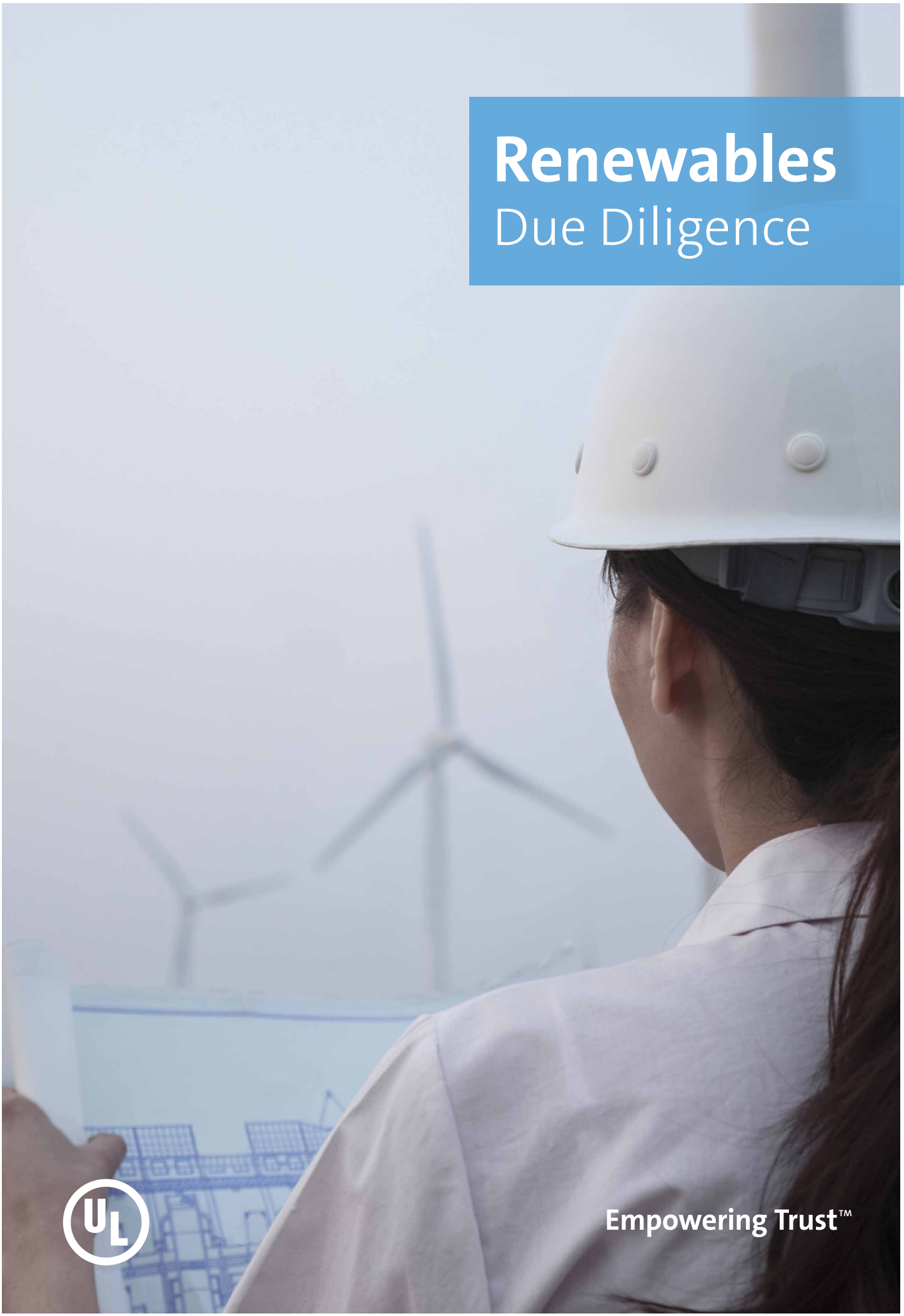
Renewables
Due Diligence



Empowering Trust™

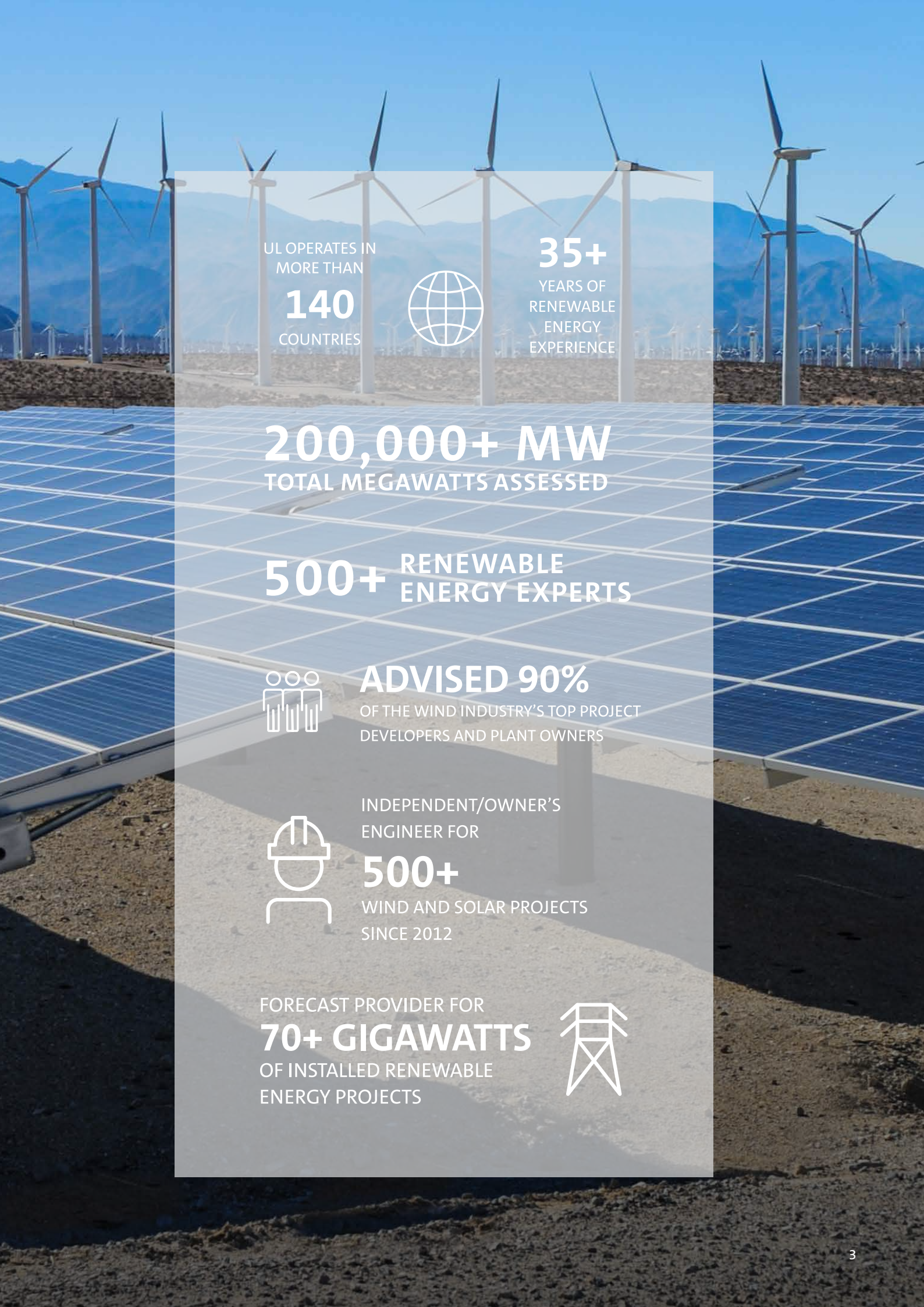
About us

Leaders in Global Services for Renewable Energy

Contents

UL is a trusted independent advisory, testing, inspection and certification body for a broad range of industries. In the renewable energy space, UL works to help manufacturers, developers, owners, investors, lenders, utilities and policy makers navigate the risk and complexity associated with renewable resources. We have become a trusted advisor by providing access to proven science and expert engineering, and by offering innovative solutions to meet the unique challenges of the renewable energy industry. We pride ourselves on being accessible, flexible and keenly responsive to the needs of our clients.

UL now delivers an even more extensive portfolio of renewable energy services, through the acquisitions of AWS Truepower (2016) and DEWI (2012). With offices in over 140 countries, a team of over 500 experts and 35 years of experience, we advise on wind and solar projects as well as battery and energy storage technologies, helping our clients make them safer, compliant and perform to the highest standards. Our goal is to empower trust in renewable energy throughout the project lifecycle and across the supply chain.



UL OPERATES IN MORE THAN

140

COUNTRIES

35+

YEARS OF RENEWABLE ENERGY EXPERIENCE

200,000+ MW

TOTAL MEGAWATTS ASSESSED

500+ RENEWABLE ENERGY EXPERTS

ADVISED 90%

OF THE WIND INDUSTRY'S TOP PROJECT DEVELOPERS AND PLANT OWNERS

INDEPENDENT/OWNER'S ENGINEER FOR

500+

WIND AND SOLAR PROJECTS SINCE 2012

FORECAST PROVIDER FOR

70+ GIGAWATTS

OF INSTALLED RENEWABLE ENERGY PROJECTS

We Help Renewable Energy Customers With:

PROJECT DEVELOPMENT SUPPORT

Navigate project complexities in the earliest stages of development.

- Site Screening and Feasibility
- Turnkey Measurement Services (Met Masts and Remote Sensing)
- Resource Assessment
- Plant Design and Energy Assessment
- Technology Selection and Suitability
- Infrastructure and Balance of Plant
- Permitting Support and Environmental Assessment

SOFTWARE AND DATA

Leverage the knowledge and expertise of our experts and enable your team to work independently.

- Windographer
- Openwind
- Windnavigator
- Wind Data Management
- Resource Maps
- Time Series Datasets
- Site Specific Reports

ASSET MANAGEMENT

Manage expectations of operational plants and improve performance, including safe and reliable operations of wind projects beyond the original design life.

- Operational Energy Assessments
- Performance Analysis
- Plant Performance Optimization
- Remote Sensing / Lidar for Turbine Diagnostics
- Turbine Inspections
- Root Cause Analysis
- Lifetime Extension / Remaining Useful Life
- Loads Simulations
- Components Evaluation

GRID SOLUTIONS

Understand renewable energy variability and the impact of weather-driven events:

- Real-Time Renewable Forecasting
- Grid Management and Planning Services
- Atmospheric Modeling and Applied Research

ENERGY STORAGE SOLUTIONS

Address safety concerns for large battery systems for wind and solar integrators and OEMS.

- Testing and Certification
- Performance Testing
- Custom Research

DUE DILIGENCE

Mitigate the risks associated with renewable energy project investment:

- Independent Engineering
- Technical Advisory
- Pre-Construction, Operational and Repowering Projects
- Custom Support for Investors, M&A, Tax Equity
- Turbine Technology, Civil and Electrical Design Review
- Contracts Review
- Environmental Permitting Review
- Financial Model Review
- Construction Monitoring
- Owner's Engineer

CERTIFICATION

Confirm compliance and provide assurance and confidence in wind technology.

- Certification of Turbines and Components
- Project Certification
- Grid Code Compliance
- Assessment of Construction and Foundations

TESTING AND INSPECTION

Verify the safety, reliability, performance and compliance of wind turbines and components.

- Validation and Type Testing
- Mechanical Loads
- Power Performance Testing
- Electrical Characteristics
- Low Voltage Ride Through Testing

CYBERSECURITY

Help validate and substantiate security claims, meet regulatory requirements and mitigate risks of cyber incidents.

- Training
- Custom Security Testing
- Penetration Testing
- Code Review
- Risk Analysis
- Gap Analysis

RESEARCH AND ADVANCED STUDIES

Research in electrical safety, renewable resource characterization, plant design, energy estimation and real-time forecasting.

- Custom Research
- Market Studies

Technical Advisory Services

As an industry leader in operational assessments, we have developed and refined high quality methodologies for providing long term energy forecasts for operational wind and solar plants. By using operational data, we can estimate future energy production more accurately than by using standard pre-construction methods alone. For investors, we provide bankable energy production reports based on operational data. These assessments provide a clear indication of normal operation and long-term energy projections with lower uncertainty than pre-construction assessments.

Invest with confidence

Investing in a renewable energy project or portfolio is a complex endeavor that requires an extensive evaluation effort. Understanding the inherent technical risks of a project is a critical facet of this effort, and the conclusions of this evaluation will allow you to ultimately decide if the return is worth the risk.

From energy resource and technology reviews, to balance of plant and O&M reviews, we leverage our combined 35+ years and 200 GW of experience on every wind and solar project we evaluate. We are pioneers and industry leaders in technical consulting and have played an active role in many of the world's most important and groundbreaking renewable energy projects. This experience is important, but equally core to our company is our reliability. Our engineers work in lockstep with you and maintain regular communication as we evaluate your project. With millions of dollars on the line, you can't afford to have questions go unanswered.

With offices around the globe, and experience in over 140 countries, we bring the expertise, track record and reliability that will allow you to invest with confidence.

Technical advisory services can include:

Energy Resource
- Operational Energy Production Reports (EPRs)
- Pre-construction EPRs
- Third Party Review of Pre-construction EPRs
- Preliminary Layout and Energy Assessment
- Wake Effects
- Site Review
- SCADA Analysis

Technology
- Turbine Technology Review
- O&M-specific Known Issues
- Site Suitability Assessment
- Assessment of 25-year Life
- System Control Centers

Balance of Plant (BoP) Design
- Civil and Geotechnical Review
- Electrical Design Review

Warranty and O&M Review
- Turbine Supply Agreements
- BoP Construction Agreements
- O&M Agreements
- OPEX Costs

Environmental and Permitting

Site Visits

Lifetime Extension Services
- Design Useful Life (DUL)
- Remaining Useful Life (RUL) Determination
- OPEX Forecast Beyond Design Life
- Operation Plan Optimization

Independent Engineering Services

We help make the critical financial close of a wind or solar project as smooth and successful as possible. Our technical and commercial expertise, along with our understanding of the intricacies of project finance, make us the ideal partner for developers bringing a project to fruition. Our team of engineers and technical advisors will help you prepare your project for financing, mitigate risk, and help ensure it is technically sound and ready for construction.

Identifying and mitigating risks

We support developers and lenders in their evaluation of technologies and projects for debt and equity investments. Our independent engineering (IE)reviews deliver objective information from a full scope of services needed to identify and mitigate the possible risks in wind and solar projects. Our solid reputation and global bankability in the renewable energy industry has been built on experience, quality and transparency, and our track record reflects the trust that lenders have placed with us to help ensure project viability and profitability.

Technical and commercial expertise, along with our understanding of the intricacies involved in project finance, make us an ideal partner for developers looking to raise capital and lenders looking to finance energy projects. The approach we employ for our reports has been thoroughly vetted over time with some of the world's top lead arrangers and lenders, so we know exactly what they are looking for. We will guide you through the technical aspects of financing so your project can secure the capital it needs to thrive.

We offer a full scope of IE services for IE reports, but we can also tailor a scope to fit our clients' specific needs.

IE reports can include:

Project Overview
- Site Layout
- Initial Site Visit

Energy Production Report
- Energy Production Report Summary
- Energy Loss Review

Turbine Technology Review
- Wind Turbine Site Suitability

Balance of Plant (BoP) Design Review
- Foundation and Geotechnical Design Review
- Electrical Design Review

Third Party Curtailment and CongestionSummary

Contracts Review
- Power Purchase and Hedge Agreements
- Interconnection Agreements
- Turbine Supply Agreements
- Balance of Plant Contracts
- Schedule and Scope of Agreements
- O&M and Asset Management Contracts
- Shared Facilities and Co-tenancy Agreements

Environmental and Permitting

Financial Assessment
- CAPEX Review
- Operating Assumptions Review
- Opex forecast

Construction Monitoring
- Progress Report Review
- Construction Drawdown Verification
- Construction Monitoring Site Visits

Construction Monitoring and Management

During the construction and commissioning phases of a renewable energy project, we provide construction management and monitoring services to help ensure that project milestones are completed, the work conforms to the project design, quality controls are being met, and potential delays or cost overruns are identified.

Understand the progress and performance of your investments

During the construction and commissioning phases of a renewable energy project, our company provides construction monitoring and management services to help ensure that project milestones are completed, the work conforms to the project design, quality controls are being met, and potential delays or cost overruns are identified.

Construction monitoring

On-site visits to the project occur either on a monthly or milestone basis during the construction phase of the project. On-site reviews typically consist of:

- Review of final design for general compliance with contracts, and the progress of the design for compliance with the scheduled milestones
- Review of proposed work plans and quality control procedures
- Observe work in progress to determine that the project is proceeding in according with the milestone schedule and design
- Consultations with the owner and contractor in advance of major inspections or important work phases
- Progress reports including budget and schedule variances and photos

During the project start-up and testing phase we provide independent assessments of performance guarantee satisfaction, initial operations, and completion of construction contracts. Services typically include:

- Review test procedures to confirm compliance
- Monitor data collection procedures
- Review Loan Requisition Certificate and supporting documentation
- Prepare the Engineering Certificate for clients and lenders
- Witness performance testing
- Review test reports from contractor and/or owner
- Prepare final report/letter verifying the attainment of performance guarantees from contracts

We monitor the successful completion of each item, with a final on-site visit to verify that all items have been completed.

Construction management

Full-time on-site monitoring by our staff lender's engineer whose primary role is to monitor the engineering, procurement, and construction during a project's construction period. The on-site lender's engineer interfaces with all of the project construction stakeholders to provide feedback to the lender regarding construction conformance to the project design and schedule, reviews of work plans and quality control procedures, and consultations in advance of inspections and major work phases.

500+
Projects
Investor/lender's engineer on over 500 wind & solar projects since 2012

Advised
80%
of the wind industry's top project developers and plant owners

Lender's engineer for approximately
half
of all lenders active in wind and project finance

321
MW

LOCATION: Ireland and Northern Ireland

Brookfield Bord Gáis Acquisition

Brookfield hired our company to support the acquisition of the Bord Gáis Éireann wind portfolio located in Ireland and Northern Ireland. At the time of acquisition, the portfolio consisted of 321 MW of operating wind projects, 137 MW in construction, and approximately 300 MW in development.

We supported Brookfield by evaluating forecasts of energy production and O&M costs, providing a portfolio analysis and technical review of major contracts, and conducting site visits. Following completion of the acquisition, we were retained as the lender's Independent Engineer to support the leverage of a nine-operating-project portfolio. In this engagement, we provided a single, comprehensive IE report with the following scope: energy production assessments, review of site conditions, design, turbine technology, major agreements, environmental and permitting, financial model review, as well as responding to lender questions.

LOCATION: Europe

Construction, Operations and Maintenance for European Offshore Wind Farms

As part of a strategy to further develop its services and offshore expertise, a leading renewable energy consultancy based in Japan engaged our company to provide a comprehensive overview on Europe's experience with the construction and operation of offshore wind farms. The assignment included the review of construction milestones and operational requirements in light of regulatory frameworks, as well as development and technology topics such as support structures, electrical connection and project management strategies. O&M issues such as required facilities, logistics, and the challenges imposed by offshore conditions complemented the work.

189
MW

LOCATION: Canada

Performance Analysis for Large Wind Developer in Canada

A confidential client wanted to obtain an in-depth evaluation of the performance of two wind farms in Canada and asked us to perform the analysis. In the first phase, based on the plants' SCADA data, we categorized wind turbine performance, identified and quantified sources of lost energy, and created a list of action items ranked by priority to correct and improve performance. One key finding was that that the turbines were often in transitional states. Since then, the client has asked us to evaluate two additional projects in the same way.

947
MW

LOCATION: California, United States

Operational Assessment to Aid in Sale of One of the Largest Wind Projects in the United States

In 2014, Terra-Gen Power announced that it would divest from the 947 MW Alta Wind project in Tehachapi Pass, California, USA, and sell it to NRG Yield. To support this transaction, UL conducted an operational assessment to project future energy generation for Alta I-V. Relying on years of 10-minute SCADA data, we performed an in-depth investigation into plant operational issues, wake losses, and windiness corrections. Results showed that the initial energy production estimates had been too high. Our experts worked with Terra-Gen to determine a realistic best estimate of long-term energy yield. The sale was completed in August 2014.

Bankable energy assessments throughout company history:

80,000 MW

North America
55,000 MW

Rest of the world
25,000 MW

Approximately

50%

of US wind projects are financed using our Energy Production Reports

Acted as a lender's engineer for half of all lenders active in wind project finance

252 MW

LOCATION: Nuevo Leon, Mexico

Independent Engineer for Ventika Wind Project in Mexico

The Ventika Wind Project is divided into two adjacent wind farms, Ventika I and Ventika II. Each plant has a name plate capacity of 126 MW, for a total of 252 MW, and it was the largest wind project in Mexico at the time of financing. UL acted as the energy consultant and engineer in the debt financing for the project, and are continuing to perform construction monitoring on behalf of the lenders and project sponsors. The wind farms are expected to be complete and on line in April 2016. The developers are Cemex and Fisterra Energy while Banco Santander led financing efforts, along with Nadbank, Banobras, Nafin & Bancomext. These wind farms will produce energy for Instituto Tecnológico de Monterrey, Femsa, Deacero, and Cemex.

534 MW

LOCATION: United States

Independent Engineering for Tax Equity financing of Three Wind Projects

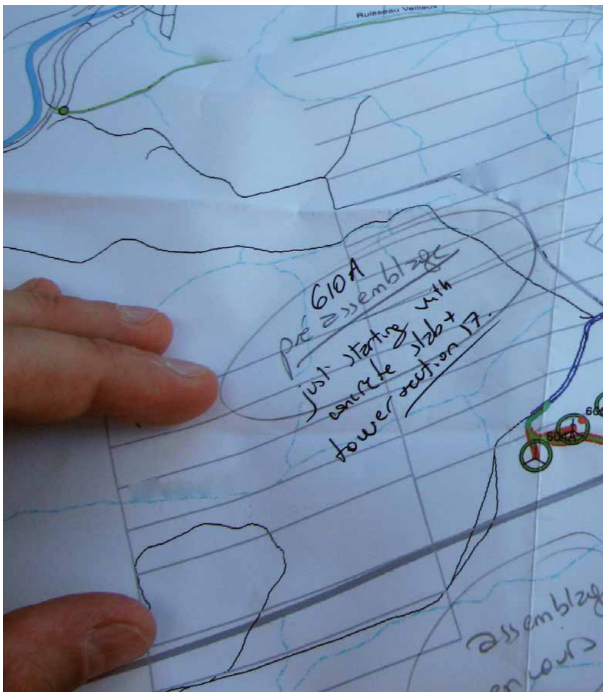
Provided independent engineer services to support the assessment of three wind projects for tax equity financing in Western and Central US. The technical and commercial scope included:

- Technical and Met Tower Verification Site Visits
- Energy Production Estimates
- Civil and Electrical Design Reviews
- Power Purchase Agreements Review
- O&M Contracts Review
- Interconnection Agreements Review
- Turbine Technology Review
- Turbine Supply Agreements Review
- EPC Agreements Review
- Financial Assessment with OPEX Projection
- Environmental and Permitting Review

LOCATION: Causapscal, Sainte-Marguerite-Marie and Sainte Florence, Quebec, Canada

Energy Consultant and Independent Engineer for Wind Project in Quebec, Canada

The Vents du Kempt project retained our company to act as the independent engineer and energy consultant for financing prior to construction. Vents du Kempt is a 101.05 MW wind plant located in the towns of Causapscal, Sainte-Marguerite-Marie and Sainte Florence, Quebec, which utilizes 43 Enercon E92 wind turbines. Our firm provided the Independent Engineering report prior to debt financing, which was provided by co-arrangers The Manufacturers Life Insurance Company and KfW IPEX-Bank GmbH as well as Caisse de Dépôt et Placement du Québec. We continued work on the project and provided construction monitoring through to commercial operation, which was reached in December of 2014. The project is jointly owned by Eolectric Club, L.P. (51%) and Fiera Axium Infrastructure Canada, L.P. (49%).



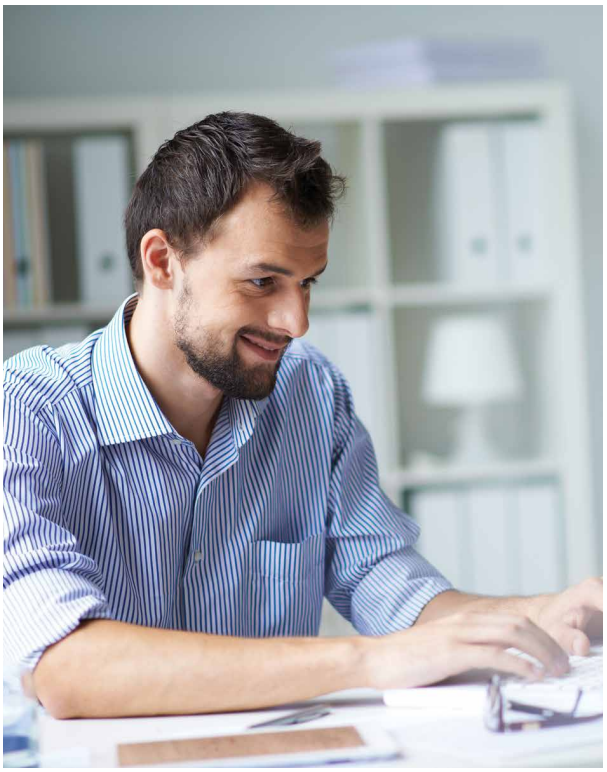
350 MW

LOCATION: Canada

Single Wind Project Independent Engineering for Equity and Debt

Provided independent engineering services to support the equity and debt investments for a single wind project in Canada. The technical and commercial scope included:

- Civil and Electrical Design Review
- Environmental and Permitting Review
- Financial Assessment with OPEX Projection
- Site Assessment
- Turbine Technology Review
- Energy Assessment
- Major Contract Review (Turbine Supply and Commissioning, BoP, PPA, O&M, Asset Management)



LOCATION: Massachusetts, United States

Independent Evaluation of Resource and Energy

Jenner Renewable Consulting retained UL to provide a third-party evaluation of the long-term solar resource and energy production potential of two proposed PV projects in central Massachusetts: Vuelta Solar and Old Wardour Holding Solar, each 9.8MWAC. A typical meteorological year (TMY) data set representing the expected solar and meteorological conditions at the project site was developed. This data set was used in conjunction with plant specifications and loss factors to estimate the long-term energy production of the plant. An uncertainty assessment was conducted to calculate P75, P90, and P99. These estimates helped to quantify the investment risk for the project and to develop stress tests for financial models.

30
MW_{AC}

LOCATION: California, United States

Independent Engineering for Lone Valley Solar Park

EDP Renewables, the world's third largest renewable energy producer, sought independent engineering services to support the financing of its Lone Valley Solar Park project. The Lone Valley project is located in the western Mojave Desert, in San Bernardino County, California, and consists of two adjacent solar farms with a combined capacity of 30 MWAC, enough to power 7000 average American homes with clean energy. The project closed tax equity financing in December 2014. UL's full suite of IE services included energy projections, design and technology assessments, review of all commercial contracts, curtailment analyses, verification of environmental and permitting requirements satisfaction, financial model review, and construction monitoring. The combined projects' 30 MWAC of PV solar panels mounted on single-axis tracking systems will provide over 80,000 MWh of clean energy annually.

150
MW

LOCATION: United States

Single Wind Project Independent Engineering for Tax Equity Financing

Provided independent engineering services to support the assessment of tax equity financing for a single wind project in the Western US. The technical and commercial scope included:

- Project Overview and Site Layout
- Civil and Electrical Design Review
- Environmental and Permitting Review
- Financial assessment with OPEX projection
- Energy Production Report

- Project Overview and Site Layout
- Civil and Electrical Design Review
- Environmental and Permitting Review
- Financial Assessment with OPEX Projection
- Energy Production Report

LOCATION: Multiple Locations, Europe

Evaluation of Operational Solar Plant Performance in Europe

In support of a developer's European projects, we evaluated the operational performance of eight commercial-scale PV systems. The assessment involved a correlation study of plant output to relevant meteorological parameters, an estimate of the long-term resource and energy production based on operational data, and a variance analysis comparing the pre-construction estimates to the performance-based estimates.

207 MW

LOCATION: Austria

Technical Due Diligence to Support the Acquisition of a Portfolio in Austria

Contour Global hired our company to provide full technical due diligence for a wind portfolio they were looking to acquire in Austria. Our technical team reviewed the existing energy production reports for operational and under-development projects. We were asked to perform an analysis of the portfolio's operational data and prepare energy production reports. Our staff traveled to a number of project sites to inspect the balance of plant and review the potential risks associated with the operations and maintenance (O&M), as well as other key aspects of the projects. We also estimated future O&M costs, and provided CAPEX and OPEX (capital and operational expenditures) to the client. The resulting analysis and reports contributed to Contour Global's decision to acquire the 207 MW portfolio.

24 MW

LOCATION: Germany

Technical Due Diligence for Two Wind Farms in Germany

Our company performed a due diligence review for an investor of two wind farms located in Germany with 24 MW installed capacity. We conducted the energy yield assessments, performed a technical review of the key documentation, permits and contracts. Due to delivery shortfall and curtailment of the wind turbines in the beginning of operations, we assessed the shortfall of production and advised on compensation payment from the manufacturer to the owner.

LOCATION: Delaware, Massachusetts, New York, and Vermont, United States

Technical Due Diligence on Soltage-Greenwood Solar Portfolio

In 2013, Fortress Investment Group, a leading global investment management firm, hired UL as the Independent Engineer (IE) to complete technical due diligence on the Soltage-Greenwood Solar portfolio. The portfolio consisted of six PV projects totaling 10.6 MWAC in the states of Delaware, Massachusetts, New York and Vermont. As the IE, we reviewed a number of critical project details including project design specifications, equipment selection, the EPC contract, and permits. A site visit was conducted to evaluate and mitigate location-specific risks. To help characterize the financial risk of the project, we completed solar resource and energy production assessments and reviewed the project's financial models and assumptions.

LOCATION: Massachusetts, United States

Independent Engineer for 4.5 Megawatt PV Project

A client retained UL to conduct a technical evaluation of a multi-megawatt-scale PV energy project in Barnstable, Massachusetts. For this assessment we reviewed relevant documents such as the EPC contract, the O&M agreement, and the on-site test procedures to identify areas of concern. We assessed the energy production potential at the site and quantified energy risk through an uncertainty assessment. A summary report was prepared to inform the client's investment decisions, highlighting the key technical risks associated with the project within its first decade of operation. Upon completion, this project became one of New England's largest solar arrays with a 4.5 MWAC capacity.

150
MW

LOCATION: Oklahoma, United States

Wind Forecasting Service to Facilitate Construction Activities

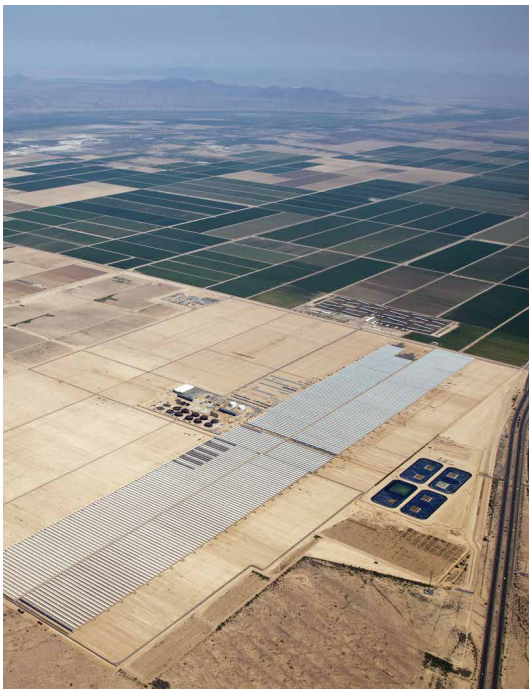
RES America Construction, Inc., contracted UL to provide construction forecasts for a 150 MW wind farm located in Oklahoma. For a 3-month period, delivered twice-daily forecasts with a 72-hour (three-day) time horizon. Forecast parameters included wind speed, direction, and gust; temperature, precipitation, visibility, cloud cover, fog, and freezing rain, all for a height of 80 m above ground. Thanks in part to this service, construction was completed on time and the wind farm went into full operations in October 2014.

150+
MW

LOCATION: Mexico

Construction Monitoring to Support Lenders

Upon the Notice to Proceed with Construction in 2014 (after financing supported by our Independent Engineering report), we were engaged to conduct construction monitoring for this confidential 150+ MW wind project, located in Mexico. The monitoring included monthly site visits, drawdown verification, change order review, and completion certification, and was conducted on behalf of the lenders on the project.



30
MW_{AC}

LOCATION: California, United States

EDP Renewables Construction Monitoring

We supported the Lone Valley Solar Park project, owned and operated by EDP Renewables, through the construction phase to COD. The work included monthly site visits to the construction site, a review of construction progress, and a review of open issues and change orders. We also reviewed critical path activities and assessed the quality assurance procedures. Tax equity finance for the project closed in December of 2014.

150+ MW

LOCATION: Mexico

Independent Engineer for 150 MW Project in Mexico

Acted as Independent Engineer to support the financing of a confidential 150+ MW wind project in Mexico. Services included resource and energy assessment, design and technology review, contract review, operations and maintenance review, environmental and permitting review, and review of the financial model. Conducted several site visits for support of both the energy and the design reviews. Financing was approved in 2014, and we conducted construction monitoring until commercial operation began in 2015.

236 MW

LOCATION: United States

Independent Engineering for Tax Equity Financing of Two Wind Projects

Provided independent engineering services to support the assessment of tax equity financing for two wind projects in the Western US. The technical and commercial scope included project overview and site layout, civil and electrical design review, independent energy review, monthly production datasets, site assessment, major contract review, monthly/diurnal energy matrix, and wake impact analysis. A financial assessment with OPEX projection was also conducted.

LOCATION: Nebraska, United States

Power Performance Measurement for Wind Project in Nebraska

More and more often for new plants, power performance tests are conducted to verify that the turbines are performing as they should. Such tests can even be a requirement for project financing and performance warranties. For a confidential client with a project in Nebraska, we tested three GE 1.5 MW wind turbines in accordance with IEC specifications. Initially, we completed a terrain and obstacle analysis, which led to a site calibration. Then we installed and commissioned the power measurement equipment on the three selected turbines and monitored their performance for three months. The conclusions were delivered in a comprehensive report to the client.

207 MW

LOCATION: United States

Operational Energy Production Assessment for Project Financing

Performed a detailed investigation of the performance of a wind project for a confidential client after a year of operation. Using SCADA data, benchmarking, and evaluating the project's operational reports, we provided the project owner with a better understanding of operational loss factors and identified areas of recoverable energy production for future operations. The results were used for project financing and considered in a portfolio benefit assessment.

600 MW

LOCATION: Portugal

Nineteen-Project Wind Portfolio

Provided due diligence to support construction financing for the projects The technical and commercial scope included independent verification and assessment of:

- Operational Energy Analysis
- Turbine Technology Review
- Historical Performance Review
- SCADA Event/Fault Log Analysis
- O&M Contracts Review
- Operational Strategy Review
- Turbine OPEX Projections
- Future Availability Projections

500 MW

LOCATION: France

Tungsten Wind Farm Portfolio Acquisition Due Diligence

Our company was hired to perform technical advisory services for a bidder, providing an assessment of the value of the portfolio of operating and under-development wind farms totaling around 500 MW. We performed:

- A review of wind resource assessment and an update of energy yield assessment based on production data to update yield assumptions,
- A review of noise studies to assess potential risk - a stringent requirement in France,
- Assessment of the wind farm performance using SCADA data and operation history analysis as well as turbine inspection in order to assess the status of the operating assets,
- Review of O&M contracts and structure, as well as O&M history, to advise on possible changes of this structure by the buyer for further operation.

Our client successfully submitted a bidding offer in time with an optimized level of information of the portfolio.

128 MW

LOCATION: France

Pre-finance Due Diligence for Six Projects

A major German bank hired our company to act as technical advisor for the financing of a wind farm portfolio located in France. Between 2014 and 2016, we evaluated 6 wind farm projects from the same developer, totaling 128 MW. We provided a detailed scope of review prior to project financing, covering contracts (EPC, TSA, O&M, PPA, grid connection, land lease), building permits and environmental assessment, turbine technology, project design (roads, foundations, electrical infrastructure), construction time schedule and inputs to the financial model.

We subsequently supported our client during the construction phase of each project by providing a monthly review of construction reports, advising on compliance with budget and time schedule, analyzing change orders, providing review and validation of main contract invoices and confirming final acceptance of commissioning.

850+
MW

LOCATION: Morocco

Lenders Technical Due Diligence for 850 MW Portfolio Financing

In close relation with a bidding consortium, our company acted as independent technical advisor to the lenders for Morocco's 850 MW national wind power tender. The project is spread across five sites around Morocco mixing simple and complex terrain, desert and temperate climates, from the north to the south of Morocco. In this capacity we performed:

- Review of third-party energy yield assessments, full independent EYAs and provided updated yield assumptions for the lender
- Technical review of the wind turbine technology
- Site suitability assessment including climate, wind conditions, review of specific load calculations, suitability to grid requirements, etc.
- Contract review including, TSA, BOP, O&M, PPA and project contracts, as well as assessment of the entire project contract structure
- Review of environmental impact studies

As a result, the bidding consortium was able to get necessary agreements with lenders for bidding on this tender.

419 MW

LOCATION: United States

Nine-Project Operating/Pipeline Wind Portfolio Due Diligence

Provided due diligence to support the buyer's assessment and valuation for portfolio acquisition interest. The technical and commercial scope included independent verification and assessment of:

- Resource Assessment and Energy Production
- Curtailment
- Effects of Turbine Uprating
- Seller's Operational Strategy

129.3 MW

LOCATION: South America

Two Phase Pre-Construction Wind Project

Provided due diligence to support construction financing for the projects. The technical and commercial scope included independent verification and assessment of:

- Balance of plant design
- Wind turbine technology
- Wind turbine site suitability
- Commercial agreements
- Curtailment
- Resource assessment and energy production
- Financial assessment
- Construction monitoring

1355 MW

LOCATION: United States

Nine-Project Wind and Solar Portfolio

Provided technical advisory services to support the assessment of potential equity investment in a nine project wind and solar portfolio spread across the United States. The technical and commercial scope included:

- Review of all Technical Studies
- Civil and Electrical Design Review
- Technology Review
- Permit Review
- Contractor and Equipment Suitability

59 MW

LOCATION: Romania

Eight-Project Wind Portfolio

Provided due diligence support for an eight-project wind portfolio including:

- Initial Assessment of Available Information
- Historical Plant Availability Review and Future Plant Availability Projection
- Desktop Assessment
- Site Visit
- Turbine Inspection
- Gross Annual Energy Production Projection
- Net Annual Energy Production Projection
- Future O&M Cost Projection
- Uncertainty Calculation
- Review of O&M Contracts

400+ MW

LOCATION: South Africa, Europe, USA, Brazil

Eleven-Project Wind Portfolio

Provided technical advisory services to support the buyer's assessment and valuation for a mixed pre-construction and operational wind portfolio acquisition. The technical and commercial scope was tailored for each of the project phases, and included independent verification and assessment of:

- Initial Assessment of Available Information
- Fatal Flaw Review
- Independent Analysis of Wind Energy
- Turbine Technical Review and Inspection
- Review of Key Contracts
- Review of Key Technical Studies Including Turbine Siting, Interconnection, and Geotechnical
- Review of Project Design
- Review of Project financials Including Long-term OPEX Costs
- Review of Historical Operation

570+ MW

LOCATION: Brazil, China, India, South Africa

Seven-Project Operational Wind Portfolio

Provided technical advisory services to support the buyer's assessment and valuation for the potential acquisition of a wind portfolio consisting of seven operational projects. The technical scope included:

- Operational Energy Production Reports
- Review of Independent Engineer's Report
- O&M Review Including OPEX Costs
- Review of Historical Operations
- Site Visits for Visual Inspection

LOCATION: Republic of Ireland, Northern Ireland

739 MW

Thirty-Six Project Operating/Construction/Pipeline Wind Portfolio

Provided due diligence to support the buyer's assessment and valuation for portfolio acquisition. The technical and commercial scope was tailored for each of the project phases, and included independent verification and assessment of:

- Site Conditions and Infrastructure
- Wind Turbine Technology and Site Suitability
- Commercial Agreements
- Curtailment
- Resource Assessment and Energy Production
- Portfolio Analysis
- Financial Assessment
- Planning Authority Conditions for Pre-construction, Construction, Operations, and Decommissioning
- Environmental Impact Assessments Status and Requirements
- Health and Safety Authority Requirements
- Property and Land Rights Documentation
- Avian Risks and Ornithological Surveys

LOCATION: United States

Two Phase Pre-Construction Wind Project

Provided portfolio benefit analysis to support a developer in the valuation and review of a portfolio consisting of nine wind assets in the United States. Scope included:

- Operational Energy Production Reports
- Estimation of Uncertainty
- Portfolio Effect Analysis

LOCATION: United States

IE Report for Two Wind Projects

Conducted independent engineering services in support of a lender including the review of two wind projects. Services included:

- Turbine Technical review
- Turbine Remediation
- PPA Review
- Interconnection and Curtailment Reviews
- O&M Agreement Review
- Permits, Approvals and Environmental Requirements review
- Financial Model Evaluation
- Site Visits

136.8 MW

LOCATION: Global Portfolio

Eleven-Project Global Wind and Solar Portfolio

Provided portfolio benefit analysis to support an investor in the valuation and review of portfolio consisting of eleven wind and solar assets in North America, South America, Europe, Asia and Australia. Scope included:

- Risk Analysis and Energy Review including Variance Analysis of P50 Estimates vs. Actual Energy Production
- Estimation of Uncertainty
- Portfolio Effect Analysis

2,293 MW

LOCATION: Brazil

Eight-Project Operating/Pipeline Wind Portfolio

Provided due diligence to support the buyer's assessment and valuation for portfolio equity investment. The technical and commercial scope included:

- Energy Reports
- Data Room Documents and Red Flags
- Turbine Technology
- Accompanied Buyer to Seller Meetings, Site Visits, and OEM factory

150 MW

LOCATION: Brazil

Five-Project Operating Wind Portfolio

Provided due diligence to support the buyer's assessment and valuation of portfolio acquisition. The technical and commercial scope included:

- Energy Reports
- Turbine Technology
- Turbine Condition
- Commercial Agreements
- Financial Model
- Accompanied Buyer to Site Visits

Due Diligence Leadership

Gill Howard Larsen – Global Director of Due Diligence Services

Having spent her 26-year career as an energy industry professional in both the US and Europe, Ms. Howard Larsen has spent the last 19 years in a lead role in the development, acquisition, and financing of utility scale wind projects. Before joining UL she led project development, financing and M&A teams and negotiated with project owners, lenders, utilities, and regulatory agencies to close acquisition, financing and sales of multiple wind energy projects. As Global Director of Due Diligence, Ms. Howard Larsen leads the team and all aspects of project due diligence, and performs contract reviews, review of commercial structure, risk assessment and allocation, financial model and OPEX cost reviews, site visits, and construction monitoring. She holds bachelor's and master's degrees from Cambridge University.

Dr. Elizabeth Mayo, Director, Solar Services

Dr. Mayo leads UL's Solar Due Diligence Services and has over 13 years' solar industry experience in solar projects, testing and certification internationally. Prior to joining UL, Dr. Mayo worked for DNV GL as the Head of Department for Energy Laboratory Services, where she managed business operations for reliability and performance testing of modules, inverters and batteries. Previously at DNV GL, she served as Head of Solar Independent Engineering where she lead three teams of engineers in providing IE energy estimates, technology evaluation and PV design for residential, commercial and utility scale PV projects. Dr. Mayo leads UL's Due Diligence solar initiatives, including the management of project managers and client relations. She applies her considerable experience in solar to lead lenders, investors, engineers and project administrators through all phases of technical due diligence. Dr. Mayo has a PhD in Chemistry from the California Institute of Technology in Pasadena, and an MS in Science Education and B.S. in Chemistry from Florida State University.

Colin Tareila – Director, Due Diligences Services, North America

Mr. Tareila has over seven years of experience in renewable energy services. As Director of Due Diligence for North America, he is responsible for managing independent engineering projects for both wind and solar in support of project finance for new project development and acquisition. Mr. Tareila is responsible for overall project management, as well as the evaluation of project contracts, inputs to the project pro-forma, and leading construction monitoring efforts. Prior to joining the due diligence team, Mr. Tareila carried out grid studies, MLA reviews, suitability analysis, electrical loss assessments, curtailment assessments, thermal screenings, and LMP analysis. Mr. Tareila holds a BS in Electrical and Computer Engineering and a MS in Electrical Engineering with a focus on Power Systems.

Jeremy Tchou - Director, Due Diligences Services, North America

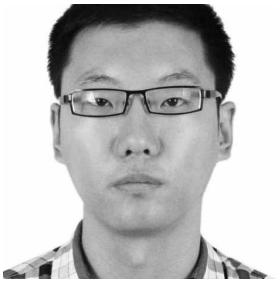
As Director for Due Diligences Services in North America, Mr. Tchou is responsible for overall project management for technical due diligence and construction monitoring. Mr. Tchou has extensive experience with the development, construction, and operational phases for renewable energy projects and has led technical due diligence for over $3 billion in investments. Prior to UL, he worked at DNV GL for seven years in technical due diligence, offshore wind, operational analysis, and wind resource analysis. He also led development of a financial performance modeling system for a UK entity involved in over 3 GW of operational offshore projects. Mr. Tchou has a BS in Earth Sciences and Economics from Harvard University and a MS in Civil and Environmental Engineering from Stanford University.

Cristian Algar – Due Diligence Director for Iberia & Latin America

Mr. Algar has more than eight years of experience within the renewable energy sector, including wind, solar, biomass, and cogeneration projects. As Due Diligence Director for Latin America, Mr. Algar is responsible for managing independent engineering projects for both wind and solar in support of project finance for new project development and acquisition. Prior to joining UL, Mr. Algar was a project manager for Abantia, a Spanish EPC company that has developed solar, biomass and cogeneration projects in Spain, Italy, Central and South America. His responsibilities included full project development and technical services such as solar site selection, permitting acquisition, negotiation of PPA's, EPC and O&M contracts, plant design and management, energy production and project development engineering. Mr. Algar previously worked for Acciona Windpower in the US, coordinating the approval of nacelle components for Acciona's 1.5 MW wind turbines. He holds a BS and MS in Industrial/Mechanical Engineering from the Superior Technical Engineering School of Barcelona ("ETSEIB") and an MS in Construction Engineering and Management from the Illinois Institute of Technology of Chicago. He is fluent in English, Spanish, and Catalan.

Adam Terry – Director, Due Diligence for Europe, Middle East and Africa

Mr. Terry has more than thirteen years of experience in renewable energy, developing and providing technical advice for onshore and offshore wind and solar PV projects. Prior to joining UL, Mr. Terry worked for TÜV SÜD and Wind Prospect Group, providing technical due diligence on over 3GW of onshore and offshore projects in the UK, Europe and South Africa, including due diligence on a 1700MW pan-European portfolio for an international investment fund. He also carried out turbine supply and maintenance contract tendering and negotiation for projects in the UK, Europe and South Africa totaling over 300 MW. Mr. Terry holds a bachelor's degree in Environmental Chemistry from the University of Reading. He speaks English and German.



Bo Jiao, Engineering Manager and Head of Due Diligence, China

Mr. Jiao leads UL's Due Diligence services in China and has over 8 years of experience in renewable energy in China and globally. Prior to joining UL, Mr. Jiao was a Senior Renewable Energy Consultant with Sgurr in Beijing providing due diligence services to both Chinese and international clients for onshore and offshore wind energy projects, including providing due diligence support for project development and M&A. Most recently, Mr. Jiao led the due diligence for a major global portfolio for a Chinese client. Prior to Sgurr, Mr. Jiao was a testing engineer with the China Electric Power Research Institute, working in the renewable energy department and responsible for international business and project cooperation and preparation of national, provincial and ministerial level project feasibility reports. During this time, Mr. Jiao also participated in International Leadership training in Germany with the German Ministry of Environment. Mr. Jiao holds a BSc and MSc in Engineering Mechanics from the Beijing University of Aeronautics and Astronautics and is fluent in English and Mandarin, with a basic knowledge of German.

Key Office Locations

AFRICA
Johannesburg, SOUTH AFRICA

ASIA PACIFIC
Beijing, CHINA
Suzhou, CHINA
Bangalore, INDIA
Ise, JAPAN
Tokyo, JAPAN
Seoul, KOREA

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Mexico City, MEXICO

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