



## Renewables Capability

### Hydropower and Farm Scale AD

# Zebec Energy

Zebec Energy provides technical feasibility, and project development in a range of renewable technologies.

We offer solutions to generate heat, power and provide revenue generation opportunities.

Zebec Energy has a unique approach to the development of low carbon technologies, a multi-disciplined consultancy informed by operational expertise.

Zebec developed and currently manage Scotland's largest anaerobic digestion and CHP scheme in Barkip Ayrshire for SSE.





## OUR PROJECT LIFECYCLE IS BASED ON EXPERIENCE OF PROJECT DELIVERY.



### STAGE ONE

- Site selection
- Route to market
- Outline planning
- Grid export (electrical/gas)
- Feedstock survey (catchment area)
- Financial modelling



### STAGE TWO

- Front end engineering and design
- Tender preparation & procurement
- Planning, PPC and Animal Health
- Grid connection application & design
- HAZID & HAZOP studies
- CDM
- Financial modelling
- Contractual arrangements



### STAGE THREE

- Compliance with regulations (CDM services)
- Construction Project Management
- Supervision of contractors
- Project reporting
- Safety and environmental audits and reports



### STAGE FOUR

- Commissioning (delivery of contracts)
- Acceptance testing
- Staff recruitment
- Training
- Operations
- Maintenance



## ZEBEC ENERGY PROVIDES A FULL PROJECT DEVELOPMENT SERVICE FOR HYDROPOWER PROJECTS ACROSS THE UK.

Our hydropower services cover the three main elements of any hydropower development:

### **PROJECT FEASIBILITY**

Project feasibility includes catchment mapping and flow analysis in order to assess the flow of water available throughout the year. Our analysis can be undertaken using 3D GIS to provide clients with a visual representation of the likely scheme. An analysis of energy generation is undertaken across a range of specific turbine options to analyse the cost and benefits of specific options.

Our feasibility analysis provides specific financial outputs of IRR, NPV and capital requirements to illustrate investment potential and returns across a range of options.

### **PROJECT FINANCING**

Zebec can assist in securing finance for a cluster of hydropower schemes. We have a successful track record in securing finance via grants, equity partners and traditional bank lending. Our attention to detail and through feasibility works ensure that lenders are exposed to minimal risk. Zebec can also act as a joint venture partner in hydropower schemes where an equity requirement is needed.

### **PROJECT MANAGEMENT**

Zebec can operate as project managers for the design, installation and commissioning for hydropower projects. Our focus is on minimising development and construction time, and maintaining budget clarity. Our experience in delivering large scale infrastructure and working with a range of subcontractors provides a firm base for strong contracts management.



## ZEBEC ENERGY IS A PROVEN LEADER IN THE DEVELOPMENT OF ANAEROBIC DIGESTION.

Our experience of developing and operating Scotland's largest anaerobic digestion facility brings additional perspective and expertise to our development of farm scale anaerobic digestion capacity.

### **FEEDSTOCK EVALUATION**

Feedstock evaluation for anaerobic digestion facilities includes testing of all available feedstocks to determine the likely biogas production capability, seasonality, the NPK profile and C: N ratio of inputs. The evaluation of feedstocks is the most critical element of project feasibility. We will take samples of your feedstocks and undertake biogas modelling and analysis to determine feedstock suitability.

### **SITE ANALYSIS**

Site suitability is a crucial element of feasibility in order to understand the impact of issues such as proximity to additional feedstocks, proximity to grid access, proximity to digestate utilisation and overall scoping for planning applications etc. Zebec will undertake site scoping and perform initial analysis via the use of GIS to determine site suitability.

### **OUTLINE PROJECT DESIGN**

Zebec will undertake an initial outline project design, illustrating the size, scale and footprint requirement for the development. The outline design includes an overall project financial feasibility and an evaluation of potential return on investment, capital requirements and likely timescales for development.

### **CONSTRUCTION AND COMMISSIONING**

Zebec can operate as project managers in the construction phase and have significant experience in aspects such as contract design and management, CDM services, contractor management and supervision, and HSE management on site. The commissioning phase in anaerobic digestion projects is crucial for the delivery of final contracts, acceptance testing, training and operational management procedures.

# WORK WITH ZEBEC ENERGY TO REALISE THE VALUE OF YOUR ASSETS

Engaging with Zebec provides landowners, asset managers, farm owners and developers the opportunity to identify the full worth of the land, water and waste assets available.

## OPTIONS FOR WORKING WITH US INCLUDE:

There are a range of options available to work with Zebec, and we can offer flexibility in how project developments are structured.

### RISK FREE

In this option, Zebec will underwrite the initial feasibility risk by undertaking all analysis and financial modelling at our own cost. Project owners then invest at a later stage once the feasibility has been proven.

### JOINT VENTURES

Zebec can, in some cases, co-invest with project partners to deliver projects as part of a joint venture. This is a suitable solution for national scale or high capex projects.

### SERVICES

In this option Zebec provides all necessary technical, feasibility and engineering solutions but offers no financial investment and retains no ownership.

## NEXT STEPS

To evaluate the potential of your assets in either hydro power or farm scale anaerobic digestion projects, simply follow our ten step process and let us unlock your revenue potential:

1	GET IN CONTACT WITH US
2	TELL US ABOUT YOUR PROJECT
3	TELL US HOW YOU WOULD LIKE TO WORK WITH US, OPTIONS INCLUDE A RISK FREE OPTION, AS A JOINT VENTURE OR SERVICES ONLY
4	PROVIDE US WITH SITE ACCESS TO EVALUATE THE PROJECT POTENTIAL
5	FOR A RISK FREE EVALUATION WE WILL ASK FOR EXCLUSIVE ACCESS DURING THE FEASIBILITY ANALYSIS
6	WE WILL PROVIDE YOU WITH AN INITIAL OUTLINE FEASIBILITY
7	FOR FEASIBLE PROJECTS, WE WILL IDENTIFY OPTIONS FOR PROJECT DEVELOPMENT
8	ZEBEC WILL IDENTIFY AND EXPLAIN ALL COSTS AND RETURNS ON INVESTMENT
9	ZEBEC WILL ARRANGE CONTRACTS FOR ENGAGEMENT
10	ZEBEC WILL DEVELOP YOUR PROJECT TO COMPLETION AND HANDOVER