Fisheries Considerations for Cooling Water Use at Offshore Converter Stations

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Seawater cooling has been used for many years by the oil and gas industry, offshore Liquefied Natural Gas (LNG) terminals, commercial vessels of all types, onshore power generating facilities, and more recently the offshore wind industry. The rapid growth of offshore wind energy development requires a comprehensive understanding of cooling water use across industries and ocean users to inform future permitting decisions and environmental assessments. This presentation will introduce the regulatory setting for cooling water use within a subset of offshore wind substations (HVDC converter stations), with deference to the long history of permitting associated with impingement, entrainment, and thermal impacts of cooling water intakes/discharges in both Canada (*Canada Water Act, Canada Fisheries Act*) and the U.S. (*Clean Water Act Sections 316[a] and 316[b]*), at the federal and provincial level. The potential for impacts to fisheries may occur at the intake/withdrawal source, or at the point of discharge related to; impingement of juvenile/adult fish, entrainment of ichthyoplankton, chlorination for biofouling control, and thermal discharge of non-contact seawater. Consideration of best technology available (BTA) to minimize adverse environmental impacts at the intake and the discharge will also be addressed in terms of feasible options and alternatives for flow reduction, closed-cycle cooling, depth of withdrawal, and other mitigation and monitoring measures.