representative of FORCE oversee the work:

- Reviewing and approving plans
- Present for installation and SAT
- Provided with all necessary operating procedures, maintenance schedules, and documentation for the installed system

The contractor is responsible for supplying all materials required for the full design and installation of the power system unless explicitly stated otherwise.

7 OSIP Design Requirements

7.1 OSIP Energy Requirements

The energy requirements of OSIP's onboard sensors and equipment are summarized below. While some sensors and equipment specifications are not fully identified, values are provided to ensure the energy budget accounts for base load and expansion of the system.

The sensors listed do not form part of the procurement requirements of this RFP.

Ocean Sensor Innovation Platforms (OSIP) Floating Platform - Power Budget										
Category	**Equipment**	**Manufacturer model**	**Units**	**Volt**	**VAC/VDC**	**Amp**	**Watt**	**Runtime (Hours)**	**Total Watts**	**Total kWh**
Imaging	Imaging sonar	Tritech – Gemini 720is	2	24	AC/DC	1.46	35.0	24	1680.0	1.68
	Camera	SubC - Rayfin	1	24	AC/DC		13.5	24	324.0	0.32
	Camera	I2s – Orphie Cam 300	1	24	AC/DC	0.54	13.0	24	312.0	0.31
	Camera	MarineSitu - C3-DBH13-UVC	1	24	DC		3.0	24	72.0	0.07
	Wiper	Zebra Tech – Hydro Wiper	1	9	DC	0.08	0.7	0.25	0.2	0.00
	UV	AML – Cabled UV Biofouling Control	1	24	DC	0.01	0.0	0.25	0.0	0.00
	Light	SubC Imaging – Aquorea Mk3 LED	4	24	DC	5.00	120.0	12	5760.0	5.76
	AI Camera Systrem	HydroAI	1	36	AC/DC	2.50	90.0	24	2160.0	2.16
Acoustics	Acoustic receivers	Innovasea HR2	4	11	AC/DC	0.01	0.1	24	9.1	0.01
	Echosounder	Simrad - EK80 Portable Transceiver	1	12	AC/DC	3.75	45.0	24	1080.0	1.08
Metocean	Anemometer	Campbell Scientific 05108-45	1	12	DC	0.01	0.1	24	1.4	0.00
	Air temp and R.H.	Campbell Scientific HMP45C212	1	24	DC	0.00	0.0	24	0.3	0.00
	ADCP	Nortek Signature 500	1	24	AC/DC		8.8	24	210.0	0.21
	ADV	Nortek Vector 2	1	24	AC/DC	2.00	2.7	24	64.8	0.06
	CTD, FDOM, PAR	RBRconcerto³ C.T.D.QUAD.TRI | wifi	1	24	AC/DC		2.0	24	48.0	0.05
	Hydrophone	Ocean Sonics icListen	2	110	AC/DC		1.9	24	91.2	0.09
	Accelerometer & orientation	AHRS IMU Sensor | SINDT	1	24	DC	0.04		24	0.00	0.00
	AIS	B924 Class B	1	24	AC/DC		3.4	24	81.6	0.08
	Data Logger/Integrating equipment	Campbell Scientific	1	24	AC/DC		8.0	24	192.0	0.19
Operational	Heat Pump	9000 BTU	1	220	AC		1200.0	24	28800.0	28.80
	GIS positioning sensors	GPS 19x HVS	3	24	DC		0.48	24.00	34.6	0.03
	Load cell	Strainstall	1	24	DC		2	24.00	48.0	0.05
	Computer (x2)	Lenovo	2	110	AC		80	24.00	3840.0	3.84
	Starlink	High performance antenna kit	1	120	AC/DC		150	24.00	3600.0	3.60
	Shore comms/Wireless antenna	Ubiquiti 1gbps directional antennas	3		AC/DC		40	24.00	2880.0	2.88
	House lights	LED 12VDC	2	12	DC		40	6.00	480.0	0.48
								TOTAL	**51289.2**	**51.29**

Figure 1 OSIP Power Budget

- The maximum expected load at any given time under its current configuration is 51,289 watts.
- With an additional 20% capacity factor, maximum load is calculated to be 61.55 kWh
- The table below serves to demonstrate how demand and generation can be calculated:

Generation		
Demand	Watts (demand)	51289
	kWh (per day)	51.29
	20% safety factor (capacity and temperature) - kWh(per day)	61.55
Solar	Hours of Sunlight	6
	Panel Wattage	400
	Number of panels	16
	Total generation/day per given amount of panels (Wh)	38400
Wind	Turbine Wattage	1000
	Number of turbines	4
	Hours of Wind	8
	Total generation/day per given amount of turbines (Wh)	32000
	Total Generated per day (solar + wind) (kWh)	70.40
	Total remaining = Total combined generation - demand (kWh)	8.85

Figure 2 OSIP Demand vs Generation

7.2 Structural and Mechanical Design Envelope

- Maximum allowable turbine pole height: 4.0 m above deck.
- Maximum rotor diameter: 1.5 m.

- PV panels to be mounted on Connex container and where feasible on deck structure (to be finalized with FORCE).
- All materials must meet or exceed marine-grade corrosion requirements.

7.3 System Performance Requirements

- The proposed hybrid wind–solar generation system shall be sized to provide not less than 120% of the average daily site load under standard operating conditions.
- For this project, the design basis daily load is 61.55 kWh/day, so the minimum acceptable generation capacity shall be ≥ 75 kWh/day (annual average) after accounting for system losses (inverters, wiring, charge controllers, and battery round-trip efficiency).

7.4 Platform Detail

A 20' Connex container will be mounted forward of the cross deck and will house all power control systems. The roof and cross deck are reserved for PV panels. Existing cable pathways fixed to the structure to be utilized for PV panel wire management. The platform drawings will be available at the time of contract awarding to aid with system design.

8 Work Package and Deliverables Breakdown

Task #	Deliverable	Client Responsibility	Contractor Responsibility
1	Design Package Submitted and Approved	• Provide all details of the installation space available for all components of the power system (20" Connex with roof space and platform dimensions and drawings) • Supply all engineering drawings for the platform to support the design of the hybrid power system. • Provide all necessary materials and documentation associated with power requirements	• Deliver all mechanical drawings associated with installing and securing the hardware onto the OSIP platform • Confirm the suitability of the power system to fulfil the objectives of the OSIP platform • Provide a bill of materials and installation plan for the proposed system • Address any safety considerations associated with the installation

Task #	Deliverable	Client Responsibility	Contractor Responsibility
2.1	Procurement and delivery of components of the power system to the shipyard	• Provide input into design recommendations	• Procure all components of the power system and any other components necessary to install power system on the OSIP Platform
2.2	Install components of the Power system on the OSIP Platform	• Provide time and access to the OSIP platform to allow the contractor to install the system • Confirm the operation of the installed system	• Install the power system on the OSIP Platform • Verify the correct operation of the system with the client
3	SAT, Documentation and Training	• Designated personnel to be trained and review the materials delivered from the client	• Provide a maintenance schedule and training on the operation of the system • Provide an installation report listing pathways to upgrade

9 Schedule

Project start date - February 13, 2026

Task 1 – Complete March 6, 2026

Task 2.1 – Complete April 9, 2026

Task 2.2 – Complete May 4, 2026

Task 3 – Complete May 15, 2026

10 Commercials

10.1 Contract Structure

The contract resulting from this RFP will be a fixed-price contract covering all labour, materials, equipment, subcontractors, travel, and installation activities necessary to deliver the OSIP hybrid power system. The contract term will extend from award through successful Site Acceptance Testing (SAT) and delivery of all documentation.

10.2 Pricing Requirements

Bidders must provide a complete and transparent pricing schedule including:

- Itemized cost breakdown (materials, components, hardware, labour, subcontractors, travel, mobilization).
- Unit rates for labour categories and subcontracted services.
- Pricing for all deliverables identified in Section 8.
- Currency: all prices must be quoted in Canadian Dollars (CAD).
- Pricing must remain firm for 120 days from the submission deadline.

10.3 Payment Schedule

Payment will be made in accordance with the following milestone structure, unless otherwise negotiated and approved by FORCE:

- Project start date – February 13, 2026
- Milestone 1 – Design Package Submitted and Approved: 20%
- Milestone 2 – Procurement and delivery of components of the power system to the shipyard: 40%
- Milestone 3 – Installation Completed on OSIP Platform and successful SAT: 40%

All invoices must reference the FORCE Purchase Order and be submitted to: accountsreceivable@fundyforce.ca

Payment terms are Net 30 days from receipt of a valid invoice.

10.4 Taxes and Duties

All prices must be exclusive of HST.

The contractor is responsible for all import duties, brokerage, and customs fees (if applicable).

10.5 Insurance Requirements

Before commencing work, the contractor must provide proof of:

- General liability insurance of at least $2,000,000.
- Workers Compensation / WCB coverage.

10.6 Shipping, Delivery, and Logistics

The contractor is responsible for all shipping, freight, packaging, and delivery costs.

Delivery location: Meteghan, Nova Scotia

Transportation of batteries and other hazardous goods must comply with all applicable TDG regulations.

10.7 Changes and Variations

Any deviation from the approved design, schedule, or scope must be submitted as a formal contract change request and approved by FORCE in writing prior to implementation.

10.8 Subcontractors

If subcontractors are to be used, the bidder must:

- Identify all subcontractors in the proposal.
- Demonstrate their qualifications and proof of insurance.
- Obtain written approval from FORCE prior to subcontractor engagement.

10.9 Acceptance Criteria

Final acceptance requires:

- Completion of installation on the OSIP platform.
- Successful Site Acceptance Testing (SAT) witnessed by FORCE.
- Delivery of all documentation, maintenance schedules, and operation manuals.

10.10 Contractor-Supplied Materials

The contractor is responsible for supplying all materials required for the complete design, fabrication, delivery, and installation of the OSIP hybrid power system. FORCE will not supply electrical components, mounting hardware, cabling, fuses, breakers, enclosures, or consumables unless explicitly stated otherwise in writing.

10.11 Site Acceptance Testing (SAT)

- Full system energization on OSIP.
- Charge/discharge demonstration.
- FORCE witness required.

11 Appendix A: HSE Requirements

HEATH, SAFETY, ENVIRONMENT DOCUMENTS

Contractor shall provide the following supporting documentation with the Proposal:

1. Contractor's Corporate Health, Safety, Environment Program
2. Contractor's Corporate HSE Manual
3. Contractor's Corporate HSE Policy
4. Applicable certifications and registrations, including ISO 9001 registrations
5. Inspection and Reporting Forms and Procedures
6. Other documents as requested

The above documentation shall be in accordance with the requirements of the Nova Scotia Occupational Health and Safety Act and Regulations and shall be submitted and approved by the Company prior to execution of the Agreement.

As a minimum standard, the successful Contractor is required to have an acceptable HSE program that shall conform to municipal, provincial, and Federal guidelines complying with all applicable Laws, Acts, Regulations and Standards pertaining to the Work.

The Contractor shall acknowledge its obligations and adhere to, and act consistent with, its commitments in the respective HSE programs as are applicable to the Work. The Contractor shall furnish to the Company, evidence satisfactory to the province in its sole and unfettered discretion that it has the ability to implement a HSE program in compliance with the Request for Proposal documents and applicable Laws, Acts and Regulations.

If applicable to the Work, the Contractor shall include in the Proposal the requirements of preparing, submitting and applying an employee HSE program at the Site for the duration of its Work.

12 Appendix B – Evaluation Criteria

Eligible proposals will be scored out of 100 points based on the following evaluation criteria:

Evaluation Criteria	Detail	Weight (%)	Scoring Guidelines (can be any value between 0–10)
Complete HSE documentation (mandatory, scored).	• Proponents must submit a complete Health, Safety, and Environmental (HSE) package as outlined in Appendix A. Proposals without this documentation will be deemed ineligible.	20%	0 = incomplete, ineligible; 5 = basic HSE program; 10 = comprehensive, project-specific, and fully compliant package with strong safety culture
Technical Approach and System Design	• Quality of structural mounting approach for PV and wind systems • Charging architecture, control logic, and load-management design • Battery sizing, autonomy calculations • Cable schedule, inverter sizing, and component integration • Alignment with provided power budgets and environmental conditions • Quality and completeness of mechanical drawings and installation documentation	30%	0 = no technical consideration demonstrated; 5 = some technical consideration demonstrated; 10 = extensive technical consideration demonstrated
Installation Plan and Methodology	• Installation sequencing and schedule • Shipyard Connex container to platform integration plan • Safety considerations during installation • Access, mounting, and handling procedures	20%	0 = no technical consideration demonstrated; 5 = some technical consideration demonstrated; 10 = extensive technical consideration demonstrated
Equipment Compliance	• IEC/CSA certifications and marine-grade compliance • Corrosion resistance, salt-fog performance, waterproofing (IP ratings) • Wind survivability and temperature/humidity tolerances	5%	0 = no compliance demonstrated; 5 = some relevant compliance demonstrated; 10 = extensive compliance demonstrated

Demonstrated Experience	• Experience with offshore or remote hybrid renewable systems • Past performance with similar engineering or marine-energy projects • Qualifications of key personnel	10%	0 = no relevant experience; 5 = some relevant experience; 10 = extensive proven experience
Timeliness, schedule suitability and awareness of site-specific constraints	• Shipyard work • Travel	5%	0 = no schedule or awareness; 5 = adequate schedule; 10 = well-developed, feasible, and tailored plan
Pricing	• Transparency and completeness of cost breakdown	10%	0 = not cost effective; 5 = moderate value; 10 = highly competitive with excellent value for money