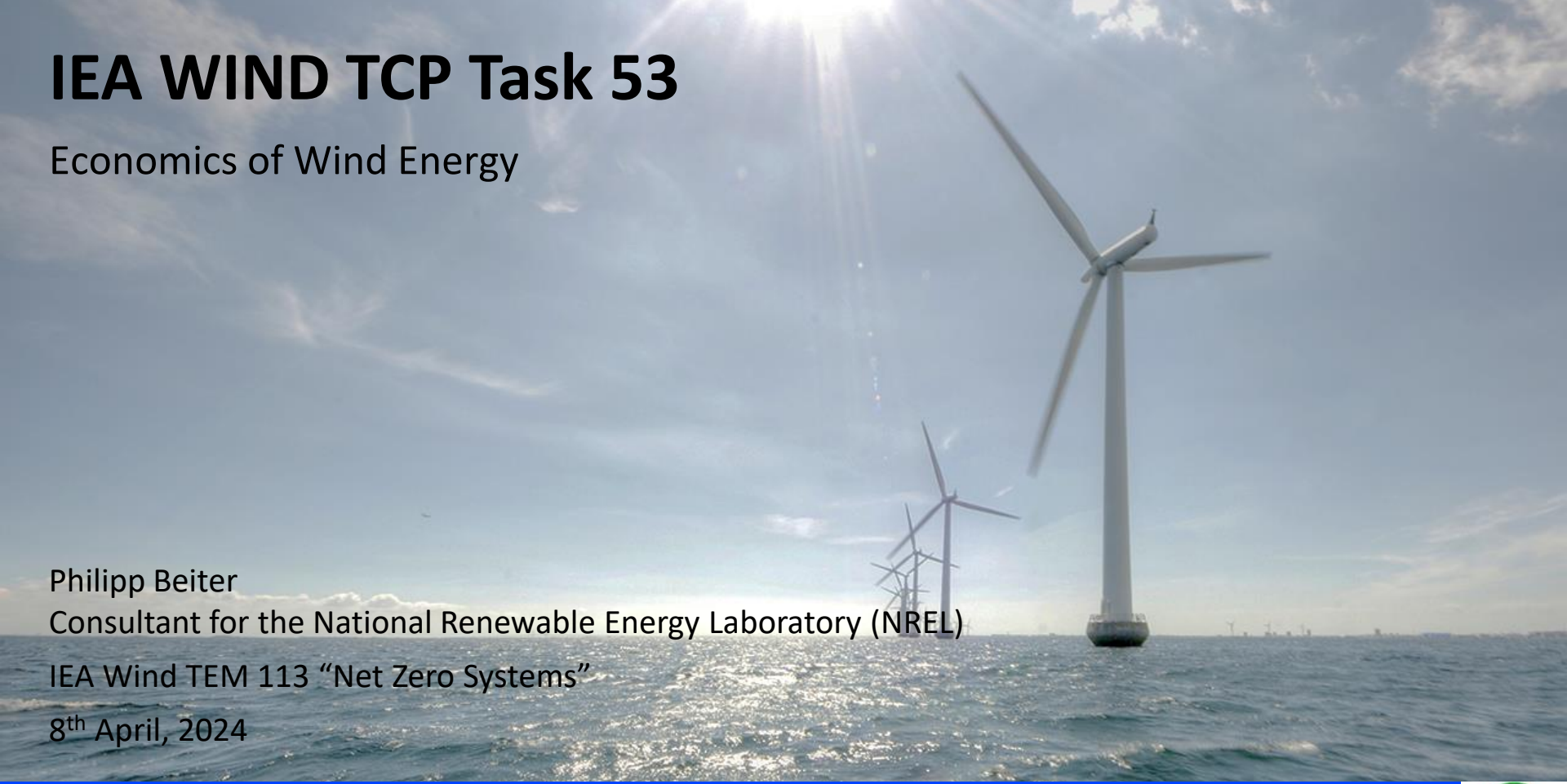
IEA WIND TCP Task 53

Economics of Wind Energy



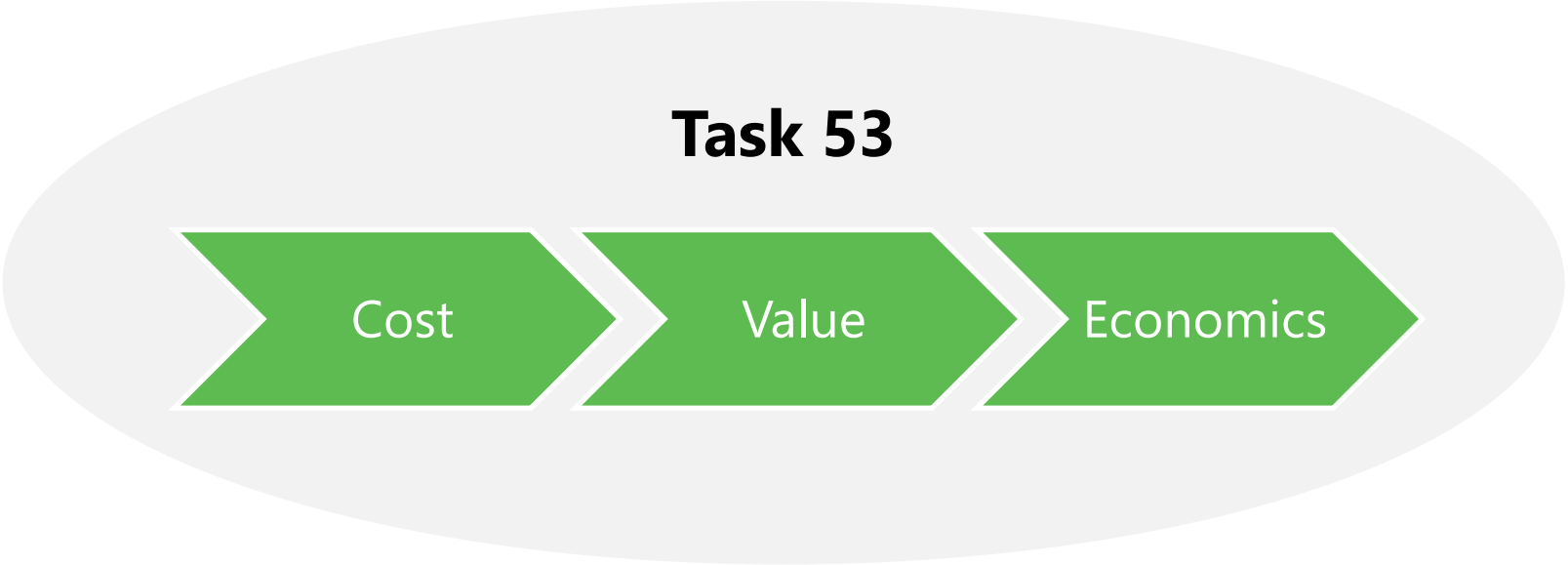
Philipp Beiter
Consultant for the National Renewable Energy Laboratory (NREL)

IEA Wind TEM 113 “Net Zero Systems”

8th April, 2024

The Economics of Wind Energy

”Understanding the economic viability of wind energy”



iea wind

Selected recent publications

- ***Nature Energy:*** *"*The enduring role of contracts-for-difference in risk management and market creation for renewables*" September 2023*
- ***Joule:*** "Toward global comparability in renewable energy procurement" May 2021
- ***Nature Energy:*** "Expert elicitation survey predicts 37% to 49% declines in wind energy costs by 2050" April 2021
- ***Nature Energy:*** "Multifaceted drivers for onshore wind energy repowering and their implications for energy transition" November 2020
- ***Applied Energy:*** "Land-based wind energy cost trends in Germany, Denmark, Ireland, Norway, Sweden and the United States" November 2020
- **IRENA Technical Report "The cost of financing for renewable power"** February 2023
- Published **cost data in web-based viewer** for external uses
- And many others…

iea wind

Task 53 Work Packages

WP1: How does the design and operation of wind power plants change in a deep decarbonization future and impact the value of wind energy?

WP2: How do specific and novel technology innovation and operational trends impact the economics of wind energy?

WP3: How does uncertainty impact wind energy economics and financing?

WP4: What data and methods best inform our understanding of current and historical wind energy economics?

WP5: How does transmission infrastructure and hydrogen affect the cost and value of offshore wind energy?

WP6: How does the wind energy supply chain evolve and change in established and future markets?

Task Participants

Denmark
EA Energy Analyses
Technical University of Denmark (DTU)
European Commission – Joint Research Centre (JRC)
Joint Research Center (JRC)
Germany
Deutsche WindGuard
Fraunhofer Institute for Energy Economy and Energy System Technology (IEE)
Fraunhofer ISI
Ireland
University College Cork
Sustainable Energy Authority of Ireland
Japan
University of Tokyo
Osaka Sangyo University
Netherlands
TNO
Eneco
Norway
Norwegian Water Resources and Energy Directorate
Sweden
Swedish Energy Agency (SEA)
UK
Offshore Renewable Energy (ORE) Catapult
University of Sussex
USA
National Renewable Energy Laboratory (NREL)
Lawrence Berkeley National Laboratory (LBNL)

- 10 participating entities representing 16 distinct organization
- Past and ongoing collaboration with IRENA and individuals from the financing sector

Thank you.

Operating Agent: NREL

Tyler Stehly (tyler.stehly@nrel.gov)

Philipp Beiter (philipp.beiter@nrel.gov)