

DOCKETED

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Wave Energy Resource Assessment

Comment 2: Re: Wave Energy Resource Assessment

Comment summary:

Assumptions in calculation lack citation. Technical feasible percentage of wave resource is recommended to increase to 50-75%, see U.S. Department of Energy (DOE): Quadrennial Technology Review 4N 2015, Chapter 4 -

<https://www.energy.gov/sites/prod/files/2015/12/f27/QTR2015-4N-Marine-and-Hydrokinetic-Power.pdf> and capacity factor to 35-40%, see International Energy Agency (IEA) OES International LCOE for Ocean Energy Technology <https://www.ocean-energy-systems.org/news/international-lcoe-for-ocean-energy-technology/>.

Justification:

The U.S. Department of Energy (DOE): Quadrennial Technology Review 2015, Chapter 4N Marine and Hydrokinetic Power table 4.N.2: "technical resource estimate of 50% to 75% of theoretical resource on the basis of an assumed range for energy extraction potential and mechanical to electrical conversion efficiency"

Suggestion:

Assumptions in calculation lack citation. Technical feasible percentage of wave resource is recommended to increase to 50-75%, see U.S. Department of Energy (DOE): Quadrennial Technology Review 2015, Chapter 4 -

<https://www.energy.gov/sites/prod/files/2015/12/f27/QTR2015-4N-Marine-and-Hydrokinetic-Power.pdf>

It is recommended to increase the capacity factor of wave power 35-40% based on more recent publication of independent international body, Ocean Energy Systems (OES), an intergovernmental collaboration between countries, founded in 2001, which operates under a framework established by the International Energy Agency (IEA) in Paris <https://www.ocean-energy-systems.org/news/international-lcoe-for-ocean-energy-technology/>.

Sources:

2015: The U.S. Department of Energy (DOE): Quadrennial Technology Review 2015, Chapter 4N Marine and Hydrokinetic Power -

<https://www.energy.gov/sites/prod/files/2015/12/f27/QTR2015-4N-Marine-and-Hydrokinetic-Power.pdf>

2015: International LCOE for Ocean Energy Technology, Ocean Energy Systems (OES), an intergovernmental collaboration between countries, founded in 2001, which operates under a framework established by the International Energy Agency (IEA) in Paris <https://www.ocean-energy-systems.org/news/international-lcoe-for-ocean-energy-technology/>.

Additional investigations by the US DOE have shown significant improvements to the state of the art compared to the 2015 study that are currently advanced towards open ocean demonstrations under US DOE awards, see Evaluation of performance metrics for the Wave Energy Prize converters tested at 1/20th scale, Ann Dallman et al., Renewable and Sustainable

Energy Reviews, 2018, <https://doi.org/10.1016/j.rser.2018.09.002>.

â€¢ Other outdated studies also show a deployment density at CF 30%

<https://www.ourenergypolicy.org/wp-content/uploads/2012/10/The-Future-of-Wave-Power-MP-9-20-12.pdf>