



ITPENERGISED
Earth. Smart. Solutions

ONSHORE RENEWABLES & STORAGE

ONSHORE WIND ENERGY



www.ITPEnergised.com

ONSHORE WIND ENERGY

Introduction

ITPenergised (ITPE) is a trusted advisor providing client-focused, commercially minded, energy and environmental consulting services to clients in onshore & offshore energy, oil & gas, transport & infrastructure, property and corporate sectors.

We have strong corporate credentials, a first class in-house team and we are supported by the best technical sub-consultants we know based on our experience, allowing us to adapt our offering to each geography and the specifics of every project, on a case-by-case basis. By understanding our clients' expectations, financing and attitude to risk, we aim to optimise the approach to consenting and development, grid connection, operation and transactions.

Our capabilities

Our environmental planning team has delivered feasibility assessments, EIAs and consenting support for hundreds of wind and associated transmission projects. We also regularly undertake technical due diligence for asset transactions, and we are providing asset management services for numerous wind and solar assets. Our grid and electrical team at Xero Energy has provided expert transmission and distribution advice for many GWs of onshore wind capacity. Our experience covers single turbines and community projects to large multi-MW wind farms, including various section 36 (>50MW) sites.

Our clients include a wide range of developers and investors, including:

3R Energy, ABO Wind, Alpha Real, BayWa

Brockwell Energy, Burcote Wind, Coriolis, EnergieKontor, Hargreaves, Infinergy, REG Windpower, SSE, Vattenfall and vento ludens amongst many others

Our services to onshore wind clients includes:

- Grid connection feasibility, connection application, offer review and negotiation
- Electrical design, procurement support and technical advice
- Grid charging estimates and forecasts
- Wind resource evaluation
- High-level physical and planning constraints assessment
- Full environmental planning services including EIA co-ordination, delivery and/or management of all technical components, preparation of EIA Reports
- All ecological and ornithological survey and impact assessment works
- Noise survey and assessment
- Shadow flicker modelling
- Hydrology and hydrogeology surveys and assessments, including peat surveys and peat slide risk assessment
- Layout and design iteration
- Energy calculations
- Turbine location optimisation
- Public exhibition support
- Post-planning application support & discharge of planning conditions
- Planning appeal and public inquiry environmental support
- Construction environmental management and Clerk of Works
- Environmental and technical due diligence for asset transactions
- Asset management

ITPenergised ADVICE FOR ONSHORE WIND ENERGY

If you are looking for a reliable partner to support you with Onshore Wind Energy then please contact:

Jonny Clark jonny.clark@itpenergised.com and +44 (0) 7713 985 932

Jenny Hazzard jenny.hazzard@itpenergised.com and +44 (0) 7817 778 100

Andrew Bright andrew.bright@itpenergised.com and +44 (0) 7825 028 301

ONSHORE WIND ENERGY

Selected project experience

Hagshaw Hill Repowering

3R Energy

ITPE led the EIA process for the proposed repowering of Scotland's first commercial wind farm at Hagshaw Hill. The 26-turbine site has been operated since 1995 by ScottishPower Renewables, and the land owner is now seeking consent to repower the development with 14no. 200m turbines and a ~20MW energy storage facility, to maximise the renewable energy generation from this established site. We are liaising closely with SNH, South Lanarkshire Council and the Scottish Government with respect to repowering policy, guidance and best practice.

The proposed development forms part of a wider strategy for the onward development of renewable energy generation in the Douglas Valley, seeking to maximise yield and community benefit while promoting coherent design principles.



This EIA project continues our successful working relationship with 3R Energy; we previously led the EIA for the now consented Douglas West Wind Farm. Feedback from the client has included praise for the ITPE team: *"attention to detail, efficient and cost-effective", "knowledgeable, friendly, focussed on the needs of their clients."*

Wind farm planning & engineering studies

SRG/Hargreaves/Brockwell Energy

Members of the team investigated the potential to develop wind farms at 10 former opencast coal sites across central and southern Scotland, producing consolidated constraints analysis and feasibility report for each site.



Six sites were identified as being feasible for development, and members of the team took three of the sites through planning, including undertaking EIAs and initial design. Strategic grid connection support has also been provided to deliver best possible grid connection arrangements and manage the grid liability risks.

All three sites have now been consented and we are providing consenting and grid support to Brockwell Energy, as they reconsider site design and capacity in light of removal of government support

Green Burn wind farm

ABO Wind

ITPE was commissioned to provide EIA co-ordination and management services for the proposed Green Burn wind farm. This involved briefing and maintaining close liaison with the technical team and the client, ES review to ensure consistency of analysis and robust assessment of effects, and preparation of the Design and Access Statement and the Non-Technical Summary. We also undertook shadow flicker modelling and authored the relevant ES chapter. We continued to provide support

ITP Energised ADVICE FOR ONSHORE WIND ENERGY

If you are looking for a reliable partner to support you with Onshore Wind Energy then please contact:

Jonny Clark jonny.clark@itpenergised.com and +44 (0) 7713 985 932

Jenny Hazzard jenny.hazzard@itpenergised.com and +44 (0) 7817 778 100

Andrew Bright andrew.bright@itpenergised.com and +44 (0) 7825 028 301

ONSHORE WIND ENERGY

post-submission, and the site was consented at appeal in February 2018.

Orkney wind farm sites

Hoolan Energy

We have completed EIAs for two proposed ~20 MW wind farms in Orkney. Following initial feasibility studies and EIA scoping for three sites, baseline studies and surveys were progressed together with regulatory and stakeholder consultation. Alongside grid connection application and review, we have provided strategic grid connection advice – identifying the key grid opportunities for reducing the grid costs.



As potential environmental impacts and mitigation opportunities became clearer, Hoolan opted to progress two of the three sites. We completed EIAs and planning submissions for each site, and provided ongoing support in the post-submission phase, to address consultee feedback.

The projects were refused by Orkney Islands Council in August 2018 (against officer recommendation for one site) and we have supported Hoolan with preparation of appeal documents, lodged in October 2018.

Wind farm site search, feasibility assessments & EIAs

Burcote Wind

Our team has worked on Burcote Wind's portfolio over the last seven years. We have undertaken site-search constraints screening, wind resource mapping and feasibility studies at over 100 potential wind farm sites across the UK and assisted

in developing a suite of 13 large scale developments. Work has involved a review of wind resource and potential yield, environmental constraints, military, radar and communications constraints, grid capacity and connection options, as well as a review of potential transport and access constraints. We have gone on to prepare grid connection applications and offer review/negotiation, grid constraint estimates, network charge (TNuoS) forecasting, planning application submissions, EIAs, front end design and technical inputs to inform the planning application process. We have also supported Burcote's engagement with their investors – helping to provide grid risk identification and mitigation strategy.

Applications for four sites have been submitted to date, with Sandy Knowe in Dumfries & Galloway having been consented in early 2016. We are currently providing full EIA services on a number of forthcoming planning applications, and undertaking various component and feasibility studies on a number of others.



ITP Energised ADVICE FOR ONSHORE WIND ENERGY

If you are looking for a reliable partner to support you with Onshore Wind Energy then please contact:

Jonny Clark jonny.clark@itpenergised.com and +44 (0) 7713 985 932

Jenny Hazzard jenny.hazzard@itpenergised.com and +44 (0) 7817 778 100

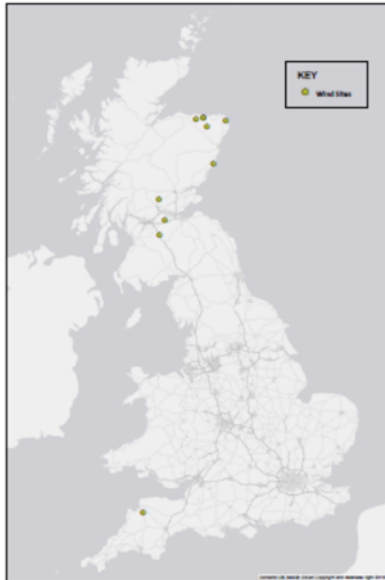
Andrew Bright andrew.bright@itpenergised.com and +44 (0) 7825 028 301

ONSHORE WIND ENERGY

Wind Farm Asset Management

Various Clients

We are providing asset management services for operational wind energy projects ranging from 500kW to 3MW, illustrated on the map below.



This involves managing the operation and maintenance of the assets, with weekly review and monitoring of output performance and proactive recommendations for improvements. It also involves: monitoring planning compliance, site safety and HSQE; grid agreement management; budget and financial planning and management; monitoring and managing third party appointments; advising on Power Purchase Agreement options; and offtake management.

Technical due diligence

Confidential clients

ITP Energised has carried out technical due diligence on the proposed acquisition of numerous assets, both in the UK and internationally, on behalf of potential purchasers, ranging from 500kW units to 50MW+ assets. Due diligence has been

carried out on both consented, pre-construction projects and operational assets, with several years of operating data. Projects have been completed with a total installed capacity of over 500MW both in the UK and overseas, including the Middle East.



Red Flag reports were produced based on data room review and site visits, identifying key issues relating to yield assumptions, radar fix and civil engineering constraints. Capex and opex implications associated with planning, environmental, community benefit, grid, access, construction and contract management were included.

Specifically on grid, we have provided technical and commercial due diligence on multiple GWs of onshore wind projects – covering various stages of development and construction. Our experience ranges across all the distribution and transmission network regions in GB. We have particularly extensive experience of projects located in Scotland.

We have provided many 'red flag' reviews as well as detailed diligence reviews on individual sites and site portfolios in the UK and internationally.

ITP Energised ADVICE FOR ONSHORE WIND ENERGY

If you are looking for a reliable partner to support you with Onshore Wind Energy then please contact:

Jonny Clark jonny.clark@itpenergised.com and +44 (0) 7713 985 932

Jenny Hazzard jenny.hazzard@itpenergised.com and +44 (0) 7817 778 100

Andrew Bright andrew.bright@itpenergised.com and +44 (0) 7825 028 301