



any consent that was forthcoming. Their counsel has maintained a watching brief on the proceedings and briefly entered the fray again taking an interest in a flurry of memoranda about proposed conditions of consent aired after the hearing.

### The Applicant and Background to the Proposal

[8] Crest is a company expressly formed to foster commercial development of marine energy generation. It has undertaken four years of research and assessment at the site in the northern part of the entrance to the Kaipara Harbour, having particular regard to the strong tidal movements there. It describes the harbour as *large and relatively sparsely used*, and emphasises the potential for electricity to be generated in the heart of Northland where electricity supply is presently vulnerable.

[9] The case for Crest was predicated on the basis that the project would have no, or minimal, actual adverse effects on the environment on account of a proffered adaptive management regime. It said that it would avoid any potential adverse effects as being of low, almost negligible probability, but some with possibly high impact, for instance on the rare and endangered Maui dolphin.

[10] We shall describe the technical aspects of the proposal in more detail in the engineering section of this decision, but suffice it to record on an introductory basis that each proposed turbine would be similar (except in its dimensions) to an existing product known as the OpenHydro Turbine which is configured as a large wheel comprising two concentric rings, with an outer ring about 20m in diameter and an inner ring of approximately 7m diameter. The inner ring circumscribes a 7m diameter central void, thought to be beneficial to the passage of marine fauna. The two rings are interconnected with turbine blades. This turbine wheel, the only moving part, rotates at about ten revolutions per minute within the outer housing, with electricity being generated via a solid state permanent magnet generator, and passed through cables to the shore station.

[11] The outer housing is attached at its base to a triangular support structure resting on the seabed.

[12] The total height of the structures would be about 24m above the seabed. All turbines would be located in water at least 31m deep, leaving a depth of at least 7m clear between them and the surface of the water column.

