Ynni Lleol | Local Energy

Llywodraeth Cymru
Welsh Government

Construction Module

The Local Energy Renewables Toolkit is intended to be used as a reference by community groups and community based businesses. This module is one part of a series of documents forming the Local Energy Renewables Toolkit and is designed to cover all sizes of project, although the scale and complexity of multi MW projects may require more detailed evaluation than smaller projects. Other modules that may also be of particular interest to those reading this module are as follows:

- Wind, Solar, Hydro, Solar Thermal, Heat Pump and Biomass Modules;
- Planning;
- Procurement;
- FIT and RHI Modules;
- Grid Connection.

This toolkit builds on the work completed for the Scottish Government's Community and Renewable Energy Scheme (CARES) by Local Energy Scotland and Ricardo-AEA.

Module Structure

This module is structured in five parts to act as a guide and reference document for Community Groups in the development of renewable energy projects in Wales.

Construction Phases
A more detailed look at each phase of the construction process, showing a correlation to the roles introduced in the Roles in the Construction Process section.

Roles in the Construction Process
A detailed overview of the different roles involved in the development process and how you as the Developer will be involved in their selection, management and safety.

Contractor Management
An overview of contractor management good practice.

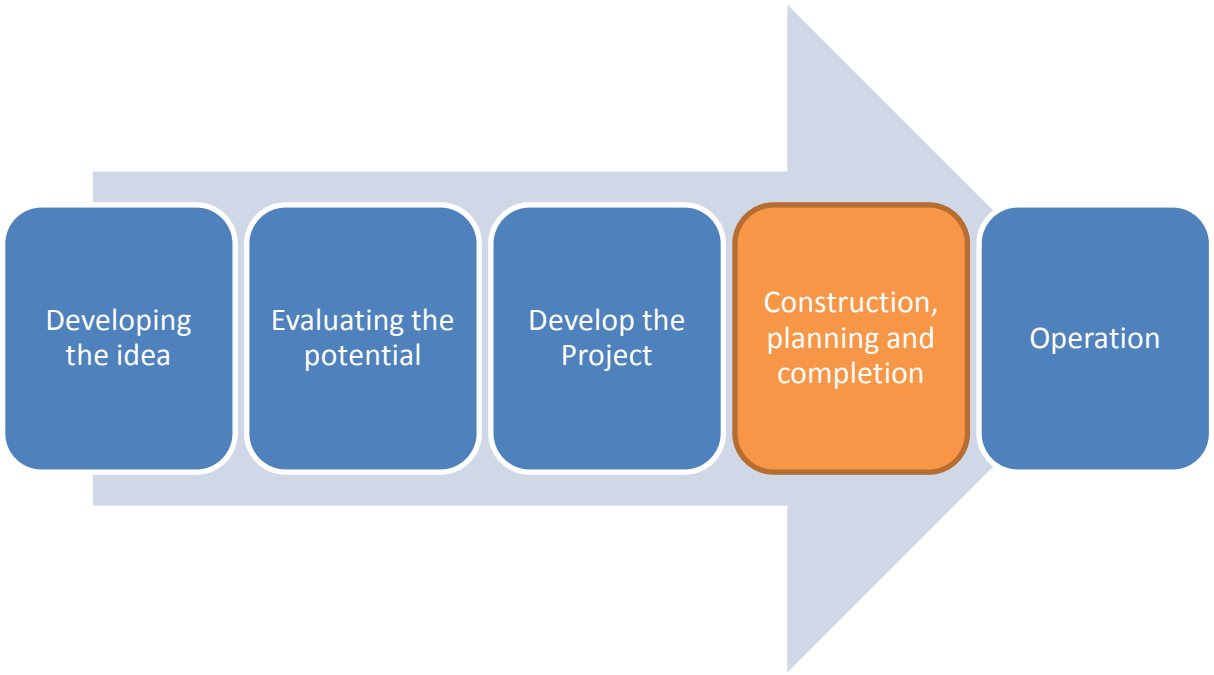
Health & Safety, Environmental and Legal Obligations
A brief introduction to the legal requirements and obligations as the Developer of a site for the wider safety of its workers, the environment and the wider community.

Further Information
Appropriate links, definitions and references to other information, collated for quick reference.

The Construction Process

The individual technology modules within the toolkit detail the logical progression for developing each technology type. These detail the process of attaining planning permission, contacting Ofgem, securing grid connection and indicative timeframes for contacting contractors. To help the reader, understand the different stages and processes involved in the construction of their development, the module starts with an introduction to the different stages in the construction process. The construction process is also sometimes referred to as installation. The Construction phase is the fourth stage in the development process before the technology becomes operational, detailed in Figure 1.

Figure 1: Project construction in the development process



The overview detailed in Table 1 follows on from the technology logical progression diagrams in the individual technology models.

Table 1 - Overview of the construction process, summarising a logical progression for the construction of a renewable project

Phase 1	Procurement and Planning	
Step 1 Building the team	Tender for project manager or main contractor as appropriate.	1 to 4 months
Step 2 Establishing key deliverables	Establish construction time frames based on key deliverables (grid connection date, civil works and technology supply lead time).	
Step 3 Tendering	Tender for construction, operation and maintenance contracts.	
Step 4 Planning	Discharge of initial planning conditions in preparation for works beginning.	
Step 5 Surveying work	Undertake any surveys required prior to construction beginning (geotechnical, ecological, hydrological, etc.).	
Break Point 1	**Waiting for tenders and dates to be confirmed**	

Phase 2	**Pre-Construction Works**	
Step 6 **Secure agreements**	Secure agreements for materials, supplies, construction works and operation and maintenance contracts.	1 to 4 months
Step 7 **Planning**	Discharge remaining planning conditions with the assistance of contractors as appropriate.	
Step 8 **Initiation of development**	Lodge initiation of development notice with local planning authority or if appropriate provide notice of permitted development.	
Step 9 **Site handover**	Hand site over to main or principle contractor for initial works to begin.	
Step 10 **Initial civil works**	Initial ground works and site preparation is undertaken, including the laying of foundation as appropriate.	
Break Point 2	**Initial works undertaken natural break in works before project construction.**	
Phase 3	**Construction**	
Step 11 **Technology delivery**	Technology is delivered to site by suppliers to site over a number of deliveries.	1 to 6 months
Step 12 **Technology installation**	Technology is installed onsite, this does not include connection to the grid.	
Step 13 **Commissioning**	After this installation is complete the technology is connected to the grid and an appropriate meter. All works outside of installation are covered by the commissioning process.	
Step 14 **Completion of development**	Lodge completion of development notice with local planning authority.	
Step 15 **Site wind down**	Removal of construction materials, plant and site restoration.	
Break Point 3	**Technology Operational**	

Phase 1 Procurement and Planning

The initial Procurement and Planning Phase focuses on development planning and addressing legal local authority planning requirements.

Development Planning

To allow for the smooth running of the construction process the management of the development can be handed over to a Project Manager or a Main Contractor, these roles are discussed further in the subsection below. Once this role has been appointed initial steps can be taken to start the construction process. A CDM Co-ordinator should also be appointed in this initial stage, further details in the subsection below, to ensure that you as the Developer are supported in the decision-making process, ensuring that works selected are safe, appropriate and legal.

This initial phase allows for procurement of materials and services to be undertaken, allowing for a long-term construction plan to be developed. The **Procurement Module** provides a broader overview of the procurement process. From this a timeline, can be built which will remain flexible whilst initial surveys for ground works are undertaken. Invitation to tender (ITT) documents or requests for quote (RFQ) will be sent out calling for civil engineers, specialist contractors and other specialist engineers to support the development in this initial

phase. Based on the initial feedback the community group can work with the Project Manager or Main Contractor to develop a baseline project plan with initial key dates and responsibilities, this can then be used to feedback to the wider community group, financiers etc.

Planning

Where a project is above microgeneration scale planning permission will have been sought, and obtained, this consent will come with a set of planning conditions. The **Planning Module** provides further details of the planning process, from seeking approval to discharge of planning conditions.

Some conditions will need contractor input to be discharged or for specialist surveying to be undertaken. This initial procurement and planning phase allows conditions to be addressed and for any issues that may arise in any of the site surveying to be rectified. The number of conditions is not always directly related to the scale of the project, if your site falls in a particularly sensitive area the number of conditions can be numerous.

A planning consultant or a project manager can be used to manage this process working with the local planning authority and other relevant consultees, rather than the community taking this forward. Should the community wish to purify conditions, support from the Project Manager or Contractors can be sought to supply the required technical information.

This phase will be followed by a break allowing for surveying to be completed and dates to be finalised so the pre-construction phase can begin.

Phase 2 Pre-Construction

Once the initial planning and procurements have been undertaken pre-construction works can begin. As a first step, contracts will be awarded based on the received tenders and quotes, and items with a long lead time can be factored into the project plan. This process can be fast moving, as the Developer you will work alongside the Project Manager or Main Contractor and CDM Coordinator to award contracts, depending on the works being awarded there may be interviews or site visits to support the decision-making process. Once suppliers have been established and a project plan has been completed by the Project Manager, the remaining planning conditions can be addressed.

Depending on the scale of development this process can include seeking information from contractors and suppliers should a Transport Management Plan or Construction Management Plan be required. Transport Management Plans and Construction Management Plans detail an overview of the works onsite and how they will be managed to protect the wider environment, also featuring how different planning conditions will be factored into the construction process.

Once the planning conditions have been discharged and all relevant agencies have been informed of the works being undertaken the Initiation of Development Notice can be issued to the local planning authority. This notice registers the intent to begin construction works onsite with the council, in line with the conditions of the planning permission.

The development site will then be “handed over” to the Main or Principle Contractor for works to begin. In this pre-construction phase, initial access and ground works, and site preparation will be undertaken, these works can also be referred to as earth works or civil works. Where foundations and concrete is to be laid, sometimes several weeks will need to be left between the Pre-Construction and Construction Phase.

Phase 3 Construction

This final phase of the development sees the technology installed and commissioned, the installation process varies from type and scale of technology. During the construction phase the principle or main contractor will manage the developments day to day and as the

Developer you will have limited involvement in the works onsite. Once the technology has been constructed it will be commissioned, commissioning a development can cover all works undertaken after construction. This can include testing of the technology, electrical works, connecting it to the appropriate grid solution and being signed off for its appropriate incentive scheme (e.g. FiT). The commissioning process, the grid connection, FiT and RHI are detailed further in the individual technology models.

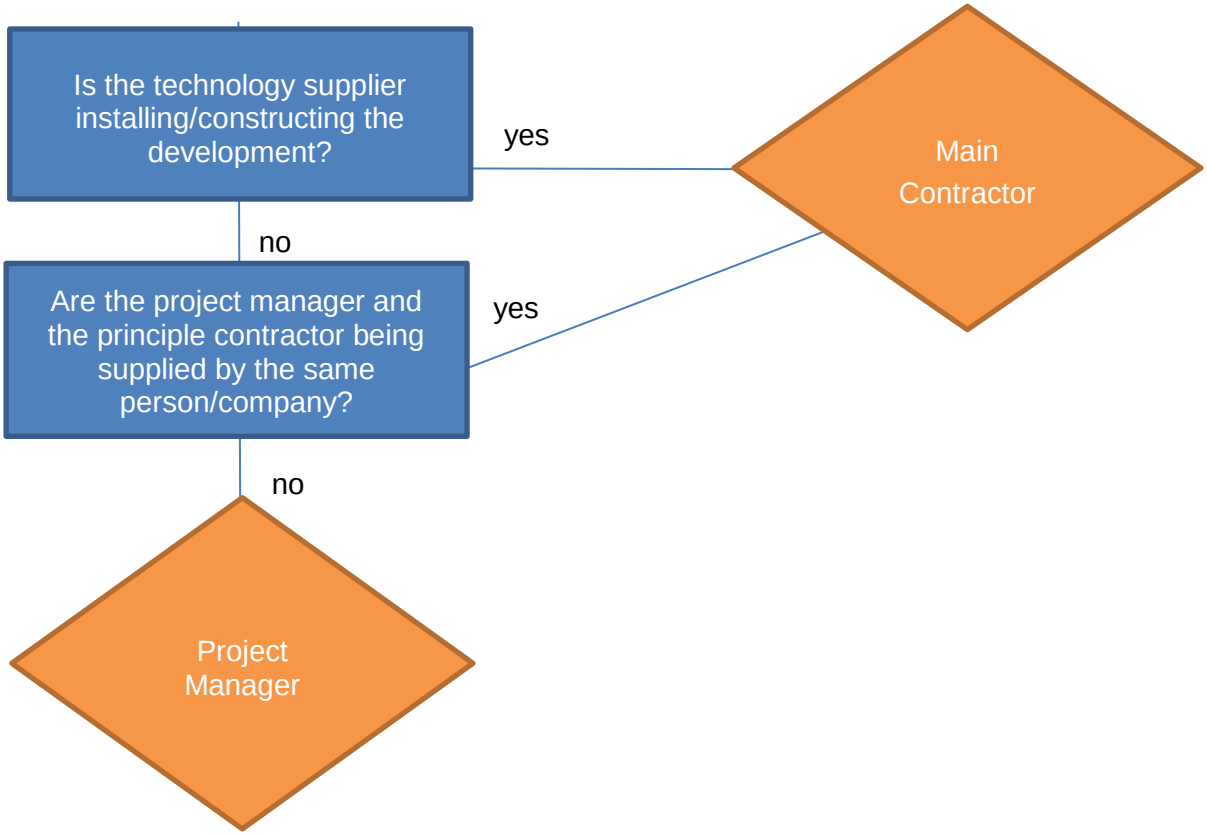
At various points in this construction phase there is potential for changes in the project plan. Several things can affect a developments construction, from a longer than expected lead time, poor weather making works impossible, a delay in connection or an accident on site. Once the development has been certified a Completion of Development Notice can be issued to the local authority, like with the Initiation of Development Notice this notifies the council that development has been completed on site.

Once this has been issued all planning conditions which relate to the development post-construction become enforced, this will potentially mean the site may be inspected by the local planning authority, Welsh Water, NRW or Cadw. Any post competition monitoring should also be planned for, this could potentially be done as part of an operation and maintenance contract, but you as the Developer should be mindful of any long-term planning conditions and their implications.

Roles in the Development

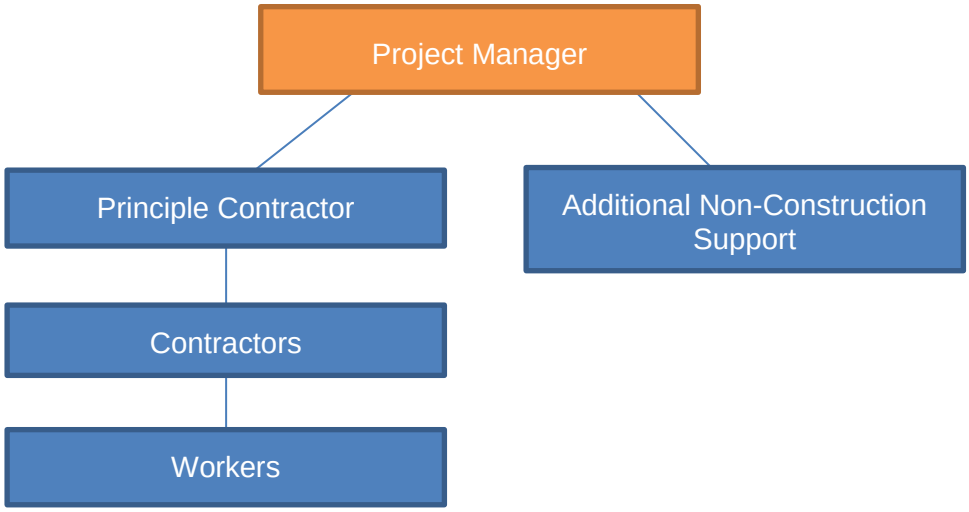
The construction process requires a number of technical specialists during the different phases of construction. There are two main development routes in the construction process, a project manager will oversee a network of contractors or a main contractor that will manage the project, undertake construction works and where required engagement with external contractors.

Figure 2: Identifying whether the development will have a Main Contractor or Project Manager



A Main Contractor is used primarily when a supplier is installing or leading the construction of a development, or the technology is particularly specialist and the manufacturer will lead the construction. A Project Manager will oversee all the construction and supply elements from different places. The 'Work Flow of a Project Manager Led Development' diagram lays out a hierarchy for the different roles within the construction process.

Figure 3: Work flow of a Project Manager led Development



Similarly, when a development is led by a Main Contractor the work flows down the chain but the Principle Contractor, Contractors and Workers are generally employed by the same company or contracted to the Main Contractor.

A basic overview of the primary roles in the construction process follow. Depending on the scale and technology being constructed there may be additional contractors or specialists required who are not outlined below. The Project Manager or Main Contractor will be able to identify roles that are not included.

Developer – The Community Group/ Landowner

"The Developer" is you the landowner, business or community group. A nominated person or development project manager can or may already be appointed as a lead contact for the project, who may want to act as a spokesperson whilst liaising with the construction management team. This nominated person can also act as a decision maker, making decisions on the behalf of the community within a pre-defined scope. By appointing a decision maker this allows for the project to proceed in a timely manner, without the need for reverting to a committee.

The Developer is ultimately responsible for the works undertaken on site and has a duty of care for the associated workers, the wider environment and the public. As this duty of care falls to you, ensuring that the works tendered for are undertaken by competent and qualified individuals can minimise risk during the development process. As the Developer, you should have clear involvement in contactor selection process, which is discussed in the Contractor Management Section in this module.

Once the initial stages of the development, Stages 1 to 6 in Construction Phases 1 and 2, have been completed the role of the Developer is reduced as the decisions about how the development will be undertaken have been made. Throughout the remaining stages the Developer should look to keeping a dialog open between the Project Manager, Principle/Main Contractor and Principle Designer to ensure the works are being completed on schedule and as you have contracted.

Project Manager

The Project Manager (PM) will operate in connection with the Principle Contractor, this may include an overlap in some duties. The basic duties undertaken by a PM are;

- Management of contracts and contractual staff;
- Management, preparation and coordination or the project plan;

- Resource allocation across the construction phases, ensuring that requirements for manpower and materials are met;
- Managing project finances, by ensuring contracts and invoices are paid and ensuring that the project forecast is kept up-to-date;
- Liaising with the development team, personnel, local authorities, stakeholders etc.;
- Assisting the Principle Contractor with relevant documentation and desktop work.

The Developer may, depending on the scale of the development, undertake some of the Project Manager role, or if there is an appropriately capable member of the team. A defined role for the Project Manager should be established during the contracting process, outlining the responsibilities of the Project Manager and the scope of works to be undertaken. This scope of works should reflect the amount of responsibility you want to pass to the Project Manager and what you as the Developer feel should be left in your control, as ultimately you are responsible for the site.

The project manager is primarily involved during Phase 1 and Phase 2 of the construction process, where decisions are made and the planning works are undertaken. Depending on the Principle Contractor contract the Project Manager may assist with additional support works during construction.

Principle Designer

As the Developer, the person fulfilling this role will provide you with the security that the site's health, safety and design is undertaken legally and safely. This role can be undertaken by a number of different people, depending on the project scale, either by the Project Manager, Principle/Main Contractor, or as an individual contractor. Duties include:

- Notifying the Health and Safety Executive of the project;
- Advising you in the engagement with and appointing of competent and adequately resourced organisations and contractors;
- Working on the Developer's behalf or with the Developer to ensure that suitable management is in place for the project;
- Managing pre-construction information and circulate it to relevant parties;
- Advising the Developer on the man hours required for the project and how this fits with the project plan;
- Ensuring that all design works comply with UK regulations;
- Facilitating communication between designers and the Principle/Main Contractors;
- Assisting the Developer in ensuring that the Construction Phase Plan is appropriate, allows the development to commence and covers all necessary provisions;
- Producing and evaluating health and safety documentation and practices for the construction works passing to the Developer at the end of the Construction Phase.

The role is critical to the development process and should be put into place during the initial stages of Phase 1, allowing for all works to be undertaken legally and safely, protecting you as the developer. The designer will perform their duties across the 3 construction Phases, supporting you as the Developer and the wider construction team.

Principle Contractor - Construction

The Principle Contractor will provide all or some of the following services across the three project phases:

- Co-ordinate and manage construction works, including the construction contractors;
- Preparation and updating of the project plan, as works are undertaken and completed;
- Oversee the health and safety risks to everybody affected by the development works;

- Ensuring that contractors have the relevant skills, knowledge and experience to carry out works without compromising on health and safety. Where appropriate also checking organisational capabilities, i.e. a member of a professional body or has the relevant skills card;
- Providing site specific inductions and work orders ensuring they have all training required. This also includes regularly engaging with the team about health and safety risks;
- Ensuring the appropriate provision of welfare facilities depending on the scale of works being undertaken,
- Securing the site from the public and unauthorised visitors;
- Working with the Developer and PM to ensure all risks are managed. In addition to this supporting the pre-construction phases and works.

The role of the Principle Contractor begins during the second Phase in the construction process, at Stage 7, running through to the end of the construction. The Principle Contractor will work closely with the Project Manager, Principle Designer and Contractors.

Main Contractor

A Main Contractor role will be undertaken by an individual or company which combines the roles of the Project Manager and Principle Contractor. A Main Contractor will be appointed at the beginning of the Construction Process and will continue to the manage the project throughout all the stages. Where this is the case the Main Contractor will liaise with the Developer and CDM Co-ordinator regularly to feedback development progress and how the progress aligns with the development in the project plan. In addition to the duties outlined in the Project Manager and Principle Contractor roles, the following is undertaken by the Main Contractor;

- The provision of the welfare facilities unit;
- Site management, including the provision of security and services;
- The provision of contractors and workers from within the Main Contractors employ;
- Site inductions, information and training.

Contractor

Regardless of how the construction process is managed a number of additional contractors can be required on site, these will either be contracted on an individual basis or will be provided by the principle or main contractor. Standard contractors include:

- **A site manager or foreman** - who will work in conjunction with the principle or main contractor to deliver the works, through engaging with the site workers.
- **Civil Engineer** – To oversee construction works.
- **Clerk of Works or Owners Engineer**– On large scale projects where significant works are undertaken a clerk of works may be required to ensure the quality of works are being undertaken to an acceptable standard and being undertaken in line with site's health and safety policy. These findings are typically reported back to the client directly. Specialist clerk of works can be used when a site is particularly sensitive, focusing on environmental impacts such as ecology or the historic environment.
- **Electrical Engineer** – to provide support with electrical works onsite, as well as certifying works carried out.

Depending on the technology being installed additional contractors with specialisms relating to a particular technology may also be contracted.

Worker

At different stages in construction process different workers will be required on site, these will usually be contracted as part of a wider tender to cover a specific element of work. Workers onsite should be made aware of the site's health and safety policy and should be briefed appropriately before undertaking works.

Due to the varying site conditions from development to development different contractors will be required on a site by site basis. Although the construction team members may change the core management structure will remain the same.

Contractor Management

To support the construction process, as detailed in previous sections, there are a number of specialist workers required. These specialist workers will be employed under contract to support the development, and are usually referred to as contractors. A contractor is a worker who is not an employee directly employed by the Developer. Contracts will be for varying lengths of time and are agreements between two companies for work provided, potentially this could be for as little as a day's work, so require careful planning and management.

Engaging with Contractors

A Project Manager whose sole responsibility is the construction of the development will usually be employed under contract and is themselves a contractor. The Project Manager will work with the Principle Contractor to identify the contractors required for the development, depending on how hands on in the process you are as a Developer you may want to be included in the selection process. Two approaches can be taken when trying to engage with contractors either by inviting companies to tender or by approaching companies directly for quotes based on a work specification. Depending on the technology being constructed and the scale will require different types and numbers of contractors. The more contractors involved in the project the more management required.

A main contractor will manage all required sub-contractors, this is usually done without consultation with the Developer. The main contractor will have a pool of workers either internally or externally that they would usually call upon for the construction process.

Regardless if your project is managed by a Project Manager, Principle Contractor or Main Contractor they will help you to select the most appropriate contractor for a job. There are several different criteria that will be considered in this process, often during community projects an Invitation to Tender will be issued calling for suppliers to actively bid for a role in the project. Within the tender, you can list the expectations that you and your management team have for a contractor, these expectations can be measurable to ensure a high quality of workmanship.

As a Developer, you, via your management staff, are responsible for contractor's:

- Health and safety;
- Insurance;
- Documentation;
- And the provision of any potentially relevant training.

A more detailed overview of health and safety is provided later in this module.

Managing Contracts

When engaging in work with contractors ensuring that you are legally compliant is very important, both to ensure that should anything happen you are not liable and so that if work that is provided is not satisfactory you can raise an issue. Within the Further Information Section there are two main guides for managing contracts or contractors referenced. One produced by the Health and Safety Executive details good practise for managing contractor risk. The other produced by The Chartered Institute of Purchasing and Supply focuses on the value both monetarily and the quality of goods from good contract management. Your Project Manager, Principle Contractor or Main Contractor will manage contracts based on the scope of works required for the project, if you as the Developer are concerned about any aspect of the contracting process these can be addressed within the tendering or quoting process.

Construction Contracts

Construction contracts are in regulated by the Local Democracy, Economic Development and Construction Act 2009. The serves to protect those engaging in construction contracts, and encourages all contracts to be agreed formally through written signed contracts, detailing all work aspects.

Types of Contract

There are a number of different contract types which could be used by the community group. The basic standard form of construction contract is an agreement between the developer and the contract who will undertake the works. This should include as a minimum costings for labour and its prevision, drawing plans, specifications, schedules of works and any changes to existing plans. This should also provide costs and time scales which the contractor should then adhere to.

Four basic contract types, which may be considered, are:

- **Lump sum or fixed price contract** – A lump sum contract has the community pay a fixed agreed price for works. This type of contract transfers the construction risk to the contractor, as the price has been agreed
- **Cost plus contracts –** A cost plus contract has the developer pay the agreed costs of the construction plus an additional payment to allow for profit. The profit could be a percentage of the costed works, a fixed fee or an alternative. Depending on the scope of works and the likelihood of change the plus element of the contract should be chosen to ensure the project cost does not become unmanageable for the community.
- **Time and material contracts** – Where the project scope is not clear a time and materials contract may be suitable for the community. An hourly rate or day rate would be agreed and used to bill for works completed. A cap may want to be factored into a contract to ensure the price does not spiral out of control. Within the contract the community should agree costs for mark-ups, overheads, direct and indirect costs. This type of contract is unlikely to be used in large scale developments.
- **Unit Pricing Contracts** – Unit pricing contracts are often used by builders and could be used in small scale projects. A unit price could be agreed in the tendering or quoting process for a pre-determined number of units. This can be easily adjusted if the scope of work changes, as a price per unit has been agreed, so if less or more is required the price can be simply scaled.

It is important that the community selects a contract type which will suit their needs best, minimising the likelihood of over spend and commercial risk.

Suites of building contracts

In addition to the four contract options detailed above and the numerous other contract types, there are several suites of building contracts at national and international level. This allows the developer to enter into industry regulated contracts from a framework of suppliers, guaranteeing the quality of work contracted and the contract its self. There are a number of different contract suites available in the UK. The New Engineering Contracts (NEC) suite is one of the most well used forms of construction contracts, being regularly updated to match industry needs and changing legislations, the newest iteration of the suite was launched in 2017. Similarly, the International Federation of Consulting Engineers (FIDIC) and The Joint Contract Tribunal (JCT) have their own contract suites. Contractors and construction companies can become members of the different umbrella organisations, guaranteeing they operate above and beyond industry standards.

Depending of the size of contract procured not all contractors will be members of the contract suites described above, to enable the community to have the reassurance their contract offers the same level of protection and cover, contract templates can be purchased as standard from the suite providers.

Construction Health and Safety, and Other Legally Prescribed Activities

Managing health and safety on the construction site will usually be undertaken by the principle or main contractor, and by ensuring workers and visitors are appropriately informed. As the Developer, the duty of care for the overall site's health and safety falls upon you, even if you are not managing it yourself. During the contracting process, a Principle Designer will be appointed to manage the sites day to day health and safety requirements, and a suitably qualified and trained individual should be selected. This management should be undertaken being mindful of the stringent health and safety legislation across Wales and Britain. An overview of basic health and safety legislation is detailed within this section, this serves to inform you as the Developer and does not act as a guide to be followed on the construction site.

General HSE Legislation

The Health and Safety Executive regulate and monitor health and safety across the UK. As an employer, you are responsible for managing the health and safety of your workers, the Health and Safety at Work Act 1974 (HSW) outlines your responsibilities. The HSW provides cover for employees, contractors and members of the public. The management approach required should be proportionate to the nature of the works being undertaken, management of the construction site is usually undertaken by a Project Manager, Principle Contractor or Main Contractor which includes management of the sites health and safety policy. When selecting people or companies to fill these roles, ensuring that managers have the correct training and qualifications is key. Where possible ask for examples of previous works undertaken and specifically examples where contractors have delivered the same works. The Further Information Section provides extensive reading covering individual elements of the construction process, not all developments will need the same type of site works, so not all documents will be relevant to all readers.

Accidents and Accident Reporting

Accident reporting is legislated across the UK by the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) legislation. Reporting certain types of accident is a legal requirement in a workplace, whereas reporting all accidents is good practise. Accidents which result in death, serious injuries (reportable injuries), industrial diseases and 'dangerous occurrences' incidents with the potential to cause harm have to be legally reported. These reports are submitted to HSE, local authorities and where relevant the Office for Rail Regulation. The "Reporting accidents and incidents at work" advisory document listed in the further Information gives a detailed overview of all types of accidents covered and how these should be handled.

CDM

The Construction (Design and Management) Regulations 2015, hereafter referred to as CDM 2015, serves to ensure that no-one is harmed during construction work and that the completed works are safe. This is applicable for all types and scales of construction work in the United Kingdom. As previously discussed in the Roles section a Principle Designer may need to be appointed, this is required where a development is longer than 30 working days or 500 person days, a development of this length is called a notifiable project.

As a Developer, you are not required to be an expert in construction or to actively manage the works, but you are obligated to understand that the decisions you make can and do impact on the health, safety and welfare of workers and those impacted by the work. There are several guidance notes produced by the Health and Safety Executive which provide a

more detailed guide to your responsibilities as the Developer or client is provided in 'Further Information'.

The CDM 2015 Regulations require a Construction Phase Plan to be produced for all construction projects. The principle contractor in conjunction with the project manager or main contractor will be responsible for preparing the plan, organising the works and working together with all contractors to ensure health and safety. Two types of plan can be produced, a simple plan which is used for jobs which require less than 500 person days or 30 working days (with more than 20 people working at the same time), or a complex plan which must be provided with notice to HSE.

A simple plan outlines what work is to be done onsite, how it will be organised and how the different contractors will work together. Figure 4 details the key information required to be entered into a simple plan.

Figure 4: What is required within a simple Construction Phase Plan? (Source: HSE, 2015)

Plan

Make a note of the key dates, eg:

- when you'll start and finish;
- when services will be connected/disconnected;
- build stages, such as groundwork or fitout.

You will need to find out information from the client about the property, eg:

- where the services and isolation points are;
- access restriction to the property;
- if there is any asbestos present.

Working together

It may be useful to record the details of anybody else working on the job, including specialist companies and labourers.

Explain how you will communicate with others (eg via a daily update), provide information about the job, coordinate your work with theirs and keep them updated of any changes, eg:

- to site rules;
- to health and safety information;
- what you will do if the plan or materials change or if there are any delays;
- who will be making the key decisions about how the work is to be done.

Organise

- Identify the main dangers on site and how you will control them, eg:
  - the need for scaffolding if working at height;
  - how structures and excavations will be supported to prevent collapse;
  - how you will prevent exposure to asbestos and building dust;
  - how you will keep the site safe and secure for your client, their family and members of the public.
- Make sure that there are toilet, washing and rest facilities.
- Name the person responsible for ensuring the job runs safely.
- Explain how supervision will be provided.

For different renewable technologies, different scales of development will be required with changing hazards and potential risks. These will need to be addressed within a Construction Phase Plan whether this is a simple or complex plan, a basic overview of the health and safety considerations for a range of renewable technology types are provided in 'Further Information'.

Environmental Accidents

As well as ensuring those working and visiting the development site are kept safe, there is an obligation both as the Developer and from the construction workers to ensure that that the wider environment is not adversely impacted by the construction works. Governmental legislation, policy and Local Planning Authorities will usually manage this through conditions, permitting and the application process. If an environmental accident occurs immediate contact should be made with NRW on their incident helpline 0300 065 3000, further guidance is available on the NRW website, direct links available in Further Information Section.

Further Information

Advice and Guidance for Using Contractors

A brief guide from the Health and Safety on using Contractors – see:
http://www.hse.gov.uk/pubns/indg368.pdf

A detailed Guide to using Contractors and Contract Management – see:
https://www.cips.org/documents/CIPS_KI_Contract%20Management%20Guidev2.pdf

A detailed Guide to Managing Contractors – see:
http://www.hse.gov.uk/pUbns/priced/hsg159.pdf

Background to the Construction (Design and Management) Regulations 2015

Information on the CDM 2015 Regulations suited for developers undertaking construction work – see: http://www.hse.gov.uk/pubns/indg411.pdf

An overview of the information required for a simple Construction Phase Plan - see:
http://www.hse.gov.uk/pubns/cis80.pdf

The Health and Safety Executives guidance on the CDM 2015 Regulations – see:
http://www.hse.gov.uk/pubns/priced/l153.pdf

Health and Safety Legislation

Overview of health and safety laws in the UK – see:
http://www.hse.gov.uk/pubns/lawleaflet.pdf

Overview of health and safety laws in the UK (Welsh Translation):

http://www.hse.gov.uk/pubns/welsh/law.pdf

A short guide to health and safety regulation in the UK – see:

http://www.hse.gov.uk/pubns/hsc13.pdf

A short guide to health and safety regulation in the UK (Welsh Translation) – see:

http://www.hse.gov.uk/pubns/welsh/hsc13w.pdf

Construction Specific Health and Safety Legislation

Further information for when specialist help with health and safety is required - see:
http://www.hse.gov.uk/pubns/indg420.pdf

Further information on the Plan, Do, Check, Act system – see:

http://www.hse.gov.uk/pubns/indg275.pdf

The Health and Safety Executive provide advice and information on undertaking risk assessments – see: http://www.hse.gov.uk/pubns/indg163.pdf

Information on workplace Health, Safety and Welfare – see:

http://www.hse.gov.uk/pubns/indg244.pdf

Further guidance on welfare facilities – see:

http://www.hse.gov.uk/pubns/cis62.pdf

Further information on the provision of welfare facilities during construction work – see:
http://www.hse.gov.uk/pubns/cis59.pdf

Guidance on reducing risk in temporary traffic management operations – see:
http://www.hse.gov.uk/pubns/cis53.pdf

Further information on Workplace Transport Safety – see:
http://www.hse.gov.uk/pubns/indg199.pdf

Guidance on Health and Safety in Road Haulage – see:
http://www.hse.gov.uk/pubns/indg379.pdf

A basic guide to electrical safety - see: http://www.hse.gov.uk/pubns/indg231.pdf

A basic guide to electrical safety (Welsh Translation – see:
http://www.hse.gov.uk/pubns/welsh/indg231w.pdf

A general health and safety guide to working with cement – see:
http://www.hse.gov.uk/pubns/cis26.pdf

Further information on protecting the public whilst construction is ongoing – see:
http://www.hse.gov.uk/pubns/cis72.pdf

Technology Specific Health, Safety and Construction Guides

For wind installations – see:
http://c.ymcdn.com/sites/www.renewableuk.com/resource/collection/AE19ECA8-5B2B-4AB5-96C7-ECF3F0462F75/wind_turbine_safety_rules_june_2015.pdf

Further guidance on good practice wind farm construction – see:
http://www.snh.gov.uk/docs/A1168678.pdf

For small scale solar installations – see:

https://osha.europa.eu/en/tools-and-publications/publications/e-facts/e-fact-69-hazard-identification-checklist-osh-risks-associated-with-small-scale-solar-energy-applications

For hydro installations – see:

https://www.rwe.com/web/cms/mediablob/en/3015100/data/89916/1/suppliers/conditions-for-supplies-and-services/RWE-Innogy-UK-Site-H-S-Minimum-Standards-for-Hydro-Construction-Projects.pdf

For biomass installations – see:

http://www.hetas.co.uk/wp-content/mediauploads/health_and_safety_in_biomass_s.pdf

For heat pump installations see:

http://www.microgenerationcertification.org/mcs-standards/installer-standards/heat-pump-systems

Environmental Accidents

For reporting environmental accidents – see:

https://naturalresources.wales/about-us/contact-us/report-an-incident/?lang=en

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