

# Introduction

The Aqua, a 25-bedroom budget hotel based in Portland, Dorset is looking to replace its heating and hot water systems as the current gas fired boilers are in poor condition and beyond economical repair. The Aqua has decided to take this opportunity to review its Energy systems and look at environmentally friendly renewable options by issuing this Request To Tender to “Design and supply a whole building energy and cost saving, carbon emission reducing solution for the heat, hot water and electricity needs of the hotel”.

This tender is part of the grant application process for upto 40% of Capital Expenditure through the ERDF Low Carbon Dorset scheme and so proposed solutions should provide anticipated reductions on CO<sub>2</sub> emissions and are expected to show anticipated Renewable Energy Consumption as Percentage of Total Consumption.

The evaluation criteria will be determining which solution provide the best value for carbon reduction and return on investment over a 7-year period. The cheapest solution won't necessarily be the chosen solution.

Proposed solutions which may include a combination of Solar Thermal, Solar PV, Heat Pumps, Smart Room Temperature Control such as Smart TRVs, Insulation, Gas Boilers and Others need to take into account continuity and failover of supply to meet the needs of our Guests.

Any proposed solution would need to look at mitigating losses and disruptions to Guests during implementation.

# Selection Process

This is a competitive tender process and will be guided by the following timescales. Tender Process and selection will follow the attached "Low Carbon Dorset Procurement Guide"

To meet the ERDF National Rules a Grant Applicant's process, and is anticipated to be for:

Contract Value £ 25,000 - £ 200,000 Supplies

- Need to seek 3 x written quotations or prices from relevant suppliers based on a clear specification.

Suppliers will be judged on **Price, Quality & Experience** - Considering the expertise and qualification of the suppliers and the quality of the work likely to be undertaken and **Delivery** - Considering the ability of the supplier to perform the work on time and within budget. The weighting given to these criteria will be Price - 30%, Quality and Experience - 40%, Delivery - 30% and these criteria should be addressed by the quoting firms.

The Aqua will do utmost to accommodate any reasonable requests to changes in this process and timescales and will keep all parties up to date in the event of change.

Date	Action
17/5/19	This tender document will be distributed.
Before 14/6/19	Site visits and questions regarding Tender
14/6/19	Response to Tenders (RTT) returned via email to owner Paul O'Connor @ <a href="mailto:pauloconnor81@gmail.com">pauloconnor81@gmail.com</a> tel 07760 881 907
before 28/6/19	Aqua to seek clarification on solution proposed in RTT, in relation to technical, financial or service requirements.
14/7/19	Decision made and bidders informed.

## Current System

Mains Gas is used for Central Heating, hot water via a tank and commercial cooking. Meter readings are half hourly and supplied in Appendix 2. The distribution of Energy usage across these functions can only be roughly approximated indirectly from these readings, though some work started on electricity usage of some appliances.

The Aqua has a cafe serving breakfast, snacks and lunches and an evening bar/restaurant to hotel guests and the public.

Laundry of bed linen and towels is outsourced to a specialist provider, though an on-site washing machine and tumble drier is used [weekly?] for uniforms, kitchen tea towels and misc items.

The hotel is busiest in the summer months, and closes completely for 2 weeks over Christmas Period.

Heating is only turned on approx Mid Oct to Mid April, weather dependent.

Between midnight and 6am when no guest services are provided, baseline electricity consumption averages 4.5 KWh per hour, as the kitchen opens and serves breakfast this rises on average to between 14 KWh and 16 KWh, (max hourly peak usage 25 KWh). An appendix provides historical half hourly readings over a 200+ day period.

Gas readings are only monthly which are provided in an appendix but indicate heating demands in Winter months quadruple gas usage. There is no air conditioning in the hotel, though guests can request fans in summer months.

Details on each function are described below.

## **Gas Central Heating.**

Guests find the hotel generally warm, but wide temperature gradient across rooms. Boilers are regularly leaking and breaking down, and are beyond economical repair.

Two Potterton Paramount boilers working in tandem to supply radiators in 25 bedrooms and common areas.

Heating is programmed on a timer that in colder months (October to Feb) , heating is on for periods 6:30am to 9:30am, 4pm to 5pm, 6:30pm to 10pm.

There is a single thermostat in reception.

Most rooms have thermostatic rad valves (trv), but some have no valves and are permanently open.

Radiators range from 50 year old lacking valves to modern double skinned

Mixture of old and new piping, with poor access, and poor understanding of pipe schematic.

Windows are often opened by guests to cool rooms down.

Sludge removal system built in

Radiators need to be bled and system topped up with water several times a week in Winter.

## **Hot Water Tank heated from Gas Boiler**

Requirement for hot water for guests 24 hours and for kitchen 7am to 10:30pm. Guests are happy with temperature and pressure of water.

The two Potterton boilers indirectly heat unvented 750L tank via secondary coil to supply sinks and showers in 25 bedrooms and also commercial kitchen and two sinks in toilet.

Primary coil in tank is unconnected and was planned with future solar thermal in mind.

Two electric immersions in tank,( one of them wired) to provide boost and backup though rarely used.

## **Gas Kitchen Equipment**

The kitchen opens around 6:45am in preparation for 7:30am cafe opening, and closes for a short time from 3pm until 5:30pm when it remains open until 10pm.

Old gas oven with 6 ring hob

Old Gas Char Grill

## Electrical Kitchen Equipment

Replacement or optimization is outside scope of this tender and will be covered in a separate exercise.

6 Refridgerators	Permanently on.
3 Freezers	Permanently on.
Griddle	On when kitchen open.
Plate Warmer	Turned on when kitchen opens and off an hour before kitchen closes

Cold drinks refridgerator	Turned on when kitchen opens and off an hour before kitchen closes
---------------------------	--

## Bar Electrical Equipment

Small beer cellar maintaining temp of 10-12°C, through [insert make model] electric cooler which runs permanently and doesn't take advantage of any cooler outside temperatures.

Small beer fridge (containing no perishables) runs permanently when bar is only open evenings, and so could be put on timer.

Glasswasher

Ice Machine

## Office Equipment

These consist of two PCs and a colour LaserJet and are not deemed significant and are not included in this brief.

## Lighting

All lighting has been switched to LED with communal areas on movement sensors and are not deemed significant and are not included in this brief.

# Site and Location

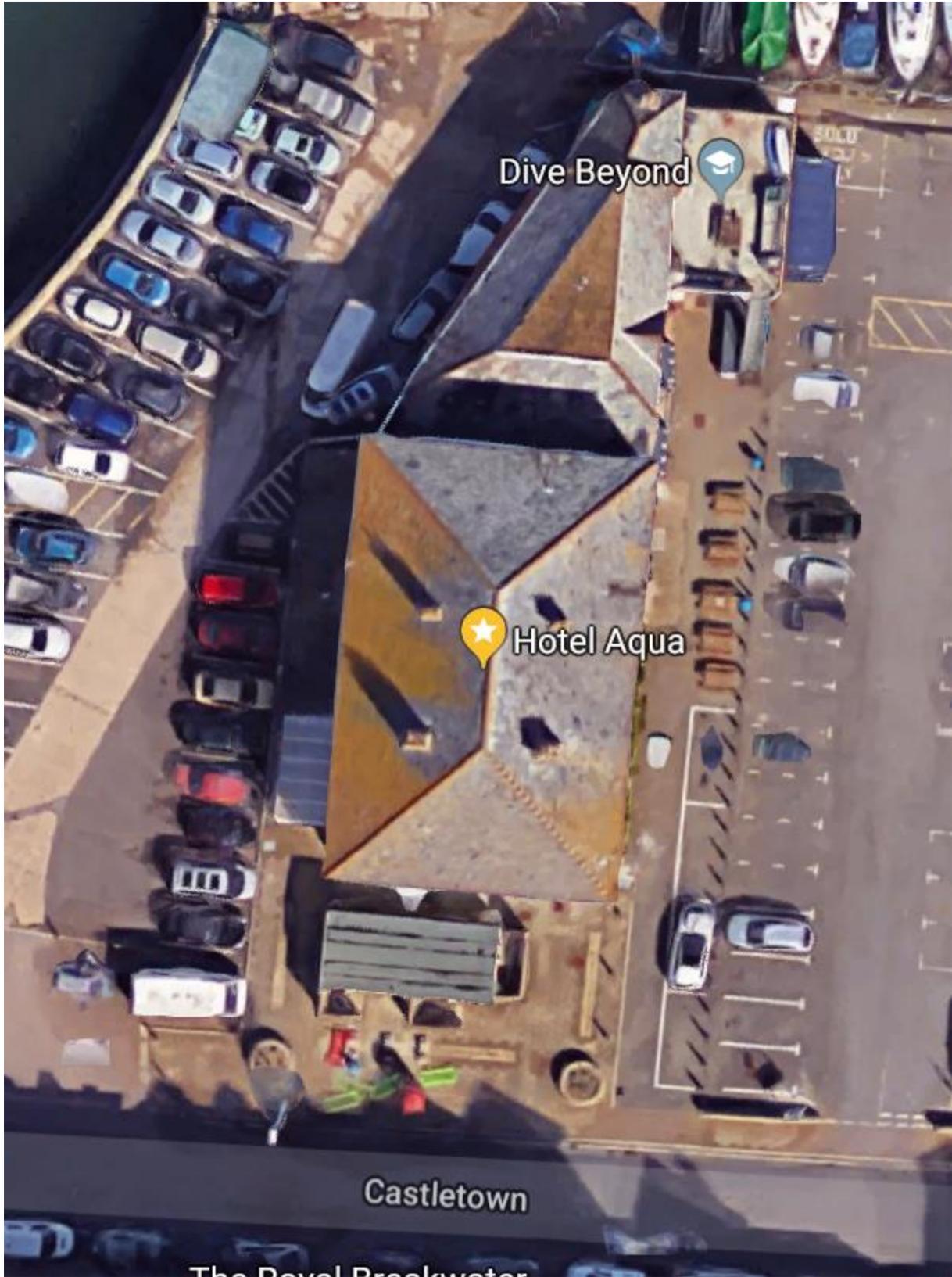
The address of the site is

The Aqua

Castletown

Portland

DT5 1BD



Dive Beyond



Hotel Aqua

Castletown

The Royal Breakwater

The site consists of two attached buildings. The main building(Shown as Hotel Aqua on satellite view) is the hotel that comprises 25 bedrooms, bar , reception and function room. I envisage solar pv on this roof. It has East/West main elevation. The building is three storeys with slate roof and large loft space. The chimneys could probably be removed based on local architects opinion.

The building has thick Portland Stone walls and double glazed windows. The loft has been insulated in the past but needs bringing up to modern standards.

The brick two storey building attached on the North side of the hotel (Dive Beyond on Satellite View), triangular with attached flat roof garage houses the boiler room,hot water tank, kitchen and managers flat. I envisaged solar thermal on this triangular roof.

Small border around hotel is concrete and tarmac.

## Occupancy

The table below indicates rooms booked per month. During warmer months Hotel is likely to be fully booked at weekends, though annually around 65% occupancy is maintained.

May	J	J	A	S	O	N	D	Jan	F	M	A
560	569	568	741	485	463	353	160	391	358	422	422

## Appendices

1 Building Plans

2 Historical Electricity Usage

3 Historical Gas Usage

4 Low Carbon Dorset Procurement Guide