Beneficial Impacts from Offshore Renewable Energy Development

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Effect of the Horns Rev 1 Offshore Wind Farm on Fish Communities
Follow-up Seven Years after Construction

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Ecological and economic cost-benefit analysis of offshore wind energ

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ABSTRACT
Wind energy has experienced dramatic growth over the past decade. A small fractio occurred offshore, but as the best wind resources become developed onshore, there in the development of offshore winds. Like any form of power production, offshore w positive and negative impacts. The potential negative impacts have stimulated a gre to the first offshore wind power proposals in the U.S. and have delayed the devel offshore wind farm in the U.S. Here we discuss the costs and benefits of offshore wind wind power and conventional electricity production. We review cost estimates for o and compare these to estimates for onshore wind and conventional power. We dev functions for offshore wind based on publicly reported projects from 2000 to 2008 limitations of the analysis. We use this analysis to inform a discussion of the conventional, onshore and offshore wind energy usage.

1. Introduction

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Information Needs

- BOEM needs to evaluate environmental effects – both detrimental and beneficial – of renewable energy activities on the Outer Continental Shelf (OCS).
- Extensive reviews have focused on the detriments of development; we need to investigate and quantify the range of positive environmental effects to provide balanced support to decision-making.

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Background

- National Environmental Policy Act (NEPA) analyses should consider beneficial effects (40 CFR 1508.8) of activities that “encourage productive and enjoyable harmony between man and his environment; [and] promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man…”
- To that end, BOEM should identify those activities which will promote a healthier environment as well as identify those that may do harm.

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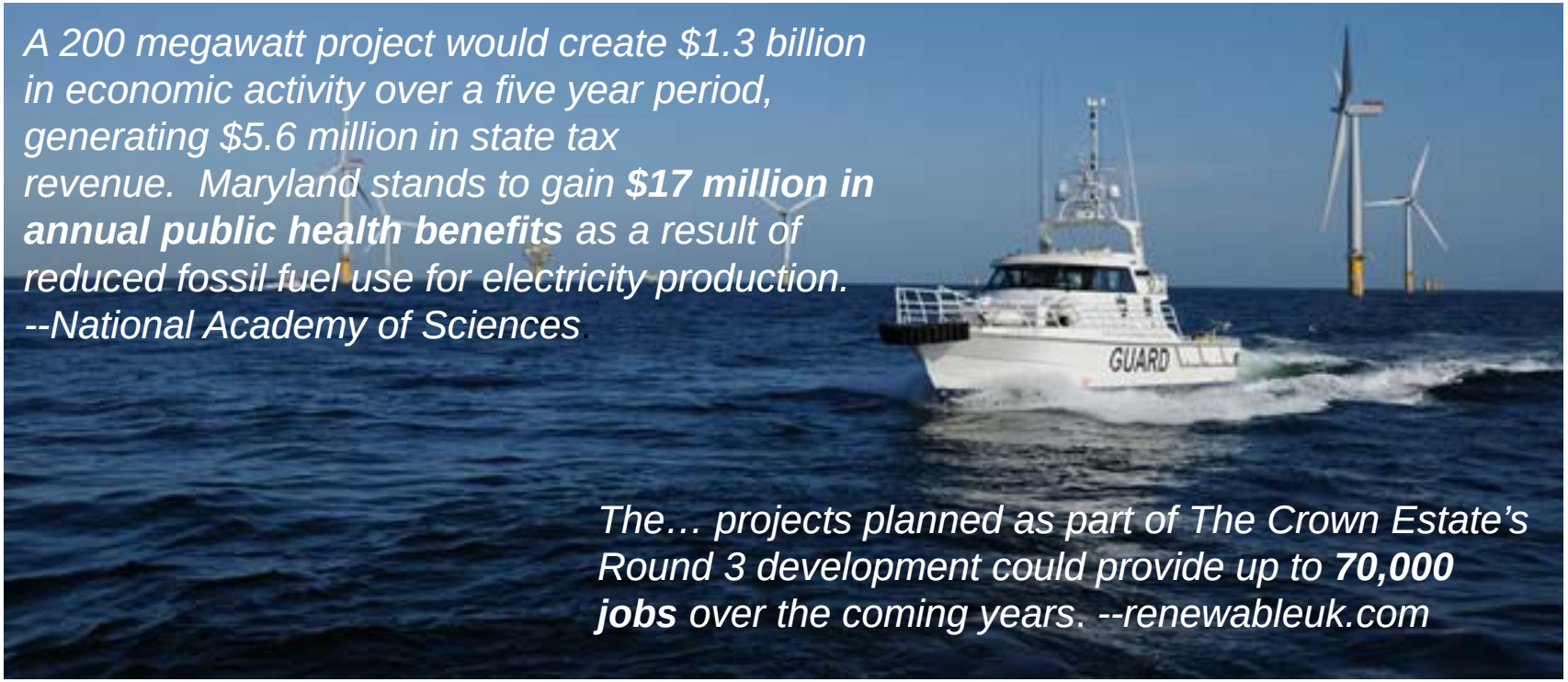
Objectives

- Provide a synthesis of beneficial effects of offshore wind energy development for incorporation in NEPA analyses



*A 200 megawatt project would create $1.3 billion in economic activity over a five year period, generating $5.6 million in state tax revenue. Maryland stands to gain **$17 million in annual public health benefits** as a result of reduced fossil fuel use for electricity production. --National Academy of Sciences.*

*The… projects planned as part of The Crown Estate's Round 3 development could provide up to **70,000 jobs** over the coming years. --renewableuk.com*

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Methods

- Synthesize and evaluate the potential beneficial effects to the environment from offshore wind development along the Atlantic OCS. It may:
  - Include onshore and European development;
  - Draw from existing evaluations of various forms of energy production including coal-fired and nuclear power plants and evaluate these avoided consequences; and
  - Quantify potential health benefits and other societal gains.

Additional Information

- Dr. Lorrie Rea's October 3, 2012 letter to Director Beaudreau outlined the committee's recommendation to investigate and quantify the range of positive environmental impacts of offshore renewable energy.
- Director Beaudreau's April 22, 2013 response pledged to consider including additional studies, such as this one in order to develop objective information and support informed decisionmaking.

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Questions and Discussion

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