



Mortimer Methodist Church

Solar Panel Project

This document lays out the methodology of how the property team realised the installation of the (Pv) Solar Panel System.

Prayer

Have your project and church protected through prayer

Vision

Think about exactly what you are aiming to achieve. Remember, any funding from outside the church must be Community based. Carefully think through your objectives. Think outside the box.

Form a team

Essential that you have a good team that you can rely upon to run through ideas

Approvals

Gain the blessing and approval from Church Council. Ensure the Church Council's decision is recorded in the minutes.

Inform Circuit

It's important that you or your Churches Circuit Steward informs Circuit

Make a start

Having your Minister, Treasurer and Church Council on your side and it's so important to keep everyone informed at all times.

Use the resources of Circuit & District as appropriate. The Circuit Resources Officer was essential in helping to work through the system and Consents.

Before we did anything as expensive as installing Solar Panels we looked at the fabric of the whole Church Buildings. The least expensive to do are what is termed low hanging fruit, the easy stuff.

Evaluate the Premises

Assess your building energy usage. Use the online tool **360 Carbon**
<https://www.methodist.org.uk/for-churches/property/net-zero-carbon/assess-your-building-energy-usage/>

Loft Insulation to the correct depth is essential & check the pipe work insulation too.

Look for grants; we were fortunate that our Local Parish Council were offering grants for community projects. The Hall is used mainly by the community, so an ideal opportunity to apply for the grant.

Wall Insulation

Insulate all our external walls, if appropriate, by an approved company.

Lighting

Change all lighting over to LED. Sounds expensive, but not if you already have Florescent fittings Fitted with a magnetic Ballast, easy to check.

<https://greenled.co.nz/content/10-how-to-tell-if-you-have-a-magnetic-ballast-or-electronic-ballast>

If you have the aforementioned, it's a straight forward job to replace the Tube & Starter, with a replacement LED Tube & starter (it's a DIY task).

The round D Type light fittings & Security Lights are all now available in LED Options.

Just by changing the lighting has and will save a lot of energy

Roof Structural Integrity

Before you spend any real money; check the roof Structural Integrity, will it support the extra weight?

Have your roof surveyed by a Structural Engineer. This is not expensive. £200 (2023)

Important; Do not trust the installer to AOK the roof integrity.

Orientation

A south facing roof is ideally the best for maximum sun.

We had no south facing roof. Our Hall roof was an east / west alignment, which worked well for maximum benefit either end of the day. We installed 20 panels on each elevation.

Quotes

It is a requirement for any project over a certain amount to obtain at least 3 quotes. I called theses the 'initial quotes' just to give you a ball park figure on how much funding you may require. In time, you should revisit these contractors & others, to obtain up to date quotes, as prices do change.

Consents

To start your online consents, go to <https://online.methodist.org.uk/login/login/>

Inform the Circuit Resources Officer.

Funding

We used The Good Exchange platform <https://thegoodexchange.com/> run by The Greenham Common Trust to raise money. The Greenham Common Trust match funded our project by £5,000. The site also collects the Tax relief if applicable which enhances the donation.

Our members and friends of the church contributed through the platform, which was easy to use.

The Church also benefited from a Circuit and District grant for which we were so grateful.

We had novel ways to fund raise, including collecting scrap batteries and metals. Our bi-weekly Bric-a-brac was a good source of fund raising too.

Understanding the Electrical infrastructure

There are two companies that deal with the electricity you receive.

- Your Supplier, the company that bills you
- Distribution Network Operators (DNO) the company that transports and manages the cabling whether it's overhead or underground.

Single Phase or 3Phase?

'Single-phase' and '3Phase' refers to different sizes of electricity supply feeding from the grid into a property.

Single-phase means the property receives electricity through one wire, and this is what most households in the UK have.

Three-phase means the property receives electricity through three separate wires. This is far less common, and is only necessary for commercial buildings and households that use a huge quantity of electricity. Three-phase systems can deliver a higher sustained power output, making them better suited for heavy machinery or larger electrical loads.

The electricity output limit in the UK is actually 3.68kW *per phase*, but single-phase properties are so common that it's essentially the same as an inverter limit. However, if your property has three-phase power, you could have an inverter as big as 11.04kW before you'd require DNO permission to install.

If you're not sure whether you have a single-phase or three-phase power supply, take a look at your incoming electrical fuses. Single-phase supplies will have one fuse, whereas three-phase supplies have three.

Other ways to check if your building is Single or 3Phase

- Check your Building 'Electrical 5 yearly Installation Certificate'
- Check the main fuse board for labelling
- Or have a qualified electrician help you

A building with three-phase electricity will be able to install system totalling 11.04kWp or 3.68kWp for each of its phases – without asking for permission in advance of the installation.

Therefore depending on your installation size you may need to upgrade your incoming supply to 3Phase. This we had to do, and fortunately we had overhead Single Phase feed which could be reconfigured to 3Phase. (DNO = Scottish & Southern Electricity Network (SEN) £1080 2024)

If you have to upgrade an underground Single Phase feed to 3Phase, costs can be very expensive. Initially we were quoted by SSEN for underground feed. (£10K 2024) This quote was rethought by SSEN as they seemed to have miscalculated that we were overhead supplied.

A 3Phase junction box also needs to be installed and wired back to the fuse board (£3,060 2024)

3Phase meter installed by SSE our then supplier (no charge)

Risk Assessment

Ensure each stage of the project is Risk Assessed, ideally by the contractor or yourselves.

Scaffolding

Ensure you have a Scaffolding Handover Certificate before work commences

Certification

Ensure you have the following certificates from your Installer:

Solar Panel PV Registration Certificates (one for each Inverter)

Battery Certificates (sometimes included on the Inverter Certificate)

Electrical, Design, Construction, Inspection & Testing Certificate

System Registration

Your installer will register the new system for you with the DNO (District Network Operator) on completion **Form G89** who will issue an acceptance certificate by email, to the installer, and then onwards to the Church.

Exporting your energy

Depending on your plans, you may wish to export. Seek a supplier with the best rates and apply to Export. You will need the copies of the **Solar Panel PV Registration Certificates & Form G89**

Hot Water Cylinder

We opted to have a **Solar Diverter** fitted. This ensures that some energy generated is fed to the Hot Water Cylinder to heat the water. So, now we are not using our gas boiler to heat water.

Other Matters to Consider

- Builders' works costs
- Contractors' public liability insurance
- Over head cables
- Adjoining neighbours

Fire Extinguisher Survey

Chubb reviewed our Fire Extinguishers and were recommended to install a CO2 Extinguisher. This was primarily for the electrical Inverters and installation equipment. The batteries are protected from overheating by a thermal cut-out.

Church Insurance

Contact your Methodist Church Insurer and discuss your new installation

Compiled By

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Mortimer Methodist Church Property

Flow Chart PV Panels Mortimer

