Introductory guidance note:
Monitoring and maximising the performance of roof-top solar arrays

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1. Background

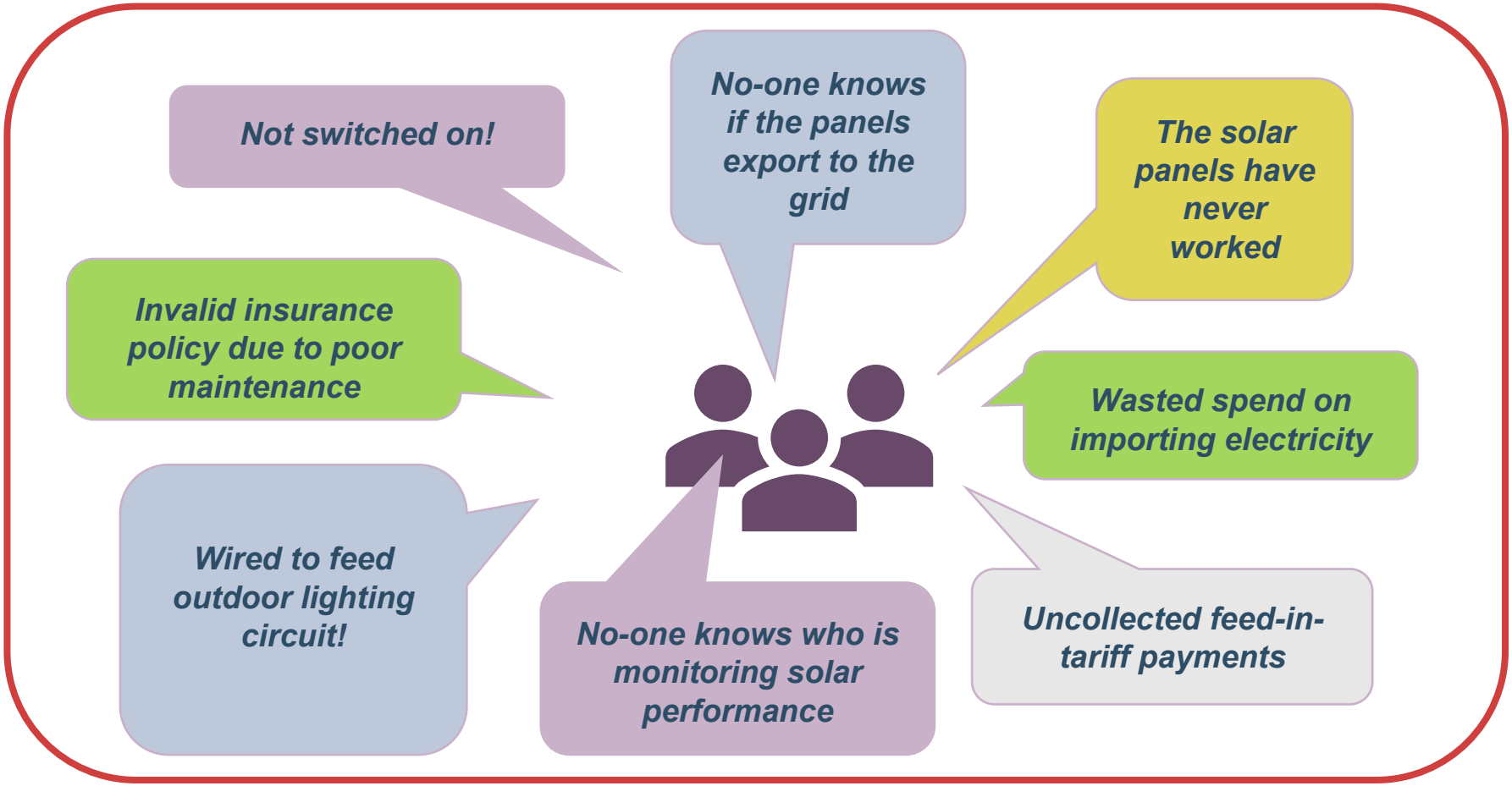
Many public-sector organisations already have solar photovoltaic panels installed on the roofs of their buildings and are planning to install more.

The **crucial relationship** between **operational management** and **energy generated** (in kilowatt-hours or kWhs) is well-known by the owners of large-scale renewable generation. For some larger solar farms optimising the system to generate just 1% more power may realise hundreds of thousands of pounds in additional revenue.

In the past, operational management of small or micro-generation was generally (and wrongly) assumed to be un-necessary, or not cost-effective. This attitude has left a legacy of under-managed, **'fit and**

forget' rooftop solar installations. Many megawatts (MWs), perhaps even gigawatts (GWs), of renewable generation capacity is **significantly under-utilised.**

Unsustainable outcomes of 'fit and forget' solar installations:

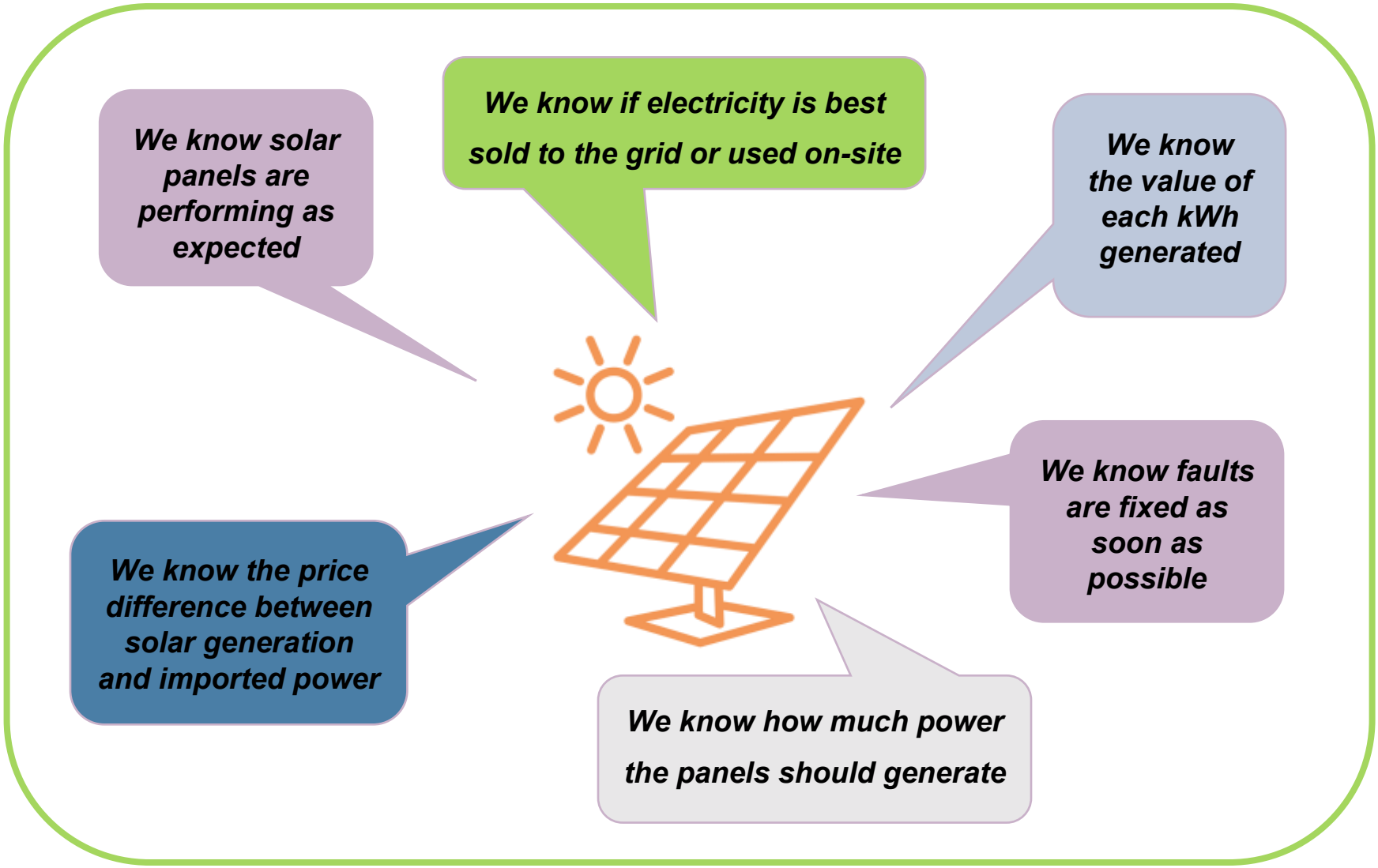


When rooftop solar installations are **actively monitored** and **actively managed,** they can **generate** as much as **100% more electricity!**

Active management will help address **high-energy prices** and the **climate emergency**, by **increasing** the renewable energy generated by **existing** rooftop solar.

It makes sense to use every kilowatt (kW) of our **existing** renewable generation capacity.

The outcomes of **actively managing solar generation**:



2. Principles of active management:

- **Don’t assume the array is working,** installation does not equal generation.
- If you can **measure** it, you can **manage** it.
- **Know the value** of **each unit generated,** and the cost of not generating.
- **Simple processes** enable monitoring and maximisation of solar generation, realising financial and environmental **benefits**.

3. What will active management entail?

Active management of solar arrays will increase **security of supply** and decrease:

- unnecessary downtime
- unnecessary spend on electricity
- uninformed decision-making
- unnecessary carbon emissions

Active solar management may be outsourced to a third-party expert (a solar asset manager) or, with appropriate guidance and resource, conducted in-house.

It will involve daily and monthly checks and analyses, and ad hoc liaison with the operation and maintenance contractor.

It may range from checking an app to manually collecting meter reads then using software, such as Microsoft Excel, to interrogate the data and verify the system is performing to standard. If not, this will enable you to **act promptly** to resolve a fault.

Once an appropriate management system is put in place, it will fast become a routine daily task taking very little time.

4. Where do I begin?

Whether active management is outsourced to a specialist solar asset manager or conducted in-house, **fact-finding is the first step**.

Gathering key information about the solar installation, its history, its present operation, and its wider electrical system is **essential**. Active management will also require accurate information regarding the applicable electricity supply and purchase tariffs, and any historic subsidies, such as the Feed-in-tariff.

This may involve a visit to the site itself and to various departments within your organisation. It is helpful to compile the information you find into a **factsheet or 'solar operations manual'**. This will alert you to

key recurring contractual dates and may be updated when information changes or passed on to other stakeholders.

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