

# Local Supply Chain Opportunities in Onshore Wind

Good Practice Guide

October 2014





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# Executive Summary

Onshore wind development opens up opportunities for a wide range of local suppliers. This document is intended as a guide both for suppliers wishing to enter or expand their presence in the sector, and for developers seeking to maximise local contact.

The UK wind sector is growing, and wind energy is now a major part of our electricity mix. As a sector, onshore wind already employs 19,000 people in the UK, with the potential for this to increase. In 2012, RenewableUK and the UK Government worked to measure the contribution that onshore is making to the UK and local economies. We found that in 2011 alone, the onshore wind sector provided £458 million of gross value added (GVA) to the UK, a level of investment that will be repeated year on year in a stable market.

More relevant here is the scale of the local benefits which come as a result of wind farm development. On average, each UK wind farm will contribute £100,000 to the local community for every MW installed. That means a typical wind farm with five 2MW turbines represents a £1 million investment in the local area through employment, contracts and community benefits over its lifetime.

But these local benefits cannot be taken for granted. It's important that wind farm developers are active in how they support local companies and foster a local supply chain. Local agencies and business groups also have a part to play in this work. Additionally, in order to be successful in winning work, local businesses need to gain an understanding of how the wind industry works, and what contracts are available.

This Good Practice Guide is here to help. For local companies and suppliers aiming to diversify into the sector, it explains how onshore wind farms are developed. For developers, it contains practical advice on how to support a local supply chain and maximise benefits to the local area.

The many thousands of people working in onshore wind understand the benefits to our economy that wind energy is already providing. By encouraging the development of local and regional supply chains, and working harder to deliver local value, we can make sure that investment goes directly into the local economy in the form of wages for individual employees and contracts for local businesses.

## Want to know more about winning work in onshore wind?

### Here's how:

#### 1. Make use of this guide

It's been written to help companies new to the industry understand how onshore wind farms are developed, constructed and operated. Use it to identify where your business fits in.

#### 2. Remember, many different products and services are needed

Wind farms aren't just about blades, towers and gearboxes. Wind farm companies will contract for a wide range of things – from cranes to cleaners, steel reinforcement to security, and tarmac roads to taxi services.

#### 3. Use wind farm open days to learn more

As part of local engagement developers will hold events in the local area. Use these to talk to developers about their plans for working with local businesses. If you are part of any local business networks ask them what they are doing to promote local opportunities and foster discussion.

#### 4. If you want work, lend your support

If a developer makes an early commitment to deliver on local content, add your voice in support of the project. Wind farms must demonstrate local benefits to win support, so supporters need to make themselves heard. If your business could benefit, do your bit to realise the opportunity.

#### 5. Remember, a wind farm will be generating for up to 25 years

Wind farms are a big part of our energy future, so site operators will want to be good local neighbours. While activity peaks in the construction phase, some local employment and contracts will run over the 25 year life of the project, and the value of these long term contracts can add up.

## Looking for local support and local companies to contract with?

### Here's what to do:

#### 1. Maximise your local presence and begin early

Begin identification of potential suppliers early on and make sure you are active and visible in the local area well before construction starts. The more direct your involvement, the greater your chances of maximising local content.

#### 2. Partnerships work

Seek partnerships with local authority and business groups in the area. Use these local contacts to spread your message out to local businesses, and make use of their local intelligence to help identify the expertise and services you're looking for.

#### 3. The developer's role is that of an enabler

Use information gathered pre-consent to inform the requirements placed on primary contractors. Use your leverage as the buyer to ensure that primary contractors maximise the opportunities available and take local content seriously.

#### 4. Provide the right information, at the right time

Consider an iterative process to give local businesses time to get up the learning curve. Don't wait too late to communicate to local businesses what services you are looking to contract, and make sure you give information in the right format.

#### 5. Communicate technical requirements early

Communicate requirements as early as possible, to provide opportunities for up-skilling or the formation of local consortia. Be clear how procurement processes work so local companies have time to hit required criteria. Local business agencies can really help here.

#### 6. If you can, demonstrate local content in planning

Where applicable, a demonstrable commitment to local content should be included as part of the planning application, and post-consent auditing should inform future applications and internal processes.

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## Foreword from Maria McCaffery, Chief Executive, RenewableUK

Welcome to RenewableUK's Good Practice Guide, which aims to encourage the development of the onshore wind supply chain throughout the UK.



As the leading renewable trade association, representing nearly 600 companies, we're delighted to have this opportunity to demonstrate exactly how onshore wind can be a key driver of local growth and also benefit the national economy.

At a time when other sectors have been contracting, the green economy has continued to forge ahead; in fact, it's one of the sectors that the UK can point to, with pride, as having created a substantial number of jobs. Onshore wind now provides employment for nearly 19,000 people in the UK; more than 9,900 are directly employed in the sector, and a further 8,950 are employed indirectly, supplying goods and services.

We have produced this guide to showcase the extraordinarily diverse range of opportunities available to firms throughout the UK to get involved in the sector, whether they are well-established companies or new entrants. The onshore wind industry is very much open for business; the market is eminently accessible, but some companies may need a little help in finding where and how to start. As the trade and professional body, we aim to demystify the sector for such firms. To achieve this, the guide breaks down the development process,

using case studies to highlight how, with the right preparation, local businesses can benefit significantly from the opportunities onshore wind presents.

The environmental benefits of clean energy over fossil fuels are well known, and the public is increasingly aware of the importance of developing home-grown, secure energy sources such as onshore wind. What has perhaps been under-appreciated until now is the fact that this sector is also a powerhouse for economic growth. Many parents are currently wondering where their children will find employment in the future; the answer may lie in the renewable energy sector, and its burgeoning supply chain.

**Maria McCaffery MBE**  
Chief Executive, RenewableUK

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# Foreword by Rt Hon Edward Davey MP, Secretary of State for Energy and Climate Change



Delivering investment and economic benefit from renewables is a priority for the UK. In the last four years we have seen developers invest over £4.6 billion in onshore wind, supporting thousands of new jobs. Our companies have shown that they are very capable of making the most of this opportunity. I am determined that, as the sector flourishes, local communities hosting onshore wind see ever greater economic benefits from development in their area.

This Supply Chain Good Practice Guide will go a long way to realising this goal. It will be very helpful to any company, large or small, thinking of doing business in this sector. It will demystify this growing industry, making it more accessible and ensuring that everyone can capitalise on the new opportunities.

I congratulate RenewableUK and the industry on putting together this comprehensive Guide which I'm sure will be of enormous value to all those interested in working in the onshore wind sector.

**Rt Hon Edward Davey**  
Secretary of State for Energy and  
Climate Change

# Introduction

Onshore wind has proven to be the most cost-effective renewable technology in contributing to an affordable and secure low-carbon energy mix. It has been, and remains, a crucial part of the energy mix, and its importance is set to grow in the future as more sites are developed.

But not only is onshore wind helping to keep the lights on and energy costs down; it is also a significant business opportunity for UK companies. In 2011, RenewableUK and the Department for Energy & Climate Change (DECC) commissioned research into the wider economic benefits of onshore wind deployment<sup>1</sup>. This found that in 2011 alone:

- Investment in onshore wind annually accounted for £548 million in GVA across the UK;
- £314 million of this was linked to contracts placed at the regional/national level associated with individual wind farms (i.e. Scotland, Northern Ireland, Wales or English regions); and
- Of the regional/national impacts, £84 million was contracted in the local authority area in which the individual wind farms were sited.

In addition, the onshore wind sector is a major employer, employing 19,000 people across the UK. Further information can be found in RenewableUK's *Working for a Green Britain*,<sup>2</sup> and Scottish Renewables' annual jobs report.<sup>3</sup>

This Good Practice Guide provides developers, operators, contractors and the wider supply chain with practical advice on how to capitalise on the commercial opportunities that onshore wind brings, both locally and nationally. We highlight innovative approaches taken by developers and contractors in identifying and utilising local suppliers in the development of their projects to ensure that the environmental benefits of renewable energy are complemented by economic benefits.

The first part of the document is intended mainly for primary and secondary contractors, as well as other firms and business groups further down the supply chain, particularly SMEs with no previous involvement in the sector. For those wanting more information, Appendix One sets out a more detailed breakdown of the supply chain. The second part contains advice for developers and their main contractors, but may also be of use to Local Authorities and other relevant stakeholders.

- **Part One** outlines the development process and briefly describes the nature of works involved at each stage. It is intended to be an accessible introduction for those new to the sector.
- **Part Two** provides advice for developers and primary/primary contractors on how to scope out local opportunities, create networks with the local business community and audit their local spend.
- **Appendix One** covers the technical, Health and Safety and other likely requirements for subcontractors in more detail.
- **Appendix Two** looks at potential contracting strategies.

For clarity, this guidance relates primarily to the larger end of the market, typically multi-megawatt projects where there is the most interest from local companies in supply chain opportunities. However, smaller-scale projects also benefit the national and local economy, and are covered in RenewableUK's *Small and Medium Wind Market Report*<sup>4</sup> and *Supply Chain Map*<sup>5</sup>.

<sup>1</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/48359/5229-onshore-wind-direct--wider-economic-impacts.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48359/5229-onshore-wind-direct--wider-economic-impacts.pdf)

<sup>2</sup> [www.renewableuk.com/en/publications/index.cfm/working-green-britain](http://www.renewableuk.com/en/publications/index.cfm/working-green-britain)

<sup>3</sup> [www.scottishrenewables.com/publications/employment-renewable-energy-scotland/](http://www.scottishrenewables.com/publications/employment-renewable-energy-scotland/)

<sup>4</sup> [www.renewableuk.com/en/publications/reports.cfm/Small-and-Medium-Wind-UK-Market-Report-2013](http://www.renewableuk.com/en/publications/reports.cfm/Small-and-Medium-Wind-UK-Market-Report-2013)

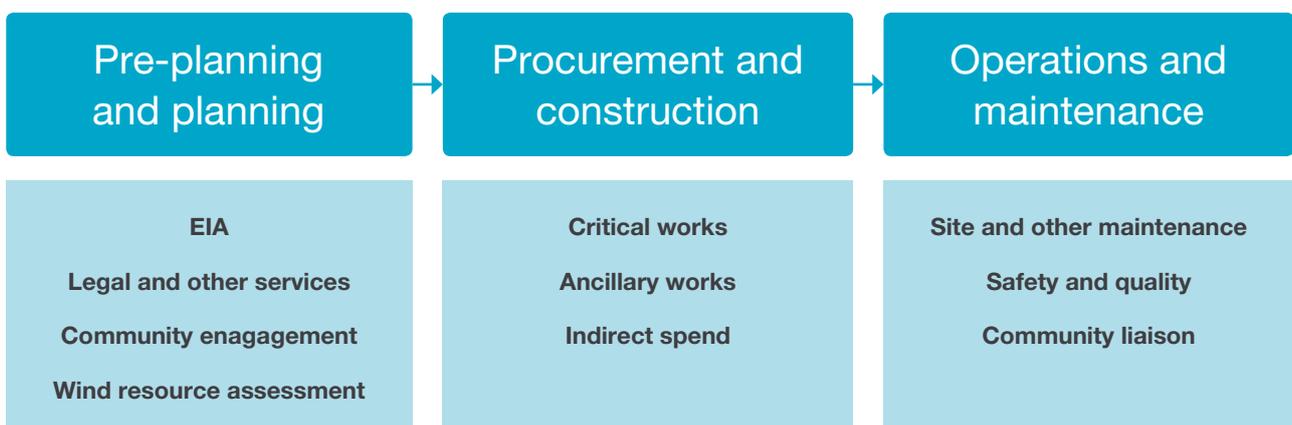
<sup>5</sup> Contained within the State of the Industry report. [www.renewableuk.com/en/publications/index.cfm/state-of-the-industry-report-2012-13](http://www.renewableuk.com/en/publications/index.cfm/state-of-the-industry-report-2012-13)

# Part One: The Development Process

## Part One: The Development Process

The time between a developer identifying a potential site and the production of the first electricity from the site can be as short as four years, or as long as ten years. Along the way, developers procure a range of technical and professional services while investigating the site, refining their proposals and conducting environmental and technical surveys. This activity continues all the way through to planning, financial close and construction and operation. Contract opportunities exist throughout this period, and will usually peak towards the end of the development process, when consent is awarded and a site begins construction. At the earlier stages some developers rely mainly on in-house expertise, but many contract at least some of their pre-planning and operational activities, meaning opportunities exist for third parties to tender for work at these stages. This section covers the areas in which developers may procure external services at each stage.

**Figure 1. The development process**



## Want to know more about winning work in onshore wind?

**1.**

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**2.**

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**3.**

### Use wind farm open days to learn more

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### Remember, a wind farm will be generating for up to 25 years

Wind farms are a big part of our energy future, so site operators will be want to be good local neighbours. While activity peaks in the construction phase, some local employment and contracts will run over the 25 year life of the project, and the value of these long term contracts can add up.

## 1. Pre-planning & Planning Services

Pre-planning covers all the stages from site identification to the submission of a planning application.<sup>6</sup> The main activities at this stage can be broken down further, as follows:

### 1.1 Environmental Impact Assessment

Most large onshore wind projects require an Environmental Impact Assessment (EIA) or Environmental Statement (often known as an ES) to support their planning application. Environmental Statements involve the collection and analysis of a large volume of data relevant to the project's likely environmental, social and economic impacts. Topic areas may include:

- Landscape and visual impacts
- Heritage and archaeology
- Amenity and economic impacts
- Avian ecology
- Other ecology
- Transport planning and access
- Noise
- Geology and hydrogeology
- Aviation and telecommunications.

All of these activities require professional services, often conducted by accredited professionals and support staff<sup>7</sup>. The labour market in these areas is considered to be mature, with a healthy market already in existence for planning and environmental consultancies in the UK. Similarly, independent consultants and specialists are active in the sector, supplementing in-house expertise.

This sector may be of interest to professionals active in other development industries, as well as to graduates in planning, environmental sciences and management, physics and engineering<sup>8</sup>.

### 1.2 Legal and other services

In addition to environmental assessments, other professional expertise is often required to support onshore wind projects. Lawyers and/or land surveyors can be used to help negotiate and secure land option agreements and longer-term land lease agreements. Legal advice is likely to be needed at other stages in the process, for example reviewing the Environmental Statement or drafting the Development Consent Order<sup>9</sup>. Schemes that go to appeal with an inquiry will often require legal representation. Legal expertise will also be required to draft and review legal documentation, such as Power Purchase Agreements.

### 1.3 Community Engagement and Consultation

Community consultation is a key element of the planning system, and also represents an opportunity for local benefit<sup>10</sup>. Consultation exercises should be tailored to reflect both the size of the scheme and the make-up of the local community. They will typically involve some or all of the following methods, all of which could involve some level of locally sourced service provision.

- Design, production and dissemination of literature, including mailshots, helplines and

### Myth: There are very few jobs supported by the onshore wind industry...

Wind farms are complex developments and require a wide range of technical and specialist expertise to plan, develop and consent. 19,000 people work directly or indirectly in the development, construction and operation of onshore wind farms across the UK.

- online content (and translation services as appropriate);
- Newspaper advertisements;
- Formal and informal public meetings, including venue hire and advertisement (and catering as appropriate);
- Monitoring and assessment of feedback.

Consultation and engagement may be carried out throughout the development process, through to information on construction timetables and other relevant information, as well as during operation.

### 1.4 Onsite Wind Resource Assessment

Assessing the wind profile of a site is a crucial early-stage feasibility activity. Typically, project financiers and other investors will require a detailed assessment of the likely performance of any wind farm. Likewise, developers will need to consider which turbines and array

<sup>6</sup> Some larger schemes may be just below the thresholds EIA and ESs. In such circumstances, much of the same information will still need to be provided, so the following text remains relevant. The largest schemes or those near European sites may also require a Habitats Regulations Assessment.

<sup>7</sup> Where a scheme goes to appeal, practitioners in the above fields may also be called upon as expert witnesses to give evidence.

<sup>8</sup> More information on careers in the sector can be found at: [www.renewableuk.com/en/careers/index.cfm](http://www.renewableuk.com/en/careers/index.cfm)

<sup>9</sup> In the case of Planning Act 2008 schemes.

<sup>10</sup> Good practice guidance on community consultation in onshore wind is provided by the Department of Energy & Climate Change.

### Myth: Onshore wind is too specialist for most local suppliers and SMEs

Construction works for onshore wind range from highly specialist activities such as turbine assembly to standard construction activities like ground clearing and construction of access tracks. In principle, there is no reason why firms with expertise and experience in other sectors should not be able to compete for work in onshore wind. Relevant local businesses should therefore view onshore wind as an accessible construction sector like any other, and many developers work with local suppliers and local business agencies to help companies navigate contracting and tendering.

designs are appropriate to the site they have chosen. This usually involves the collection and analysis of site-specific wind data, which in turn requires the erection, operation and maintenance of suitable technologies. Traditionally, meteorological masts (also known as met masts, or anemometers) equipped with various transducers to measure wind speeds, direction, shear and so on, and other measuring equipment are used<sup>11</sup>. Met masts come in a variety of sizes, and the specifics of an individual project will dictate the size, type and number of masts needed.

As with other pre-planning services, this sector is considered to be

specialist and relatively mature in the UK<sup>12</sup>, with a range of providers offering a variety of technologies and commercial packages, from primary contractor installation services to full in-house installation, operation, maintenance and analysis services. The opportunity for subcontractors, if any, will depend on the primary service procured by the developer.

## 2. Procurement and Construction

Once a scheme is consented and all conditions have been discharged, a developer will move to financial close and procurement. It is at this point that the bulk of contracts relating to a project are awarded. This is where local and UK suppliers have a potentially significant role to play, particularly in Balance of Plant (BoP),<sup>13</sup> operation and supporting services, such as provision of financial services. There are examples of local content accounting for 60% or more of construction spend<sup>14</sup>. However, at this point a developer will also be looking to decide on contracting for ongoing operation and maintenance (O&M). Companies often overlook opportunities after construction has finished, even though there will be an ongoing need for O&M across the 20+ year lifespan of a project. This long lifetime means that around one seventh of the UK's total onshore wind workforce works in O&M<sup>15</sup>.

Procurement can take a number of forms, reflecting different types of contracts (Appendix Two discusses this in more detail). While specifications vary for individual

developments the main elements for the critical works similar, and are detailed in the sections below.

It's also important to realise that as wind is a mature industry which has been active in the UK for over 20 years, easily accessible sites are becoming rarer, and development of more remote sites is increasingly common. This shift gives rise to an increase in the types and extent of ancillary works required to support the commissioning and operation of a wind farm. Similarly, the provision of increasingly sophisticated mitigation solutions and environmental enhancement schemes is, in some cases, significantly expanding the labour, service and supplier requirements of wind farm developments. This widening circle of supply chain participants opens up potential new business areas for a raft of local and UK suppliers who would not normally be associated with the onshore wind industry. Given the highly site-specific nature of these ancillary works, however, it would not be feasible to list them all here, so our list of activities is therefore not intended to be exhaustive.

<sup>11</sup> For example, data logging equipment and remote access technology.

<sup>12</sup> There is an emerging market for the use of LIDAR or SODAR technologies for wind resource assessment, though met masts remain the standard method.

<sup>13</sup> 'Balance of Plant' (BoP) is the catch-all term used to describe those parts of the capital expenditure not related to the manufacture of the wind turbine itself.

<sup>14</sup> The actual level will, however, need to reflect the availability of competent and competitive suppliers and subcontractors in the locality.

<sup>15</sup> RenewableUK's 'Working for a Green Britain and Northern Ireland 2013'

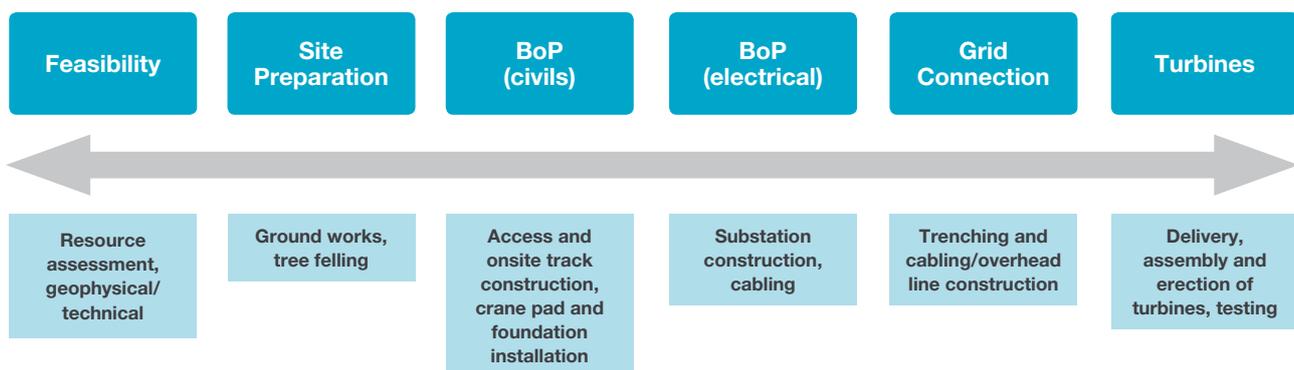
## 2.1 Critical Works

The exact works required by a development will vary on a site-by-site basis. They can be categorised as follows, together with examples of the sorts of activities involved. A more detailed discussion is included in **Part Two**, along with a more comprehensive table of typical activities and materials.

### Myth: Britain doesn't host any turbine manufacturing facilities, so all spend on turbines goes abroad.

Wind turbines are sourced as a complete package from manufacturers, and key components such as blades and gearboxes are imported, but a number of UK companies also export components to Germany and Denmark. The UK hosts two significant tower manufacturers: Mabey Bridge in Chepstow, Wales and Wind Towers (Scotland) Ltd in Campbeltown. The tower accounts for around 25% of the value of a turbine, so sourcing these from the UK represents a significant investment with value to the UK economy.

**Figure 2. Overview of typical wind farm construction activities**



## 2.2 Ancillary works

In addition to the main onsite works, onshore wind projects may require off-site and ancillary works. Such works are often driven by requirements to mitigate certain impacts or otherwise enable the smooth construction and operation of the wind farm, and therefore open up new and more extensive business opportunities. As more wind farms are deployed and the more straightforward sites are developed out, more of these works are being required as standard. These can include:

- **Habitat creation, enhancement and management:** when a scheme is likely to impact habitats of protected or other

species of flora and fauna, developers can mitigate these impacts through habitat creation or enhancement. This can be a condition on planning consent (often formalised through a Habitat Management Plan) or discretionary on the part of the developer. Examples of these activities are hedgerow planting, the introduction of certain types of flora, or creation of new scrapes or ponds. The opportunity exists to employ local specialists who will provide a valuable insight, e.g. local wildlife experts.

- **Screening:** screening through tree planting is one method of mitigating visual impacts on

nearby properties or recreational areas, leading to work for forestry-related businesses.

- **Highway works:** as part of consent, a developer often has to follow S.278/s.38: specific legal agreements (called Section 278 or Section 38 agreements) relating to required highways works (for example, road widening or access improvements). The local community will often be the beneficiary of these works, which may be over and above what the local highways authority would otherwise have undertaken.
- **Community benefits:** having a voluntary community benefit funds is now standard practice

in the onshore wind industry, particularly for schemes of 5MW or greater. Although the beneficiary decides how these funds are used, they can represent significant levels of investment in local areas, and over a project's lifetime the amounts add up. For example, in Aberfeldy, the developer SSE supported refurbishment of the local cinema to keep it active as a community hub and arts centre.

### 2.3 Indirect spend

During peak construction activity, there will be dozens, or, for the largest schemes, hundreds of extra workers in the vicinity of the site. For a rural community, this can represent a significant increase in users of local facilities. It is common for local hotels, B&Bs, shops, restaurants, cafes and pubs as well as taxi and car hire companies to be busy during the construction phase. Owners of such businesses should proactively approach developers to find out if they have particular requirements.

## 3. Operation and Maintenance

Turbines are advanced, highly reliable pieces of equipment. Part of this reliability comes from highly developed control and monitoring processes, which are managed remotely 24 hours a day, 365 days a year. However, ongoing services are also crucial in supporting the smooth, safe and efficient operation of a site. Typical activities include: routine turbine maintenance and testing; electrical equipment maintenance; site maintenance (e.g. track maintenance, snow and ice clearance); control room operations; site management; crane hire for large component repair; component refurbishment; small engineering

works; consumables and tool supply for minor works; tool calibration; lab work for metallurgy; engineering forensics; and independent safety and quality inspections.

Other ongoing activities can include security (where required), ecological management, community liaison and community fund management. CDM coordinators and other roles relating to health & safety (such as certification of harnesses or testing chains) may also be required.

The level of onsite presence needed to support the operation of a wind farm will vary roughly in proportion to the size of the project, but will also depend on the amount of in-house O&M resource the wind farm owner retains and the type of O&M contract they enter into. Some smaller sites may be serviced by staff who split their operations across a portfolio of wind farms. Larger sites may require a dedicated onsite presence, which can be drawn from internal resources or procured through dedicated O&M companies.

As with pre-construction activities, O&M opportunities are most likely to be in employment rather than in materials or supply.

**Myth: There are no significant activities of local value once a wind farm is operational.**

O&M activities continue for the operational lifetime of the wind farm. Though the amount of spend in the day-to-day operation of the wind farm is lower than during construction, a developer's 20–25 year presence at the site means that ongoing opportunities for local suppliers remain.

## 4 Case Study: Ysgellog Farm<sup>16</sup>

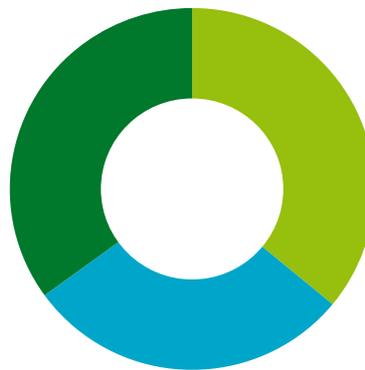
Airvolution Energy Limited’s 4.6 MW project on Anglesey was consented in July 2011 and went operational in March 2013. In total 71% of all the construction budget was spent in Wales, with 35% of the total being spent in Anglesey itself.

Local suppliers won contracts to provide a range of materials and services, notably aggregates and concrete. Similarly, local contractors and labourers were hired wherever possible during the five month construction period. The project was awarded Outstanding Green Energy Project at the 2013 Green Energy Awards.

An excellent example of how a commitment to local supply helps local businesses comes from the experience of local house builders Pritchard Brothers. The firm had never worked for the energy industry before, but secured the contract for the construction of the site’s substation building. The firm is based just 2.5 miles from Ysgellog Farm. Hywel Pritchard, Senior Partner, said: “This contract has been invaluable to us. We have made more contacts and have secured more work because of it. We enjoyed working on the site. All our workers lived just six miles away, which meant enjoying an extra panand<sup>17</sup> in the morning.”

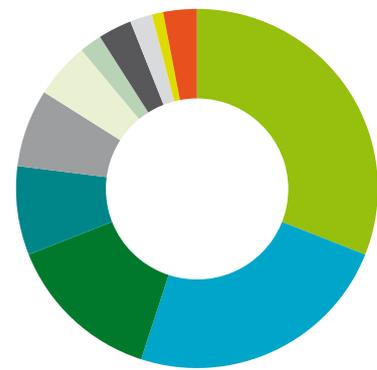
Airvolution’s work on Anglesey is being replicated in its other projects. For its proposed New Rides wind farm on the Isle of Sheppey and the Agney wind farm near Old Romney, the company has committed to retain 60% of construction spend within Kent. That will represent nearly £2.2 million of inward investment into the county.

**Construction spend by area**



- 36% Wales
- 29% UK/World
- 35% Anglesey

**Local spend by activity/material**



- 31% Aggregates
- 24% Building contractors
- 14% Concrete
- 8% Labourers
- 7% Accommodation & Food
- 5% Fuel
- 2% Cabin hire
- 3% Fencing
- 2% Building materials & tool hire
- 1% Plant hire
- 3% Other



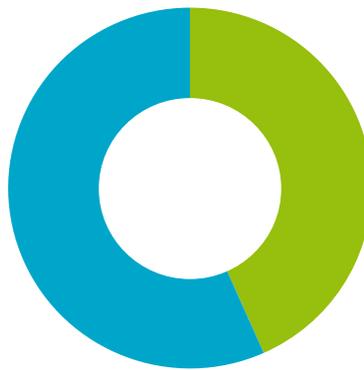
<sup>16</sup> More information is available here: [www.ysgellog-wind.co.uk](http://www.ysgellog-wind.co.uk)

<sup>17</sup> Tea

## 4 Case Study: South Wales

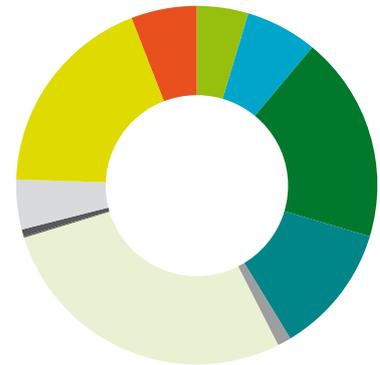
This 8MW wind farm had a construction budget worth over £10 million, nearly 45% of which was spent in South Wales (see graphs). Significant contracts were placed locally for turbine tower supply, grid connection and a variety of civil construction activities, including construction of the substation. Local plant hire firms and aggregate suppliers also won contracts.

**Construction spend by area**



- 43% South Wales
- 57% Rest of UK/World

**Local spend by activity/material**



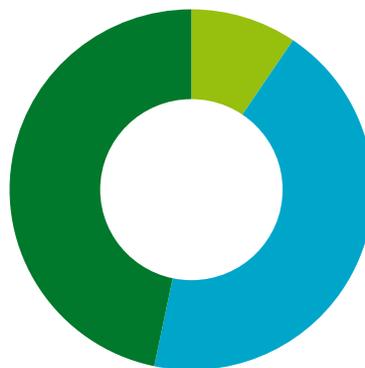
- 5% Advisory
- 6% BoP management
- 18% Civils
- 12% Electrical
- 1% Aggregates
- 28% Grid connection
- 1% Ground investigation
- 4% Property
- 19% Turbine Towers
- 6% Contingency

## 4 Case Study: Fallago Rig



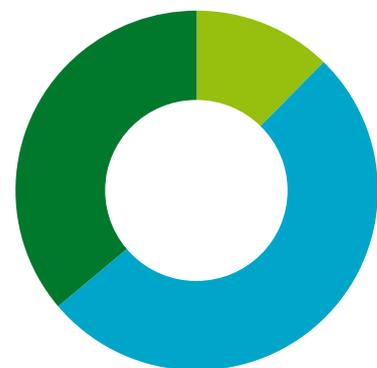
EDF Energy Renewables’ and Hermes GPE Infrastructure’s Fallago Rig in the Scottish Borders is the UK’s fifth largest wind farm at 144 MW. The site demonstrates not just the significant level of local content that can be realised, but also the employment opportunities that wind farm construction gives rise to. A study by Halcrow confirmed that 322 direct and indirect jobs were created during the site’s two year construction period, nearly 1/8th of which went to people living, or businesses operating, in the vicinity of the site. The study also concluded that the project delivered a total of £18m Gross Value Added to the UK economy.

### Construction spend by area



- 9% Local
- 44% Rest of Scotland
- 47% Rest of UK

### Net UK job creation by area (full-time equivalent)

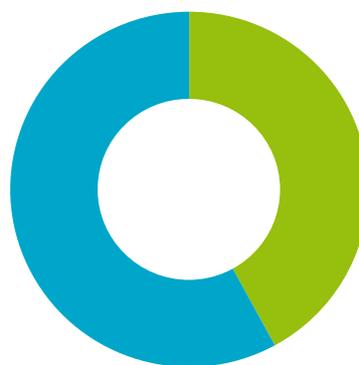


- 41 Local
- 171 Rest of Scotland
- 120 Rest of UK

## 4 Case Study: Drumlin Co-operative

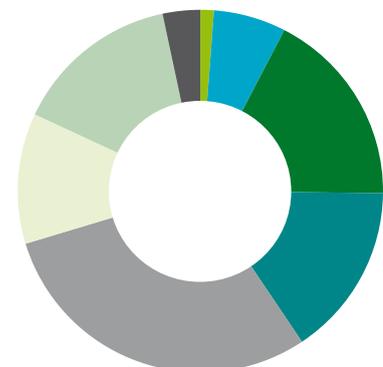
The chart shows the spread of local spend for five sites owned by Drumlin Wind Energy Co-operative Ltd, established by Energy4All. All five sites, each hosting a turbine of 250kw, were consented in 2011. The sites were developed by NRG Solutions, based in Belfast, using local suppliers for the main works. The co-op then raised £2.7m from a share offer which gave the opportunity for local people in NI to purchase shares with a minimum investment of £250. The scheme shows the value that smaller sites can bring to local economies, with locals further benefitting from ownership of the projects themselves.

**Construction spend by area**



■ 42% Northern Ireland  
■ 58% Rest of World

**Local spend by activity/material**



■ 1% Feasibility  
■ 6% Site Preparation  
■ 18% Balance of Plant (civil)  
■ 15% Balance of Plant (electrical)  
■ 30% Grid Connection  
■ 12% Finance Costs  
■ 15% Development  
■ 3% Construction Management

## 4 Case Study: Vattenfall's Approach

Vattenfall is a significant investor in the UK and is committed to ensuring that its approach to project procurement and investment helps local businesses to enter and prosper in the renewable energy and green job sectors.

Vattenfall's 228MW Pen y Cymoedd project in South Wales is a £400 million investment, and will be England and Wales' largest wind farm on completion in 2017. Construction began in 2014. The project is potentially worth £1 billion to the Welsh economy over its lifetime.

In 2010, two years before planning permission was granted, Vattenfall hosted a briefing session for companies in South Wales. Local businesses had made it clear that early engagement and clarity on likely opportunities, contracting strategies and specific requirements (e.g. accreditations) would help them compete. An information pack and a series of presentations were provided. Representatives from leading manufacturers and contractors working in renewables also talked in detail with local companies about the opportunities

and requirements for working on projects like Pen y Cymoedd. As a result of this event:

- Neath Port Talbot Council developed and delivered a bespoke funding package to support local business to upskill and receive necessary training;
- Vattenfall altered its tender process and gave a commitment to host a Meet the Contractor event before the main tender process commenced, to increase opportunities for local contractors to engage with lead suppliers; and



- A commitment was made to write local supply chain engagement into all tender documents.

A potential 260 contract opportunities were initially identified for businesses in the region, with more becoming available as the project progressed.

Vattenfall required all contractors involved with Pen y Cymoedd to maximise use of local contractors and develop a local supply chain plan, and changed its tender process to ensure that contractors shared its commitment to maximising opportunities for local and UK companies. Significant work was undertaken throughout the supply chain to encourage the formation of joint ventures.

With Pen y Cymoedd now in construction, Vattenfall requires all

contractors to report regularly on their activity with the local supply chain. This increases Vattenfall's understanding of supply chain locally and across the UK, and ensures that gaps are addressed while the business delivers on its commitments.

£45 million has already been contracted with businesses in Wales, with over 50 Welsh companies and 600 jobs supported by the project, which is expected to be worth over £1 billion to the Welsh economy over its lifetime.

The image shown above is one of the Pen y Cymoedd turbine foundations under construction. In total, over 6,000 tonnes of steel reinforcement will be needed, and this is being supplied by Neath-based company Express Reinforcements.

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**“...our raw materials have been sourced from within the UK, and the steel itself is being made in Cardiff.”**

Its Managing Director, Andy Lodge, said: “We’re delighted to have been contracted to supply steel for such a significant project so close to our home base. Furthermore, in line with the values of the Pen y Cymoedd wind energy project as a whole, our raw materials have been sourced from within the UK, and the steel itself is being made in Cardiff.”



**“We’re a global company, but the UK has been an important market for us so it’s only logical that we maintain a strong presence here. The hundreds of skilled jobs we’ve created, along with our training schemes, demonstrates our commitment to the UK, which we hope to be able to continue long into the future”**

— Ken Fiddes, Vice President,  
Vestas Celtic Wind Technology

Vestas, the world’s largest wind turbine manufacturer, currently employs around 450 people in the UK. Employment is predominantly permanent with some contract and temporary positions. Roles are very diverse, ranging from cutting edge R&D at the global blade testing facility on the Isle of Wight, to sales, project planning, construction and Operations & Maintenance based in Warrington.

Vestas employs around 120 onshore turbine technicians. Technicians maintain the onshore turbines Vestas has under service contract. Service technicians undertake comprehensive training upon joining Vestas. Training involves induction, working at heights, hub rescue and first aid training. To become a ‘Competent Technician’ technicians must pass a Wind Turbine Safety Rules course. Technicians also undergo turbine specific training when new turbines are launched onto the market.

Andrew Hopton (pictured) is a technician at the newly constructed 68MW Keadby wind farm in North Lincolnshire. Andrew lives locally and joined Vestas nearly two years ago. He was initially a mobile technician for the Yorkshire / Humberside region based at Tween Bridge wind farm before settling at Keadby.



# Part Two: Realising Local Content

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## Part Two: What is Local?

The UK wind industry has a strong desire to maximise the local benefits from onshore wind. However, UK developers also need to ensure that all suppliers meet stringent health & safety, quality assurance and other standards. And, of course, successful bidders must be competitive in order to win contracts.

This means that ‘local’ needs to be understood as a general term. It makes sense to use local suppliers for a number of reasons. First, being local may cut costs. Second, having expertise on the doorstep is convenient. And third, using local suppliers helps to demonstrate the economic benefit of wind energy in the UK.

Developers are increasingly active in supporting and championing local supply, but how local they do this will depend on the availability of competent and competitive suppliers. This may mean casting the net wider in some places than others. Equally, for a site near to a Local Authority border (or spanning more than one Local Authority area) spending ‘locally’ may involve companies outside the Local Authority’s boundaries. Local Authorities should therefore refrain from insisting on spend solely within their boundaries, particularly where the developer can demonstrate that the market for supplies and services in that area is insufficiently healthy. Multi-authority and regional approaches offer exciting opportunities for cross-border collaboration and the institution of longer-term partnerships for mutual benefit. A restrictive view of what counts as ‘local’ would undermine the possibility of such initiatives. Developers should

ensure that they are able to provide robust evidence to Local Planning Authorities to demonstrate any supply chain limitations in the vicinity of their project. Such evidence may be crucial in determining how (if at all) commitment to local content can be formalised within a planning application. For more discussion of this, see the Formalising the Commitment box in the next section.

### Section Two: Realising local content

Part Two of this Guide focuses on the role of developers and principal contractors in maximising use of a local supply chain and increasing local content. We highlight examples of positive steps that the various parties can play in identifying potential suppliers, as well as barriers that may limit the options available to contractors looking to enter the sector.

## Looking for local support and local companies to contract with?

# 1.

### Maximise your local presence and begin early

Begin identification of potential suppliers early on and make sure you are active and visible in the local area well before construction starts. The more direct your involvement, the greater your chances of maximising local content.

# 2.

### Partnerships work

Seek partnerships with local authority and business groups in the area. Use these local contacts to spread your message out to local businesses, and make use of their local intelligence to help identify the expertise and services you're looking for.

# 3.

### The developer's role is that of an enabler

Use information gathered pre-consent to inform the requirements placed on primary contractors. Use your leverage as the buyer to ensure that primary contractors maximise the opportunities available and take local content seriously.

# 4.

### Provide the right information, at the right time

Consider an iterative process to give local businesses time to get up the learning curve. Don't wait too late to communicate to local businesses what services you are looking to contract, and make sure you give information in the right format.

# 5.

### Communicate technical requirements early

Communicate requirements as early as possible, to provide opportunities for up-skilling or the formation of local consortia. Be clear how procurement processes work so local companies have time to hit required criteria. Local business agencies can really help here.

# 6.

### If you can, demonstrate local content in planning

Where applicable, a demonstrable commitment to local content should be included as part of the planning application, and post-consent auditing should inform future applications and internal processes.

## Identifying local suppliers: Developer-led approaches

Regardless of which contract structure is chosen (see Appendix Two), it is unlikely that any meaningful level of local and UK content will result without a thorough assessment of the potential at the local, regional and national level. Identification of potential suppliers at an early stage gives an opportunity for closer engagement and information sharing, particularly to businesses with little experience in the sector.

Early engagement may also be important to help local companies assess their suitability and work through any steps they need to take in order to submit competitive bids, including certification, training and up-skilling, or preparation of bids for funding (for more details, see the following sections). With this in mind, it may be worthwhile – especially for larger schemes – to begin identification at the pre-planning stage, when the scheme design is mature enough to provide an initial assessment of the likely nature and scale of all principal works.

Most local spend in the pre-planning and planning stages relates to use of localised facilities and amenities. Though most of the discussion below relates to the construction phase, much also applies to these earlier phases, in which identification of local taxi firms, hotels and other such services for employees to use demonstrates an early and ongoing commitment to the local area.

A passive approach to identification – for example, posting information on project websites or advertisements in the local newspaper – is a good

starting point, and is relatively low-cost. However, this approach risks missing many potential suppliers that would either not be aware of the opportunity, or would not seek further information due to having no previous experience in the sector. This means that more active methods of providing advice and information will be more likely to turn local companies into local suppliers, while helping the developer focus in on those suppliers most likely to win contracts, and avoid fielding wider enquiries with little chance of success.

### 1.1 Maximising the developer's local presence

Providing a list of candidate suppliers to primary contractors can be a resource-intensive process. It is, however, an approach with a proven track record, and can be an effective tool to facilitate local content, particularly where one or more primary contractors have a limited presence in the region of the proposed site.<sup>18</sup> In addition, it can provide developers with more realistic expectations as to what could be sourced locally, regionally and nationally, which can inform discussions with local planning authorities and primary contractors.

Developers should therefore consider initiating a programme of commercial scoping to run alongside the pre-planning activities that take place locally. Local consultation events, as well as events for local business groups, can be used to share information on the types of works involved and the business opportunities that may arise if the scheme is consented. Consultation materials should also highlight business opportunities, and point

interested suppliers in the direction of further guidance. This guidance needs to have more detailed information on what to expect from the process, and what minimum criteria may need to be met in terms of, for example, certification and training. If an iterative programme of consultation is being conducted, materials could track the maturity of the project, giving more details on the contracting opportunities as project design progresses. If developers choose to include commercial scoping within their other pre-planning activities, it will be important to ensure that representatives from the relevant business areas (e.g. construction, procurement, etc.) are on hand to answer questions.

### 1.2 Meet-the-buyer events

Developers of larger projects – or who have multiple concurrent projects – can also hold dedicated meet-the-buyer events. Such events can either inform potential supplier lists or, where appropriate, be a means of introducing candidate primary contractors to interested local suppliers. In addition, meet-the-buyer events can be used to form a local consortium. The events can be either open, or by invitation, or both.

If running events by invitation, the developer will need to ensure that it has researched potential suppliers in some detail. The thoroughness of this identification exercise will strongly influence the success of the event. Often, these events work more smoothly if potential suppliers can book appointments or make initial enquiries before attending.

An open invitation will be more likely to attract a wider group of potential

<sup>18</sup> Discussions with developers suggest that in certain regions, competent BoP and specialist electrical contractors are unavailable. In these instances, the major opportunities are likely to relate to materials supply and ancillary services.

suppliers. However, developers need to exercise caution, as this can run the risk of attracting some suppliers with no real likelihood of winning contracts, and may also result in less time to discuss details with genuine contenders. Logistically, an open invitation can be difficult to manage, particularly with respect to venue size and location, provision of information, and resourcing.

In reality, a combination of the above approaches is likely to generate the best results. A programme of actions and events over time can be designed to reflect the maturity of the project as it moves from feasibility to design and approaches consent and construction. Planning consent remains a significant risk for onshore wind projects, and contract award is always post-consent, so the need to engage early must be considered alongside the risks and timescales inherent in the consenting process.<sup>19</sup> While long lead-in times enable plenty of opportunities for developers and their contractors to communicate with potential bidders, suppliers (particularly smaller ones) will be sensitive to any delays. It is important that expectations are therefore managed accordingly, and developers are clear about the timescales of work and contracting.

If developers have other schemes in a region, or a good relationship with other companies working regionally, it may help to explore adopting a coordinated approach. If projects in a region are working to similar timescales, working in partnership can help maximise local opportunities and increase the chance of supporting regional clusters of companies. This regional approach

means that a company can build on its first wind farm contract to plan for the longer term, and win further work. This may lead to business diversification and expansion, training provision, and so on.

### 1.3 Stakeholder engagement

In addition to running meet-the-buyer events, developers should consider supplementing this with desk-based research, either to inform invitation lists to consultation events, or in order to conduct more targeted approaches to businesses. There are numerous stakeholders who can assist with this, and the following list of resources is not intended to be exhaustive.

- Local planning authority economic development directorate (they will also be able to assist with information on local/regional support programmes discussed in more detail below)
- Local Chambers of Commerce
- Local Enterprise Partnerships
- Local/regional Federation of Small Businesses offices
- Regional bodies, such as Business Wales, Energy North or the Highlands & Islands Enterprise Trust
- RenewableUK’s membership directory and supply chain map<sup>20</sup>
- Energy Industry Council’s procurement guide<sup>21</sup>
- Supply management providers (e.g. Achilles).

### (2) Primary contractor-led approaches

An alternative (or supplementary) approach is for the developer to use its leverage as buyer to demonstrate

its commitment to local content in its tenders.<sup>22</sup> This can be achieved by specifying the weight that a clear commitment to working with local suppliers will be given in deciding on the bids received. Alternatively, if the developer’s research suggests that a certain percentage of local content is realisable at competitive rates, then the tender itself could state that winning bidders will be contractually bound to a certain percentage of local content at the point of contract award.

Where a scheme is likely to be delayed post-consent, it may make sense to wait until near financial close and contract award to engage primary contractors. However, there are examples where potential (or preferred) primary contractors have been engaged much earlier in the process, and have then been included in meet-the-buyer events and other local outreach events. This direct engagement can be particularly beneficial to new entrants, and represents an opportunity to explain in more detail how the primary contractors would advertise and award their contracts, and how suppliers can get registered on approved supplier lists (i.e. pre-qualification criteria). The earlier the engagement, the greater the opportunity for potential suppliers to assess their suitability, and discuss how any requirements could be met ahead of formal contract award. Similarly, for potential primary contractors, attendance at these events can be a useful exercise in expanding their knowledge of the local supply chain capacity, and can also inform their eventual bids.

<sup>19</sup> See the section on auditing below for a discussion.

<sup>20</sup> [www.renewableuk.com](http://www.renewableuk.com)

<sup>21</sup> [www.the-eic.com/ProcurementGuide.aspx](http://www.the-eic.com/ProcurementGuide.aspx)

<sup>22</sup> Where upfront identification of local suppliers has been conducted, bidding firms can be provided with these lists to inform their tender responses.

### 3) Up-skilling and expansion support

Where a local supplier (or a consortium) needs to expand or up-skill in order to be able to bid for work, it may be eligible for Government support. Support comes in many forms: finance, grants, or direct equity investments. The support programmes tend to target specific sectors and activities within those sectors, ranging from R&D to training for employees. There are more than 600 such schemes available nationwide for the manufacturing sector alone, and there are many others provided by local government. Such support can be administratively burdensome to apply for, and is often hotly contested. Depending on the circumstances of the project in question, it may be appropriate for the developer or primary contractor to contact the local authority for information on the schemes available in the project's area and disseminate this to interested suppliers in its outreach activities. The process of applying for support can take some time; it is therefore recommended that these discussions commence as early as reasonably practicable in the procurement process. Government also provides a useful search facility for those looking for support.<sup>23</sup> Construction industry fora and technical colleges may also be useful resources.

#### Formalising the commitment

If a developer is able to include a commitment to local content in its planning application, there are different approaches that can be taken. The approach should be informed by pre-planning scoping activities and an assessment of the likely level of realisable local content. Planning conditions are subject to strict tests on enforceability, necessity and precision, so may be difficult to draft to the Local Authority's satisfaction ahead of contract award. They do, however, include a test of reasonableness to ensure that the commitment does not place undue demands on the developer. The tests for planning obligations are less restrictive and the provisions can usually be drafted in a way that reflects any uncertainty in the level of local content that will ultimately be procured. Planning obligations may, however, be more difficult to subsequently amend if necessary.

The firmness of the commitment can also vary, and will likewise reflect the developer's confidence in local content on the basis of scoping undertaken. A loosely worded commitment with little evidence of engaging the supply chain is unlikely to add much weight to the planning decision. On the other hand, a strong commitment at planning to source a fixed percentage of construction materials or labour locally may be unduly restrictive. This often leads to having a draft condition/obligation which sets a firm commitment, though with the actual level then agreed with the local authority post-consent following more investigation.

### 4) Planning and auditing

Scoping work will help developers and their contractors to understand local skills and expertise. They may then make a formal commitment to sourcing supplies from the local area as part of a planning application. It's important to stress that formal commitments, for example in the form of a planning condition, can only be made where there is a demonstrable, economic justification for doing so. On the other hand, where such a formal commitment can be made, it can, if presented and evidenced appropriately, more easily be given material weight in planning,<sup>24</sup> and can thereby increase the likelihood of consent. Even where the scoping work has identified shortfalls

in potential competent local suppliers, such that a planning condition would not be appropriate, this work is still a useful demonstration of how a developer is working to maximise local value, albeit against a backdrop of limited opportunity for local sourcing.

Good evidence on how much local content was actually achieved will be useful as feedback to local business groups and the wider community. It can also help inform future planning applications. Developers should also look to learn from experience and update their own internal processes and policies on the local and UK supply chain. Developers should therefore consider implementing post-construction auditing techniques to see where money was actually spent.

<sup>23</sup> See <https://www.gov.uk/business-finance-support-finder> or <http://businessfinanceforyou.co.uk/finance-finder>.

<sup>24</sup> However, discussions with developers suggests that experiences in this regard are mixed. The NPPF in England, for example, states that "the Government is committed to ensuring that the planning system does everything it can to support sustainable economic growth". Nonetheless, it is not always clear that sufficient weight is given to the economic benefits of onshore wind in planning decisions.

A standard and non-technical tool for this is New Economic Foundation's 'Local Multiplier 3' or LM3.<sup>25</sup> LM3 tracks the volumes of local spend in the first three 'links' of the supply chain, and is used to derive a multiplier figure. This figure is a good indicator of the value of the project to the local area, and provides a ready comparison for use in internal review procedures or target-setting. This third link is important, as it can focus developers' and contractors' attention not only on looking to maximise local content, but on using firms and services which themselves contribute to the local economy. For example, where there is a choice between two local conference facilities for a consultation event, information about where each of those sources its catering services from can make a significant difference in terms of the local multiplier, which in turn is a better marker of the value of the activity to the area.

### Auditing Local Impact – LM3 analysis

RWE Innogy UK undertook a study to determine the level of local spend associated with its Novar 2 Wind Farm, a 36.8 MW extension in Ross-shire, Scotland. Adopting the LM3 methodology, RWE Innogy UK's initial contract award to primary contractors was considered the first round. The spend of primary contractors RJ McLeod Contractors Ltd and Balfour Beatty Engineering Services Ltd was measured by surveying local businesses in a pre-defined boundary, as was a further third round relating to the subcontractors' spend on supplies, materials and staff. Where money is spent locally across more than one round, this forms part of a multiplier effect.

This analysis showed that for each £1 spent locally, an additional 52p was subsequently re-spent in the local economy through the supply chain. Assessed on a Scotland wide basis, each £1 spent in Scotland led to an additional 71p subsequently re-spent.

<sup>25</sup> See [www.neweconomics.org/publications/entry/the-money-trail](http://www.neweconomics.org/publications/entry/the-money-trail)



# Appendix One: Technical and other Requirements

# Appendix One: Technical and other Requirements

Part One of this Guide looked at the different types of work and contract involved in wind farm development, construction and operation. This Appendix follows the structure set out above, but breaks down each type of work in more detail, describing the type of activities, services and technical requirements involved. This will help those looking to more closely match their company's own work to parts of the supply chain. More information is also provided on the likely requirements that subcontractors and suppliers will need to satisfy in order to bid for work.

## 1. Detailed critical works

The following tables break down typical activities and materials/plant requirements for each category of works. Examples of specific technical requirements that developers and primary contractors may need to see evidence of are included, and an extensive list of generic requirements is included at the end.

**Table 1: Detailed works**

Construction Stage and Description	Activities	Materials, plant and third-party services	Specific technical requirements
<b>Feasibility: Wind resource assessment</b> A potential site is assessed for its suitability to host a wind farm by gathering meteorological data, often for two years.	<ul style="list-style-type: none"> <li>• Delivery of mast</li> <li>• Ground works</li> <li>• Onsite assembly of mast</li> <li>• Erection of mast</li> <li>• Servicing</li> </ul>	<ul style="list-style-type: none"> <li>• Haulage vehicle</li> <li>• Excavator</li> <li>• Hydraulic winch/crane</li> <li>• Cable/lifting rope</li> <li>• Mast</li> <li>• Meteorological equipment</li> </ul>	
<b>Feasibility: Geotechnical</b> Geotechnical and geological surveys describe the terrain to inform decisions on foundation type, access roads and other construction activities. Typically this involves a combination of desk-based and field studies.	<ul style="list-style-type: none"> <li>• Desk-based research</li> <li>• Borehole drilling</li> <li>• Trial pits</li> <li>• Testing of samples</li> <li>• Topographical survey</li> </ul>	<ul style="list-style-type: none"> <li>• Backhoe</li> </ul>	Suitably qualified geotechnical team
<b>Site preparation: Ground works</b> Topsoil is removed and stored, and embankments and cuttings are made. Ground may also need to be densified. Required for foundations, access tracks, crane pads and any control buildings.	<ul style="list-style-type: none"> <li>• Excavation of topsoil</li> <li>• Movement and storage of topsoil</li> <li>• Excavation of cuttings</li> <li>• Construction of embankments</li> <li>• Densification of ground</li> <li>• Removal of waste</li> </ul>	<ul style="list-style-type: none"> <li>• Excavator/bulldozer/scraper</li> <li>• Grader</li> <li>• Dump trucks</li> <li>• Compactor/roller</li> <li>• Waste removal vehicles</li> <li>• Waste disposal facility</li> <li>• Fuel</li> </ul>	

Construction Stage and Description	Activities	Materials, plant and third-party services	Specific technical requirements
<p><b>Site preparation: Tree felling</b> Commercial forestry sites can be suitable for wind farm development. ‘Keyhole’ felling may be used to reduce felling requirements. Commercial harvesting (CH) or in-situ chipping (ISC) techniques are generally used, and require different equipment.</p>	<ul style="list-style-type: none"> <li>• Felling of trees</li> <li>• Onsite transportation (CH)</li> <li>• Offsite transportation (CH)</li> <li>• Chipping/mulching of timber (ISC)</li> <li>• Removal and disposal of waste (ISC)</li> <li>• Transportation of logs/waste (CH/ISC)</li> </ul>	<ul style="list-style-type: none"> <li>• Harvester/cable crane (CH)</li> <li>• Flail/chipper (ISC)</li> <li>• Forwarder/skidder</li> <li>• Log transport vehicles (CH – specifications apply<sup>26</sup>)</li> <li>• Waste removal vehicles (ISC)</li> <li>• Waste disposal facility (ISC)</li> </ul>	
<p><b>Site management</b> As part of a project, a number of ancillary services are needed. Developers will need to build a site compound, hire cabins for offices, etc., and will also need to contract for services such as security.</p>	<ul style="list-style-type: none"> <li>• Establishing site compound</li> <li>• Hire of cabins, generators, etc.</li> <li>• Cleaning</li> <li>• Security</li> <li>• Waste management</li> </ul>		
<p><b>Balance of Plant: Access and onsite tracks</b> Tracks to access the site from the main road network are often required. Additionally, tracks are needed for construction and maintenance of the wind farm and access to any control buildings, substations, and so on. Tracks need not necessarily have a sealed surface. In peat-rich ground conditions, floating roads may be used. Watercourse crossings may require bridge construction. Stones for use in construction of the tracks can be sourced onsite where available.</p>	<ul style="list-style-type: none"> <li>• Site preparation (see above)</li> <li>• Drainage (culverts or ditches)</li> <li>• Quarrying</li> <li>• Transport and laying of aggregates</li> <li>• Laying of geotextile/geogrid fabrics</li> <li>• Laying and compaction of aggregates</li> </ul>	<ul style="list-style-type: none"> <li>• Excavator</li> <li>• Aggregates (sand, stone, etc. – may be subject to specification, e.g. Type 1 stone)</li> <li>• Roller</li> <li>• Culverts</li> <li>• Fuel</li> </ul>	<p>Specific requirements for BoP tend to come from the turbine supplier, and will therefore vary on a site-by-site basis. Early engagement to ascertain suitability is therefore crucial.</p>
<p><b>Balance of Plant (civil): Crane pads</b> Crane pads are hard-standing areas to enable the assembly and erection of the turbines.</p>	<ul style="list-style-type: none"> <li>• Site preparation (see above)</li> <li>• Drainage (culverts or ditches)</li> <li>• Quarrying</li> <li>• Transport and laying of aggregates</li> <li>• Laying and compaction of aggregates</li> </ul>	<ul style="list-style-type: none"> <li>• Aggregates (sand, stone, etc. – may be subject to specification, e.g. Type 1 stone)</li> <li>• Roller</li> <li>• Fuel</li> </ul>	<p>As above, turbine suppliers will specify design and quality criteria.</p>
<p><b>Balance of Plant (civil): Foundations</b> Foundations are made from steel-reinforced concrete in excavated pits. Different designs can be used, and will be determined predominantly by the ground conditions on site and the design load of the turbines. This may include piling operations. Bolts at the top of the foundation connect the first tower section to the foundation.</p>	<ul style="list-style-type: none"> <li>• Site preparation (as above)</li> <li>• Laying of subgrade</li> <li>• Installation of concrete mudmat</li> <li>• Installation of steel rebar</li> <li>• Installation of anchor gate</li> <li>• Delivery of concrete</li> <li>• Pouring of concrete</li> <li>• Backfilling of soil</li> </ul>	<ul style="list-style-type: none"> <li>• Aggregates for subgrade</li> <li>• Delivery truck</li> <li>• Cement truck</li> <li>• Pump rig</li> <li>• Steel reinforcement bars (and delivery)</li> <li>• Bolts</li> </ul>	<p>As above.</p>
<p><b>Balance of Plant (civil): General</b> General services and equipment to support construction activities will be required.</p>	<ul style="list-style-type: none"> <li>• See next column</li> </ul>	<ul style="list-style-type: none"> <li>• Administrative support</li> <li>• Catering</li> <li>• Security fencing</li> <li>• Safety/security stewards</li> <li>• Traffic management</li> <li>• Snow/ice clearance</li> </ul>	<p>Recognised qualifications or standards may be applicable to individual roles and services.</p>

Construction Stage and Description	Activities	Materials, plant and third-party services	Specific technical requirements
<p><b>Balance of Plant (electrical): Substation</b> A substation (collector) is used to step up the voltage of the energy produced for export to the grid or distribution network. The substation also contains equipment for operating the wind farm, for example switchgear and export meter.</p>	<ul style="list-style-type: none"> <li>• Substation design</li> <li>• Construction</li> <li>• Testing and certification</li> </ul>	<ul style="list-style-type: none"> <li>• Design and optimisation</li> <li>• Domestic electrics</li> <li>• Heating</li> <li>• Fire/security alarms</li> </ul>	The necessary electrical elements of the substation will define the civil requirement. Engineering Design Standards are provided by DNOs.
<p><b>Balance of plant (electrical): Cabling</b> A series of medium-voltage cables connect the turbines to the substation. The circuits will need to be designed to suit the conditions on site. Cables tend to be trenched and sizing varies, though factors such as soil resistivity and ampacity requirements are key factors in determining sizing requirements.</p>	<ul style="list-style-type: none"> <li>• Circuit design</li> <li>• Excavation of trenches</li> <li>• Laying of cables and connection</li> <li>• Testing</li> <li>• Backfilling trenches</li> </ul>	<ul style="list-style-type: none"> <li>• Design and testing services</li> <li>• Installation</li> <li>• Cable supply</li> <li>• Cable delivery</li> <li>• Excavator</li> <li>• Fuel</li> </ul>	Cable diameters and specifications will vary depending on (inter alia) the capacity of the turbines.
<p><b>Grid connection</b> An export cable will connect the wind farm to the distribution network. Developers can, in certain circumstances, undertake these works (the appointed company has to be a Lloyds registered Independent Connections Provider). The grid connection can be either overhead (OH) or buried cables (C) (or partly underground), which in turn may require directional drilling or other excavation techniques.</p>	<ul style="list-style-type: none"> <li>• Connection design</li> <li>• Excavation and backfilling of trenches (C)</li> <li>• Assembly and erection of trident poles/pylons (OH)</li> <li>• Laying of cables (C)</li> <li>• Wiring of poles/pylons (OH)</li> <li>• Testing</li> <li>• Substation works (see above)</li> </ul>	<ul style="list-style-type: none"> <li>• Design and testing services</li> <li>• Installation</li> <li>• Cable supply</li> <li>• Cable delivery</li> <li>• Excavator (C)</li> <li>• Supply of poles/ pylon materials (steel, conductors, bolts, fittings) (OH)</li> <li>• Delivery of poles/pylons</li> <li>• Cherry picker (OH)</li> <li>• Crane(OH)</li> <li>• Fuel</li> </ul>	Lloyds registered and DNO/TO approved companies are required.
<p><b>Turbine supply</b> Turbines tend to come as a complete package from turbine manufacturers, though there may be opportunities to procure some of the required elements locally or nationally. Blades, tower sections and internal electrical parts are delivered for onsite assembly.</p>	<ul style="list-style-type: none"> <li>• Delivery and storage of turbine components</li> <li>• Onsite assembly</li> <li>• Erection of turbine</li> <li>• Installation of electrical and operational components</li> <li>• Commissioning and testing</li> </ul>	<ul style="list-style-type: none"> <li>• Transport of turbines</li> <li>• Crane hire</li> <li>• Onsite assembly and Erection of turbine (specialist engineering)</li> <li>• Internal transformers and switch gear</li> <li>• Electrical engineering</li> <li>• Ladders and platforms</li> <li>• Ventilation</li> <li>• Foundation fixings</li> </ul>	As above, turbine suppliers will specify design and quality criteria.

## 2. Generic requirements

This section provides an overview of the kind of information suppliers can be expected to provide when pre-qualifying or bidding for work. Individual developers or primary contractors may have specific requirements in areas like Health & Safety, and should always be contacted for definitive information. Requirements are likely to differ depending on the nature of the services being procured. For example, an administrative function with no presence on site will have different health & safety requirements to on-site construction.

**Table 2: Generic Requirements**

Topic Area	Example requirements	Comments
Company details	<ul style="list-style-type: none"> <li>Registered name and address, including subsidiaries</li> <li>TAX registration no.</li> <li>Contact details</li> <li>Key contacts for management, H&amp;S, quality, etc.</li> </ul>	
Financial	<ul style="list-style-type: none"> <li>Bank name and details</li> <li>Turnover and pre-tax profits (multiple years)</li> </ul>	To determine whether the contractor is financially stable and does not presents a financial risk.
Insurance	<ul style="list-style-type: none"> <li>Details and copies of certificates of relevant policies, e.g. employer liability, public liability, contractor all risks, professional indemnity, goods in transit</li> </ul>	The cover amount will need to be sufficient for the purposes of the activity, and should therefore be discussed with developer/primary contractor.
Experience	<ul style="list-style-type: none"> <li>Background of previous relevant contracts, including geographical extent, numbers of employees managed, etc.</li> <li>References</li> </ul>	Previous experience need not always be in relation to onshore wind construction. For new entrants, it is worth discussing the relevance of previous contracts with developers/primary contractors. References will often be taken up, so please make sure your reference client has agreed.
Health and Safety	<ul style="list-style-type: none"> <li>H&amp;S policies, including any improvement targets and training programmes for employees</li> <li>Details of any safety certificates</li> <li>Environment Management Policies (EMP)</li> <li>Evidence on use of incident book</li> <li>Waste disposal policies</li> <li>Historic accident and incident data</li> <li>Sample risk assessment and method statements</li> </ul>	H&S standard may refer to BS OHSAS 18001 or similar. Environmental standard ISO 14001 (or similar) may be referenced. Third-party vendor accreditation may be required for a specific scheme, as may inclusion on specific registers of safe contractors. Safety certificates held by operators may be CSCS or similar. RenewableUK has also published Wind Turbine Safety Rules, which relevant suppliers should familiarise themselves with <sup>27</sup> . NICEIC certification (or similar) may be required for any electrical function. The client will want to ensure that a contractor is competent to produce good quality Risk Assessment and Method Statement documentation to avoid problems on site. Risk assessments should follow relevant HSE guidance. <sup>28</sup>

<sup>27</sup> See [www.renewableuk.com/en/our-work/health-and-safety/wind-turbine-safety-rules.cfm](http://www.renewableuk.com/en/our-work/health-and-safety/wind-turbine-safety-rules.cfm)

<sup>28</sup> [www.hse.gov.uk/risk/controlling-risks.htm](http://www.hse.gov.uk/risk/controlling-risks.htm)

Topic Area	Example requirements	Comments
Quality management	<ul style="list-style-type: none"> <li>• Details of Quality Management System/policy (QMS), including:</li> <li>• Certification</li> <li>• Complaints handling procedures</li> <li>• Customer satisfaction surveys</li> </ul>	Certification may be to ISO9001 or equivalents, or via third-party assessments. Clients are looking for contractors who review their performance and are always looking to improve.
For suppliers of components (e.g. fabricators, machine shops)	<ul style="list-style-type: none"> <li>• Details of inspections carried out</li> <li>• Testing performed</li> <li>• Records of testing</li> <li>• Claim rates</li> </ul>	
For design functions	<ul style="list-style-type: none"> <li>• Organisation, experience and qualifications of design staff</li> <li>• Design review processes</li> <li>• Hazard elimination methodology</li> </ul>	Construction Design and Management Regulations are likely to apply, so evidence on compliance with these should be provided.
For organisations looking to take on the role of Principal Contractor (PC)	<ul style="list-style-type: none"> <li>• Experience of acting in a PC role</li> </ul>	Clients are likely to request to audit a site where the role of PC is being performed.

# Appendix Two: Contract Structures

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Developers can implement three main types of contract structure. The choice between them will be determined in part by the demands of the project itself (particularly perceived construction risk), the developer's preferred method (including availability of in-house resource) and financiers' preferences.

The approach to maximising local content will differ depending on which structure is used, reflecting the developer's 'distance' from suppliers lower down the chain. These dynamics, discussed in more detail below, ought to be borne in mind by developers seeking to maximise local content. Potential suppliers should also be aware of the proposed contract structure and the different dynamics involved, in order to make sure they know who to engage with, and who will be responsible for what once contract awards begin.

### **Engineering, Procurement and Construction contract (EPC):**

Also known as turnkey contracts. The developer will issue a primary contract to a single company for delivery of the whole operational wind farm, including all design, purchasing and construction activities. There are a range of companies in the UK operating as turnkey contractors. Such companies are likely to already have a significant database of suppliers across the country, and may therefore need to do little in the way of scheme-specific identification. Ensuring a sufficient level of local and UK content will therefore depend strongly on the wording of the invitation to tender for the contract, and the contract itself. New suppliers should consider engaging directly with primary contractors in this sector to understand the criteria for acceptance onto approved supplier lists, including pre-qualification requirements.

### **Dual contracts (DC):**

Dual contracts split the supply and erection of turbines from BoP (namely, all other activities). As with EPCs, there is a mature market for provision of both services. The dynamic between developers and subcontractors is also similar.

### **Multi Contract Structure (MC):**

MCs break the construction activities down into several distinct streams (five or six, for example), with the developer managing the interface between all primary contractors. MCs are often a higher-risk approach than MCs or DCs, but, because the developer is 'closer' to the subcontractors and suppliers lower down the chain, they arguably provide more leverage to look at local/UK commitments at the point of contract award. Where an MC is being used, suppliers and subcontractors should consider engaging early with the developer, as well as with any candidate primary contractors, to discuss possible opportunities and future requirements.

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[www.airvolutionenergy.com](http://www.airvolutionenergy.com)

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[www.edf-er.com](http://www.edf-er.com)

**Energy4All and the Drumlin Wind Co-operative**

[www.energy4all.co.uk](http://www.energy4all.co.uk)

**Infinergy**

[www.infinergy.co.uk](http://www.infinergy.co.uk)

**Nordex UK**

[www.nordex-online.com/en](http://www.nordex-online.com/en)

**Partnerships for Renewables**

[www.pfr.co.uk](http://www.pfr.co.uk)

**PMSS**

[www.pmss.com](http://www.pmss.com)

**RES**

[www.res-group.com/global/uk-ireland.aspx](http://www.res-group.com/global/uk-ireland.aspx)

**RWE Innogy UK**

[www.rwe.com](http://www.rwe.com)

**Scottish Power Renewables**

[www.scottishpowerrenewables.com](http://www.scottishpowerrenewables.com)

**Vattenfall**

[www.vattenfall.co.uk/en/index.htm](http://www.vattenfall.co.uk/en/index.htm)

**Vestas Wind Systems**

[www.vestas.com](http://www.vestas.com)



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