

Bay of Fundy

TIDAL ENERGY



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SEA POWER

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The vertical tidal range can be over 50 feet — giving the Bay of Fundy the highest tides in the world. The horizontal range can be as much as 5 kilometers, exposing vast areas of ocean floor.

The tidal currents in the Bay of Fundy are fast, reaching 10 knots (5.3 meters/sec) at peak surface velocity.

EPRI research identifies the Bay of Fundy as potentially the best site in North America for tidal power generation, with a world-class resource close to an existing electricity grid.

FUNDY TIDAL CENTRE

Nova Scotia plans to host North America's first demonstration centre for new *tidal in-stream energy conversion* (TISEC) devices. The Fundy tidal facility will initially have three underwater berths to connect TISEC devices to the power grid. The facility will allow developers to share costs, limit potential impacts, and test under similar conditions.

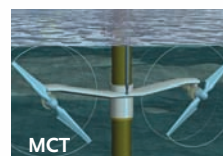
Three candidates, representing technologies from Canada, U.K. and Ireland, are in negotiations for first occupancy in the proposed facility:

- Clean Current (Clean Current Turbine)
- Minas Basin Pulp and Power Co. Ltd. (Marine Current Turbines)
- Nova Scotia Power Inc. (OpenHydro Turbine)

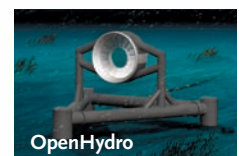
Minas Basin Pulp and Power Company has been selected to construct the facility infrastructure.



Clean Current



MCT



OpenHydro



HISTORY

1607: a mill powered partially by tidal energy was built in Nova Scotia, converting roughly 25 to 75 kilowatts of power.

1935: work began (but was later abandoned) on a proposed 350 megawatt Passamaquoddy Bay tidal project along the us-Canada border.

1984: North America's first and only tidal generating station was built in Nova Scotia. It produces 20 megawatts — enough to power about 6000 homes.

2010: Nova Scotia plans to have the Fundy tidal facility operational, North America's first demonstration centre for new in-stream tidal devices. Many devices loosely resemble underwater wind turbines (other designs also exist).

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The Guinness Book of World Records states the world's highest average tides are in the Bay of Fundy, where the mean spring range in the Minas Basin is 14.5 meters (47.6 feet). The highest tide on record in the Bay was 21.6 meters (70.9 feet) in 1869.

ENVIRONMENTAL BENEFITS

88 per cent of Nova Scotia's electric power is currently fossil-fuel based, accounting for more than 40 per cent of all provincial greenhouse gas emissions.

In 2007, Nova Scotia created legislation called the *Environmental Goals and Sustainable Prosperity Act*. The Act requires a reduction in greenhouse gas emissions to 10 per cent below 1990 levels by the year 2020. To support that goal, the Act includes a deadline for renewable energy growth: by 2013, nearly 20 per cent of total electricity supply must come from renewables.

Tidal energy may contribute to both these targets. Using EPRI's estimate of 300 megawatts of extractable energy from just two sites in the Bay of Fundy, commercial development has the potential to displace over 1 million tonnes of greenhouse gas per year (like removing about 200,000 cars off the road).

ENVIRONMENTAL SAFEGUARDS

Nova Scotia requires these devices to adhere to strict environmental safety standards. These include a Strategic Environmental Assessment (completed spring 2008) and site-specific Environmental Assessments. The devices will undergo ongoing monitoring while in operation, and may be removed if required.

Nova Scotians want to understand the potential of this technology on a demonstration basis before considering any large-scale commercial development; demonstration will also allow for further technological refinement.

The Bay of Fundy is an important environmental, biological, and socio-economic resource to Nova Scotia, and development must take place responsibly.