

CABINET CYNGOR GWYNEDD



Date of meeting: 22 November, 2022
Cabinet Member: Councillor Craig ab Iago
Contact Officer: David Mark Lewis, Energy and Commercial Services Manager
Title of Item: PV Panels Electricity Producing Scheme – Phase 4

Report to a meeting of the Cyngor Gwynedd Cabinet

Decision sought

- I. That the Council proceeds to invest £2.8m in the fourth phase of the PV panels electricity producing scheme, leading to annual revenue savings of £507,725.
 - II. Fund the capital investment from the Council's funds, leading to immediate permanent revenue savings as a contribution to the savings / cuts plan.
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1. Introduction

- 1.1. Gwynedd Council formed a partnership with the Carbon Trust in 2009 and, as a result, two Carbon Management Plans have been approved.
- 1.2. The Carbon Management Plans (CMP) were comprehensive strategic plans which outlined:
 - Gwynedd Council's carbon performance in the baseline year of 2005/6
 - The identification of carbon improvement and reduction opportunities
 - The provision of recommendations to improve and reduce carbon
 - The setting of carbon reduction targets
- 1.3. In 2005/6, carbon emissions from buildings, street lighting, waste, fleet and business transport were 31,155tCO₂.
- 1.4. The Council committed to reduce carbon emissions by 40% by 2021 compared to the data of the baseline year.
- 1.5. The plan included a number of projects, including insulation, upgrading boilers and lighting in buildings, upgrading thermostats, replacing street lamps with LED lamps, using more efficient vehicles, reducing our landfill waste.

1.6. Table 1 below shows that the Council has exceeded its ambition earlier than expected.

Table 1

| | Street Lighting | Fleet | Business Travel | Waste | Buildings and PV | Total Emissions |
|---|-----------------|-------|-----------------|-------|------------------|-----------------|
| % change since the baseline - 2020 | -80.3 | -35.7 | -58.0 | -55.5 | -59.9 | -58.3 |

2. The next phase in the building field

- 2.1. After the Council declared a Climate Emergency and set a Net Zero target by 2030, the Welsh Government's Energy Service (WGES) was appointed to assess further opportunities in the building field.
- 2.2. A desktop review of current energy management practices was undertaken along with a quantitative analysis of the efficiency of those buildings used by Gwynedd Council. Specific energy saving opportunities were noted.
- 2.3. One of the main projects identified was expanding PV further, namely adding to the electricity producing Solar Panels that are already installed.
- 2.4. PV panels are the panels installed on building rooftops that convert energy from the sun into electricity to be used in the building. This means that less electricity is needed to be purchased from the National Grid and therefore that expenditure is saved.
- 2.5. The Council had approved three phases of PV panels during the period of both CMP plans and they have been a success as shown in table 2. The table compares the initial objectives from the point of view of capital costs, revenue savings and carbon savings (in tonnes) against the final figures.

Table 2

| | Estimated Cost | Estimated Savings | Estimated tCO2 | Actual Cost | Actual savings | Actual tCO2 |
|--------------|-----------------------|--------------------------|-----------------------|--------------------|-----------------------|--------------------|
| Phase 1 | £ 490,728 | £ 43,770 | 50t | £ 289,260 | £ 27,782 | 62 |
| Phase 2 | £ 537,080 | £ 55,404 | 111t | £ 502,812 | £ 67,607 | 124 |
| Phase 3 | £ 68,329 | £ 10,064 | 29t | £ 63,979 | £ 12,279 | 32 |
| Total | | | | 856,051 | 107,668 | |

Average repayment rate - eight years

- 2.6. In addition to saving the cost of electricity from the grid, at one time the Central Government gave a financial payment for each unit of electricity generated from these panels. These payments were known as Feed-in tariffs (FIT). The grant payment was guaranteed through a legal agreement for a period of 25 years. The panels had a similar lifespan.
- 2.7. After phase 3 it was not possible to install more panels due to the Westminster Government's decision to abolish the FIT payments which made the business case unviable.
- 2.8. Since then the cost of PV panels had fallen and as energy costs had risen so much over the past few years, especially this year, the business case was now viable.
- 2.9. Therefore, we are proposing a business case for your attention on the basis of 54 buildings which are listed in appendix 1.
- 2.10. We have provided an example of how the change in the cost per unit affects the business case. By looking at the scenario below, before the big increase in October, the Council was paying 16.5p per unit and therefore the repayment period was 10.6 years. We are now paying 34p per unit which means that the repayment period is now down to 5.6 years.

| <i>Investment Cost</i> | £ 2,785,120 | | | | |
|------------------------|--------------|------------|------------|------------|------------|
| | 16.5p | 25p | 34p | 54p | 60p |
| Annual Savings | £ 266,266 | £ 375,300 | £ 507,725 | £ 802,003 | £ 890,286 |
| Repayment period | 10.6 | 7.6 | 5.6 | 3.5 | 3.2 |

3. Reasons for recommending the decision

- 3.1. We don't know, of course, what energy costs will be in the future. Before the Westminster Government introduced a 'cap', we were facing costs of nearly 60p, which would bring the business case down to 3.2 years.
- 3.2. Whatever the costs will be in moving forward, it is unlikely they will be close to 16p in the next few years, if at all. Therefore, we are confident that the business case won't be worse than a repayment period of around 10 years.
- 3.3. In considering that the three previous phases had been successful and that PV panels were now mature technology, we are confident that this plan will also be a success.

4. Financial considerations

- 4.1. There are three options to fund the project:
 - a. Interest-free Loan from Salix. There wouldn't be a cost for the Council and the savings in electricity costs would be used to repay the loan over a period of years.
 - b. Use the Council's capital resource and repay it over a period of years so that we have the capital to fund other plans in the future.
 - c. Use our funds as a Council in order to get an instant revenue saving, and that would go towards our savings / cuts plan.
- 4.2. In considering the financial situation the Council is facing, the third option would allow fast implementation to reduce our emissions and contribute without delay to the savings programme.

5. Next steps and timetable

- 5.1. If the recommendation was accepted, it would be possible to complete the work of designing, tendering and installing on site during the coming year.

Views of the statutory officers

The Monitoring Officer:

The report highlights that the implementation of the project will include appropriate procurement processes. I am satisfied that the decision sought is appropriate.

Head of Finance:

I support the decision sought. The real saving that will be realised will depend on the electricity market over the forthcoming years, but I am convinced of the accuracy of the figures in the report and I am satisfied that this scheme is viable. I can confirm that Council funds will be used to fund the development; a portion of the money has already been earmarked for the carbon reduction plan, and the balance will be funded from capital funds.”

Appendix 1: List of Sites

| | Est. Annual Energy Savings | Total Savings (£) | Investment Cost (£) | Simple Payback (years) | Cost per tCO2e |
|-------------------------------|----------------------------|-------------------|---------------------|------------------------|----------------|
| Site / Scenario | kWh | | | | |
| Ysgol Tryfan: 41kWp | 19,919 | £6,864 | £41,600 | 6.1 | £9,043.48 |
| Ysgol Dyffryn Nantlle: 21kWp | 13,373 | £4,593 | £21,700 | 4.8 | £7,000.00 |
| Ysgol Cae Top: 14kWp | 10,028 | £3,346 | £14,300 | 4.2 | £6,217.39 |
| Plas Hedd: 12kWp | 9,050 | £3,001 | £12,900 | 4.2 | £6,142.86 |
| Ysgol Friars Eithinog: 46kWp | 35,336 | £11,694 | £46,500 | 3.9 | £5,670.73 |
| Ysgol Uwchradd Tywyn: 45kWp | 28,343 | £9,934 | £46,200 | 4.8 | £7,000.00 |
| Ysgol y Moelwyn: 44kWp | 26,346 | £8,996 | £45,100 | 5.0 | £7,393.44 |
| Ysgol Syr Huw Owen: 38kWp | 26,333 | £8,847 | £39,200 | 4.4 | £6,426.23 |
| Pencadlys | 60,984 | £19,998 | £82,348 | 4.0 | £5,842 |
| Ysgol Glan y Mor | 49,336 | £17,431 | £89,517 | 5.3 | £7,851 |
| Penrallt | 40,222 | £13,274 | £54,181 | 4.0 | £5,828 |
| Swyddfa Penarlag | 39,349 | £13,535 | £77,166 | 5.8 | £8,485 |
| Byw'n Iach, Bro Dysynni | 38,457 | £12,978 | £56,120 | 4.3 | £6,314 |
| Ysgol Pendalar | 31,877 | £10,693 | £50,758 | 4.7 | £6,890 |
| Ysgol y Berwyn | 31,184 | £10,757 | £76,675 | 7.2 | £10,639 |
| Depo Glan y Don | 29,533 | £10,051 | £48,639 | 4.8 | £7,126 |
| Bryn Blodau | 29,143 | £9,954 | £55,200 | 5.6 | £8,195 |
| Byw'n Iach Abermaw (Pafiliwn) | 27,358 | £9,420 | £52,900 | 5.7 | £8,366 |
| Llys Cadfan | 24,164 | £7,928 | £37,260 | 4.5 | £6,672 |
| Caerylchu | 24,144 | £9,286 | £71,001 | 8.6 | £12,724 |
| Ysgol Cymerau | 21,495 | £7,572 | £42,665 | 5.8 | £8,588 |
| Canolfan Gyswllt Gwynedd | 21,440 | £7,073 | £29,402 | 4.0 | £5,934 |
| Ysgol Botwnnog | 18,612 | £6,504 | £28,460 | 4.5 | £6,616 |
| Plas y Don | 17,039 | £5,650 | £33,235 | 5.7 | £8,439 |
| Amlosgfa Bangor | 15,693 | £5,127 | £26,692 | 5.0 | £7,359 |

| | | | | | |
|---|--------|---------|----------|-----|------------|
| Intec, Bangor | 15,557 | £5,054 | £27,451 | 5.2 | £7,634 |
| Cartref Frondeg | 14,872 | £4,942 | £25,070 | 5.0 | £7,294 |
| Plas Maesinclla | 14,815 | £5,121 | £34,535 | 6.9 | £10,086 |
| Hafod Mawddach | 14,233 | £4,609 | £24,150 | 5.0 | £7,341 |
| Byw'n Iach, Glan Wnion, Dolgellau | 13,662 | £4,828 | £36,685 | 7.9 | £11,618 |
| Plas Ogwen | 12,485 | £4,026 | £18,860 | 4.4 | £6,536 |
| Plas Pengwaith | 12,088 | £3,965 | £22,885 | 5.6 | £8,191 |
| Tan y Marian | 11,393 | £3,816 | £22,425 | 5.8 | £8,517 |
| Pwll Nofio Bro Ffestiniog | 10,761 | £3,458 | £14,537 | 4.0 | £5,845 |
| Storiell | 10,513 | £3,397 | £23,150 | 6.5 | £9,528 |
| Cefn Rodyn | 10,343 | £3,324 | £15,755 | 4.5 | £6,591 |
| Plas Gwilym | 10,268 | £3,290 | £15,295 | 4.4 | £6,445 |
| Ysgol y Gelli | 9,003 | £2,989 | £19,320 | 6.3 | £9,285 |
| Depo Cwm y Glo | 8,997 | £2,924 | £13,692 | 4.5 | £6,585 |
| Depo Cibyn | 7,382 | £2,517 | £15,302 | 6.1 | £8,969 |
| Ysgol Llanbedrog | 3,506 | £1,142 | £6,958 | 5.8 | £8,587 |
| Ysgol Ardudwy Harlech Scenario 2: 47kWp | 23,069 | £8,392 | £47,900 | 6.1 | £9,037.74 |
| Ysgol Eifionydd Scenario 2: 66kWp | 33,652 | £11,990 | £66,800 | 5.8 | £8,564.10 |
| Ysgol Dyffryn Ogwen Scenario 2: 67kWp | 31,888 | £10,974 | £68,200 | 6.3 | £9,216.22 |
| Ysgol Brynrefail Scenario 2: 56kWp | 30,277 | £10,546 | £57,400 | 5.6 | £8,200.00 |
| Ysgol Maesinclla Scenario 2: 50kWp | 25,701 | £9,114 | £50,700 | 5.8 | £8,593.22 |
| Byw'n Iach, Penllyn, Bala: Scenario 2: Maximum roofs (174kWp) | 80,900 | £27,506 | £174,500 | 6.3 | £8,512.20 |
| Swyddfa Dwyfor, Pwllheili: Scenario 2, Swyddfa Dwyfor + EV charging | 27,500 | £9,850 | £72,900 | 7.8 | £10,414.29 |
| Byw'n Iach Caernarfon: (174 kWp system). | 76,200 | £27,008 | £147,200 | 5.7 | £7,626.94 |
| Ysgol Eifion Wyn Scenario 2: 54kWp | 20,476 | £7,715 | £54,600 | 7.8 | £11,617.02 |
| Canolfan Hamdden Plas Ffrancon Scenario 2: 90kWp | 27,400 | £10,216 | £91,100 | 9.8 | £13,202.90 |
| Archifdy roof & canopy Scenario 2: 69kWp | 44,952 | £15,228 | £87,791 | 5.7 | £8,450 |

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|------------------------------|--------|---------|---------|-----|-----------|
| Hafan Pwllheli roof & canopy | 74,539 | £24,975 | £118044 | 4.7 | £6,852 |
| Byw'n Iach, Glaslyn | 30,400 | £10,936 | £65,700 | 6.4 | £8,532.47 |