The oceans contain an abundance of energy in the forms of wave, tidal, marine currents, thermal (temperature gradient) and salinity. Among these forms, significant opportunities and benefits have been identified in the area of ocean wave energy extraction, i.e., harnessing the motion of the ocean waves, and converting that motion into electrical energy. Ocean wave power offers several attractive qualities including high power density, low variability and excellent forecastability. This presentation discusses the opportunities for ocean wave power to become a reliable and clean source of renewable energy and provides a summary of wave energy research and developments at Oregon State University (OSU). Also presented will be the activities of the Northwest National Marine Renewable Energy Center (NNMREC) sponsored by the U.S. Department of Energy. NNMREC performs fundamental technological, social, and environmental research, in addition to providing unique testing facilities including a wave energy linear test bed, 2D and 3D wave tanks, and an Ocean Sentinel mobile ocean test berth instrumentation buoy to facilitate ocean testing of wave energy converters.

Brief Presentation Bio

Annette von Jouanne, Ph.D., P.E., IEEE Fellow, has been a professor in the School of Electrical Engineering and Computer Science at Oregon State University since 1995. She received her Ph.D. degree in electrical engineering from Texas A&M University where she also worked with Toshiba International Industrial Division in Houston, TX. Professor von Jouanne specializes in energy systems, including power electronics and power systems. With a passion for renewables, she initiated the Wave Energy program at OSU in 1998, developing it into an internationally recognized multidisciplinary program. She is also co-directing the Wallace Energy Systems & Renewables Facility (WESRF), one of the highest power university-based energy systems labs in the nation. Dr. von Jouanne has received national recognition for her research and teaching, and she is a registered professional engineer as well as a National Academy of Engineering “Celebrated Woman Engineer”.

![Photo of Annette von Jouanne](image-url)