1. Record Nr. UNINA9910457696203321

Titolo	Offshore Renewable Energy [[electronic resource]] : Accelerating the Deployment of Offshore Wind, Tidal, and Wave Technologies
Pubbl/distr/stampa	Hoboken, : Taylor and Francis, 2011
ISBN	1-136-49320-4 0-203-13884-8
Descrizione fisica	1 online resource (329 p.)
Disciplina	333.91/45 333.9145
Soggetti	Electric power-plants, Offshore Ocean energy resources Offshore electric power plants Renewable energy sources Wind power Mechanical Engineering Engineering & Applied Sciences Mechanical Engineering - General Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Cover; Offshore renewable energy: Accelerating the deployment of offshore wind, tidal and wave technology; Copyright; Contents; List of Tables; List of Figures; Acknowledgements; Preface; 1. Introduction; 1.1 Industry context; 1.2 Economics and financing of offshore energy projects; 1.3 Technical and non-technical barriers and their mitigation measures; 1.4 Findings, conclusions, recommendations and next steps; 2. Offshore Resource; 2.1 Introduction; 2.2 Resource assessment; 2.3 World distribution of offshore resources; 2.4 Summary of offshore energy resources by country 3. Offshore Renewable Energy Technologies3.1 Offshore wind devices; 3.2 Wave energy devices; 3.3 Tidal energy devices; 3.4 Foundations, moorings and grid connection; 4. Deployment Targets, Policies and

Progress; 4.1 Deployment targets and policies; 4.2 Deployment to date; 5. Economics of Offshore Energy Projects; 5.1 Level of maturity of offshore technologies; 5.2 Comparison of CAPEX, OPEX and cost of energy; 5.3 CAPEX cost structure and drivers; 5.4 OPEX cost structure and drivers; 5.5 Cost of energy; 5.6 Differences between countries of project location; 5.7 Conclusions
6. Project Risks and Related Project Costs6.1 Introduction; 6.2 Effects of project risk assessment on economics; 6.3 Key technical project risks; 6.4 Impact of key variables upon total cost structure; 6.5 Conclusions; 7. Financing of Offshore Renewable Energy Projects; 7.1 Financing options; 7.2 Balance sheet finance; 7.3 Conclusions; 8. Technical Barriers and Mitigation Measures; 8.1 Barriers common to all offshore renewable technologies; 8.2 Barriers specific to offshore wind technologies; 8.3 Barriers specific to wave and tidal technologies
8.4 Mitigation and removal of technology barriers8.5 Electrical connection, transmission and grid integration barriers; 8.6 Mitigation and removal of grid connection barriers; 8.7 Conclusions; 9. Non-Technical Barriers and Mitigation Measures; 9.1 Introduction; 9.2 Environmental barriers; 9.3 Mitigation and removal of environmental barriers; 9.4 Health-and-safety barriers; 9.5 Mitigation and removal of health-and-safety barriers; 9.6 Regulatory and permitting barriers; 9.7 Mitigation and removal of regulatory and permitting barriers; 9.8 Competing use barriers
9.9 Mitigation and removal of competing use barriers9.10 Skills availability barriers; 9.11 Mitigation and removal of skills availability barriers; 9.12 Supply chain and infrastructure barriers; 9.13 Mitigation and removal of supply chain and infrastructure barriers; 9.14 Access to capital and financial support mechanism barriers; 9.15 Mitigation and removal of financial barriers; 9.16 Conclusions; 10. Guidelines for Project Development; 10.1 Stage A: Opportunity analysis; 10.2 Stage B: Project materialization; 10.3 Stage C: Reliability and sustainability; 10.4 Conclusions
11. Findings, Recommendations and Model Policy Framework

Sommario/riassunto

Wave, tidal and offshore wind technologies have long held the promise of seemingly limitless energy supplies. In practice, while offshore wind is growing relatively rapidly, all three sectors have lagged behind expectations. This book, from the International Energy Authority Renewable Energy Technology Deployment implementing agreement (IEA-RETD), examines the reasons for this and suggests how barriers to deployment might be overcome. Beginning with an assessment of the marine energy resource, it provides a detailed introduction to the main technologies currently being employed to harness wind