

**DOCKETED**

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# Value of Offshore Wind for California

## IEPR Commissioner Workshop on Offshore Wind



San Francisco  
October 03, 2019  
Alla Weinstein, CEO  
Castle Wind LLC

# What is Castle Wind LLC?

JV Partners – Trident Winds Inc & EnBW North America Inc



Alla Weinstein  
CEO



Lars Gonschorek  
Operational Lead North America



A Seattle, WA, experienced deep water offshore wind developer:

- Multijurisdictional permitting of a wave energy project in Makah Bay, WA;
- Developing floating offshore wind technology while serving as a CEO of Principle Power Inc., and
- Being the first to submit an unsolicited lease request for a 1,000 MW offshore wind project in Morro Bay, CA
- Background
  - BE in Electrical Engineering from Stevens Institute of Technology; MBA from Thunderbird
  - Gov. Inslee Energy appointee to the WA COASTAL MARINE ADVISORY COUNCIL

EnBW is the second largest utility in Germany and is one of the leading developers and operators of offshore wind farms in Europe.

- Offshore wind portfolio of 2,000 MW;
- Expertise in project development, construction and operation & management of offshore wind projects;
- EnBW constructs, operates and invests in the grid infrastructure;
- EnBW's business segments:
  - transmission & distribution of electricity and gas
  - provision of grid-related services
  - supply of water
  - security of energy supply
  - Energy system stability



# Why Offshore Wind (OSW) for California?

## Objectives for the E3 commissioned Castle Wind OSW Study

- › To determine the **economic and system value** of OSW to California
- › To move the inclusion of OSW in the State's **long-term energy planning** efforts

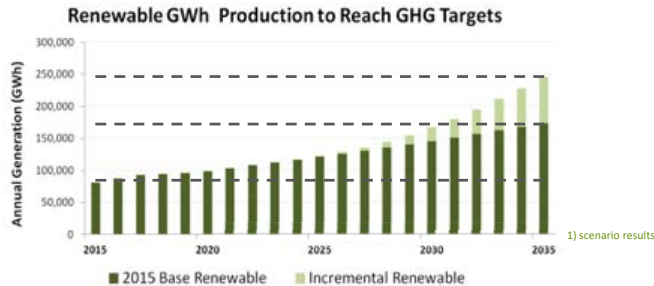
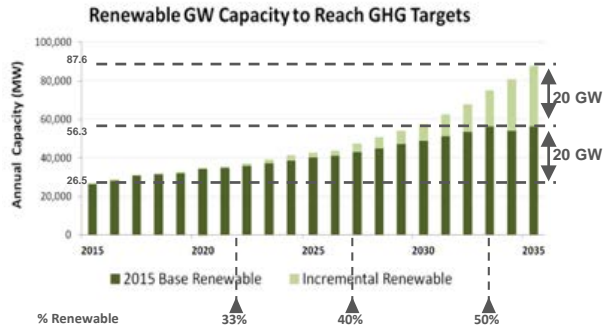
## Top Level results:

- › California **needs** OSW to achieve the “least-cost portfolio” by 2040:
  - 7-9 GW of OSW in energy mix = \$1 to \$2 billion savings on a net present value (NPV) basis
  - Savings increase over time as energy costs go down
  - Already by 2030 OSW becomes part of the least-cost portfolio with increasing demand
- › All scenarios of the Study found that OSW remains a valuable and least-cost resource option even with the inclusion of out-of-state wind

**Offshore Wind offers resource Diversity, Reliability and Adequacy**



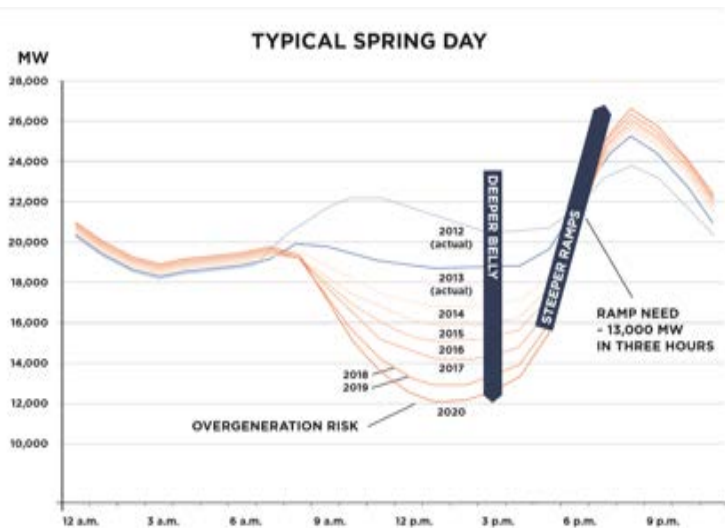
# CA Market Demand to Meet Energy & Climate Goals



- › **By 2030 CA need to Double its Renewable Energy capacity to meet SB100 energy goals**
  - Add approximately 20 GW of renewables = 2 GW/year
    - ~20 GW to transition the existing generation portfolio to renewables assuming zero load growth
    - ~20 GW for new renewable capacity to meet any load growth (economic growth, Electric Vehicles or other)
- › **New renewable capacity needed to meet California's 2050 GHG goals could range from 100 to 150 GW**
  - Power sector will need to accelerate the pace of renewable energy generation under SB 100
  - OSW becomes the most valuable resource to meet both objectives

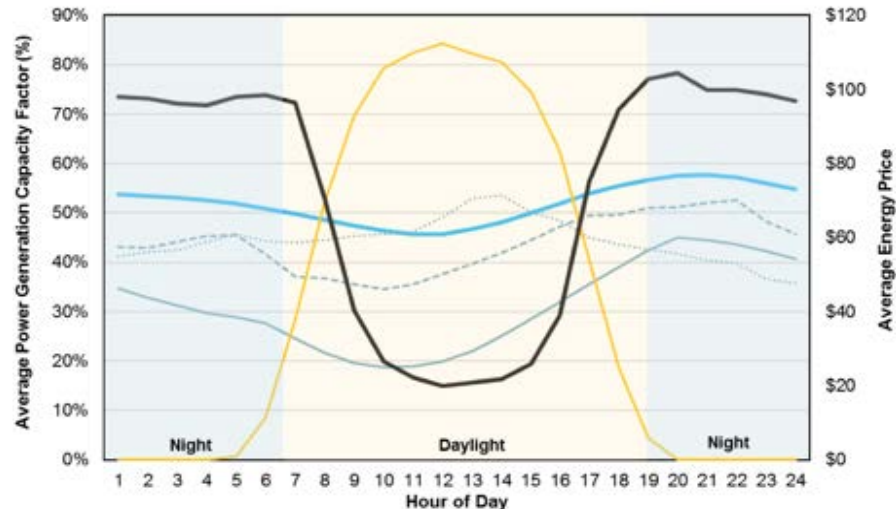
Source: California Energy Commission, "Deep Decarbonization in a High Renewables Future,"

# Offshore Wind Offers System Value



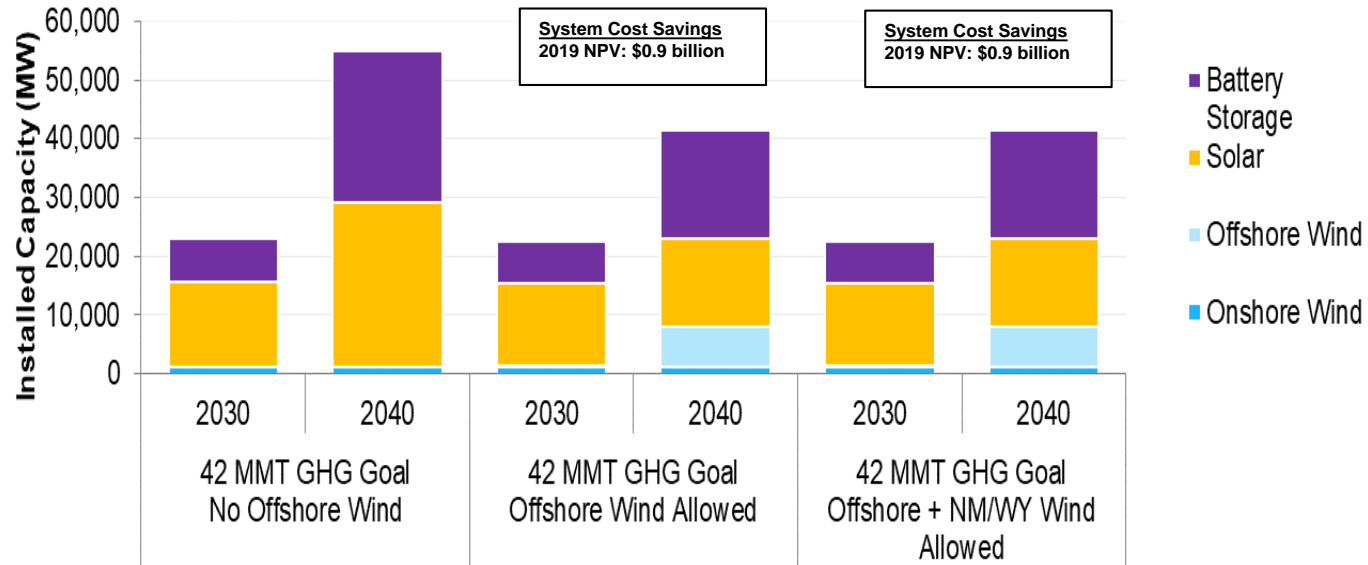
Source: California ISO, presentation by Mark Rothleder at May 12, 2017, IEPB workshop

## Offshore Wind Offers Highest Value Generation Profile



# Offshore Wind Offers System Diversity at the “Least Cost”

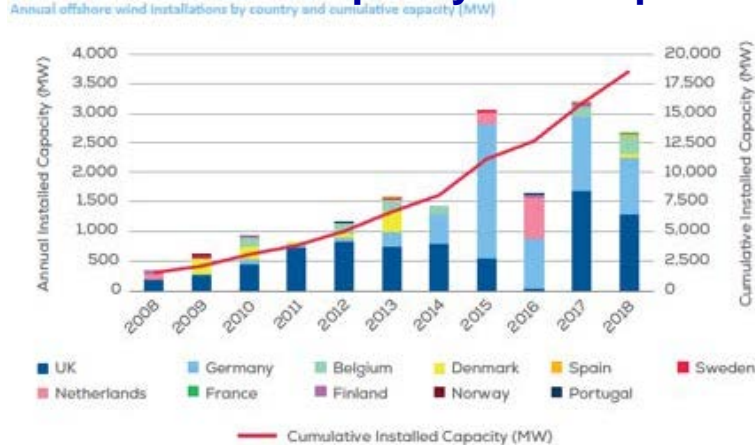
Cumulative Resource Additions Selected by RESOLVE (MW)



Note: all sensitivities above run under Industry Estimate Costs scenario

# Offshore Wind at the end of 2018

**Fixed: 18,499 MW installed capacity in Europe**



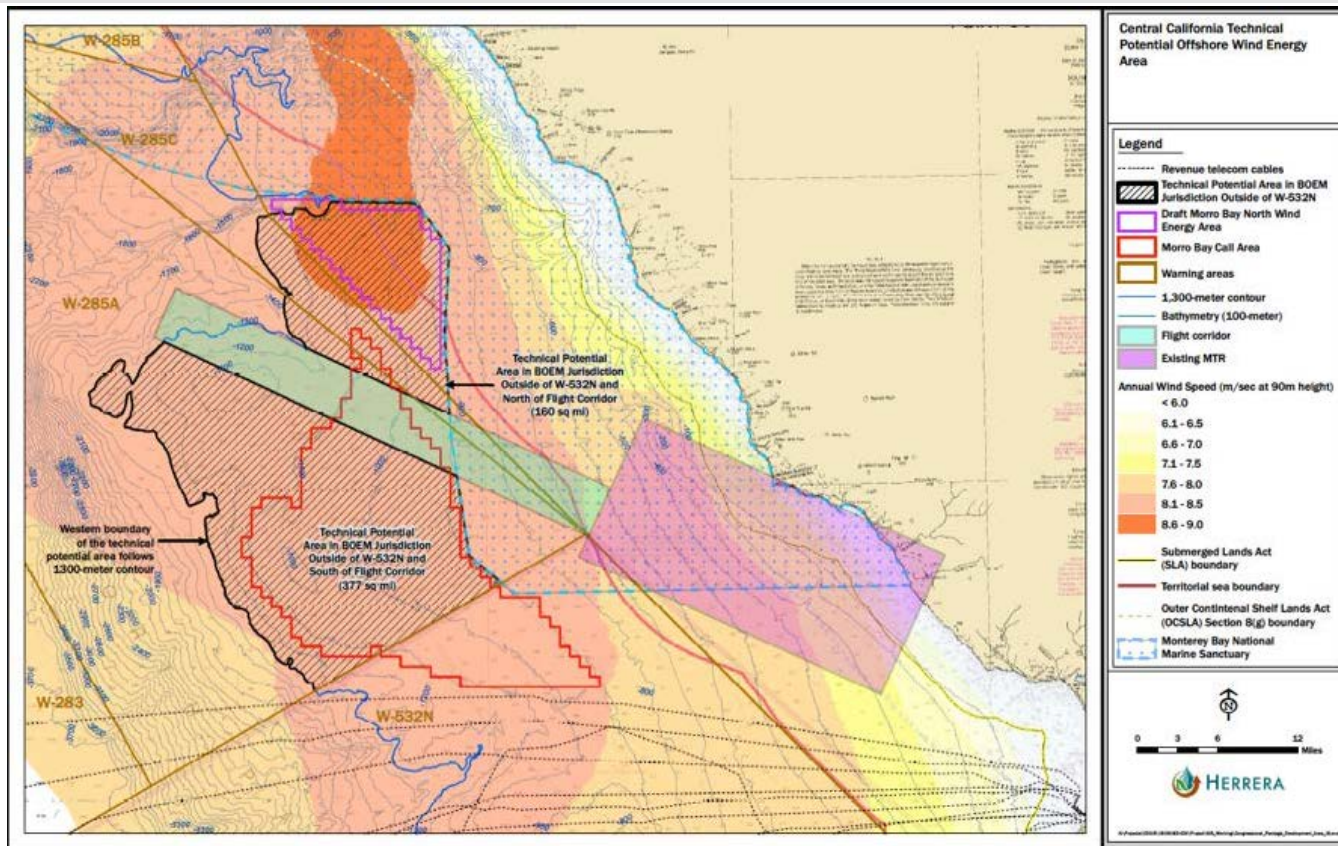
Source: WindEurope

**Floating: 200 MW installed in UK, Portugal, Japan and France by the of 2020**





# General Morro Bay Call Area – Space Limitations



# Path to Realize the Value of Offshore Wind

**The State should develop a strategic plan to install 10 GW OSW by 2040**

- › Site locations
- › Transmissions
- › Procurement

**Governor's Office/OPR/CEC should jointly resolve DOD/Navy issues**

- › 90-day work plan
- › Space is finite and limited in Central California due to physical constraints

**Floating OSW technology is commercial**

- › No demonstration project(s) is necessary

**Competitive criteria should reflect local input and industry best practices**

# Conclusion


## Study Results

- › It has Determined and Quantified the Economic and System value of Offshore Wind
- › It was not intended to, nor does it, answer questions related to labor benefits, transmission impacts/benefits, or where offshore wind farms could be installed.

## **OSW offers California an Abundant, Domestic, and Untapped clean energy resource**

- › California should develop and implement a Strategic Plan to achieve 10 GW of OSW by 2040
  - To advance the responsible development of OSW
  - To realize the economic and system benefits of OSW
- › Elected Officials, Policy Makers, and Stakeholders are key to making this happen





“Instead of looking for  
hope, look for action...”

Greta Thunberg