Report of the Farm Conservation Liaison Officer

SUBJECT: Greening Agriculture Report: Applications for Consideration

Members are requested to review the top 4 prioritised applications and come to a decision in respect of the requests for grant funding.

GA22/REEF	Lower Broadmoor Farm, Talbenny	Refrigerant Heat Recovery System and Digital Control Panels for the Water tanks	16	£13,400

Project Description
Installation of a refrigerant heat recovery system and digital control panels for the water tanks. The system will utilise "waste" heat from the Milk Tank refrigeration units to pre-heat the washdown water to 55oC The digital control panels will improve accuracy and efficiency of the heating elements.
The expectation is a reduction in electricity usage of 40,639 kWh per year.
This will be a significant carbon footprint reduction and cost saving. The proposed system is a FABDEC Sparheat 965 Litre Heat Recovery System including Fan control and digital control panels for the water heaters.
The cost including installation is £13,400

Officer recommendation: approve 75% of the total
The applicant has shown how the capital can be used to reduce their energy usage in turn reducing their carbon emissions. Recommendation is that a grant of £10,050 offered (75% costs).

GA22/CAERFAI	Caerfai Farm, St Davids	50kwh Battery Storage	15	£30,000

Project Description
For the last twelve months, I have been using Solar Edge monitoring apps on my phone. This has given me useful information for renewable production against electricity usage. The Farm's only form of energy use, apart from tractor diesel, is electricity. We have evolved a mini grid here where power goes to the farm milking (robot system) etc., cheese making and storerooms, three dwellings, campsite and shop: plus, car and loader e.v. chargers all on one meter. Mains failure is covered by a diesel generator. Holiday cottages have a separate meter. Since November 2022 cost per kWhr has gone from 14.2p to 35.5p per kWhr – this is hurting financially. I am not a fan of fossil fuels and do not want to be beholden to Russia for our energy (Putin Power). From information from the Solar Edge app, I have concluded that to enable the farm and other businesses here to reduce our usage/costs of electricity further, we would need another wind turbine (this will compliment lack of p.v. production in the winter) and secondly a battery storage system. Where your grant would be most appreciated by us, also the least controversial from a PCNPA view, would be a battery storage system. Probably 50-60kWhr three phase store, approximate cost of £30,000

Officer recommendation: approve 70% of the total
The applicant has shown how the capital can be used to reduce their energy usage in turn reducing their carbon emissions. Recommendation is that 70% of the total approximated cost be granted once a valid quote is produced. A total capped at £21,000.

GA22/PENDDU	Penrallt Ddu, Pontfaen	Vacuum pump, double bank plate cooler, Heat Recovery system	15	£22,441

Project Description
We would like to invest in various projects to reduce electricity consumption in the milking parlour. The solar array helps in the summer but of little use in the winter as most of the milking is done during darkness. We have discussed various options with our dairy engineers, Gareth Howells Livestock and Dairy Technology who have produced various options. These are attached to this email. We think that options 2, 4 and 6 would be the most suitable and advantageous.

2.New Lobe type vacuum pump with VOD. This pump would operate independently of your existing pumps (which we advise you to keep as standby). Lobe pumps offer improved efficiency over conventional vane vacuum pumps and have a further advantage of oil-free* operation. £12,805

4.Larger double bank plate cooler. Your original cooler was sized prior to you extending the parlour and is a single bank type. A larger double bank will provide improved pre-cooling opportunity. £5,036

6. Heat recovery system, 500l unit. SERRAP Unit £4,600

Officer recommendation approve 70% of the total
The applicant has shown how the capital can be used to increase their efficiency in turn reducing their carbon emissions. Recommendation is that 70% of the total approximated cost be granted. A total of £15,709.

GA22/COURT	Court Farm, Castlemartin	Heat recovery system, Variable Speed Vacuum Pump, 20kwh	14	£39,000

Project Description
Heat Recovery System - This system would convert excess heat from our milk cooling fans into heat in the form of hot water thereby significantly reducing the energy required for water heating that is used to wash the parlour and milk tank. This system would heat water through energy recovery from 5 degrees up to 65 degrees through heat recovery. The resulting energy saving would be approximately 45kw per day or 16,425kw per year. This system would cost about £9000 Variable Speed Vacuum Pump- This system would reduce the speed of the vacuum pump to the minimal level required to maintain a set vacuum level. This system reduces the energy required to operate the milk pumps by between 50-60 percent. Giving a 24kw saving per day or 8,760kw per year of electric. The cost of this system is about £9000.

Solar Panels on parlour roof – A proposed 20kw solar system. This would produce on average about 50 kw per day or 18537 per year of electricity. But due to our seasonal farming system creating higher energy demand in the summer this systems energy production profile would match our energy requirements. The size of this system is designed to fulfil our dairies energy requirements after we have installed the above systems to reduce our energy requirements. The cost of this system would be about £21,000

The main idea behind this proposal is to maximise the potential sustainability gains (both environmental and financial) with the money potentially available. The proposed technologies are listed in order of their KW/hr saving per pound spent. This proposal maximises the use of the most efficient technologies available to us first before then using solar energy to supply the remaining

energy requirement. The 3 technologies combined would hopefully reduce our imported electricity requirement to zero!

We would be very grateful to receive any help available to help us achieve our sustainability goals. The proposal above is for 3 different technologies which would be great to do all together but are all possible to be done individually if parts of the proposal better suit the aims of the Pembrokeshire National Park.

Officer Recommendation Approve 75% of the total

Due to limited funding, it is proposed that a grant of £6,750 (75% of £9,000) be offered to peruse on of the above options outlined above.

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