

# Solar PV Information Evening

Bunratty

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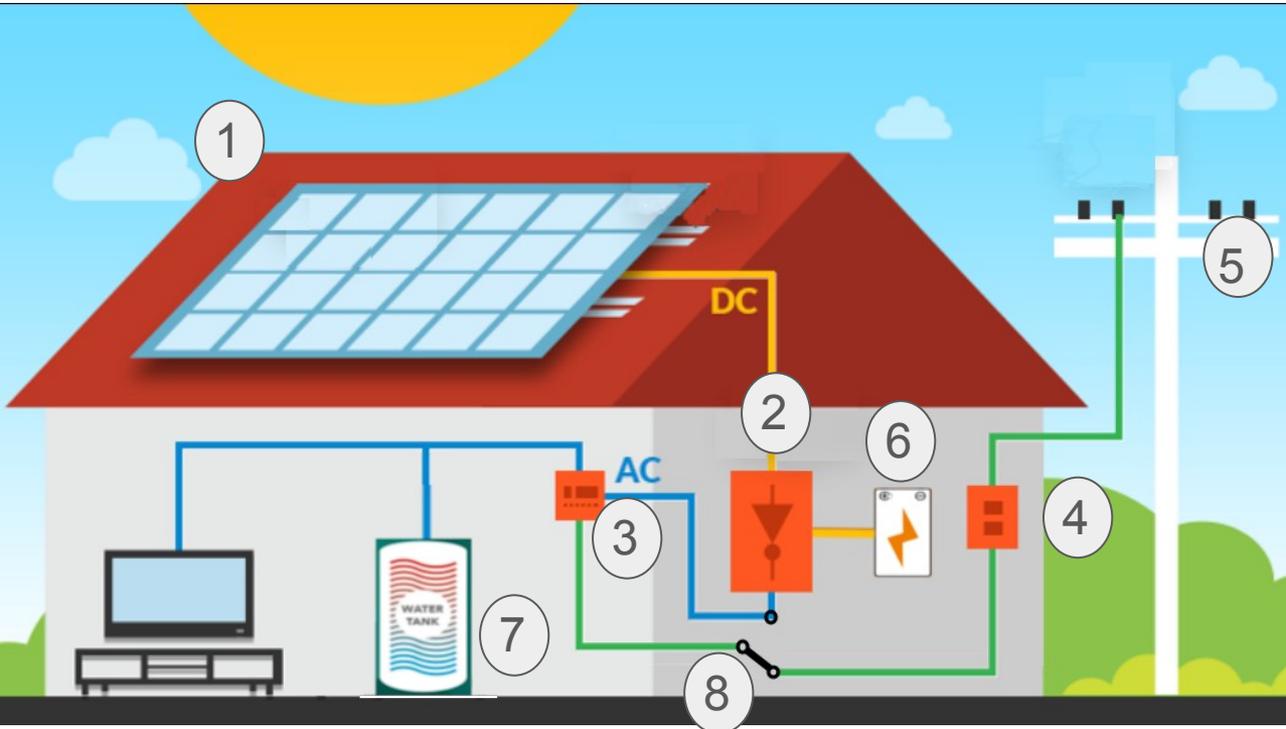


# Agenda

1. Solar PV system components.
2. Sizing a PV system
3. The costs, the grants, the payback.
4. What to look for in a quote
5. The Solar Meitheal

# Solar PV system components

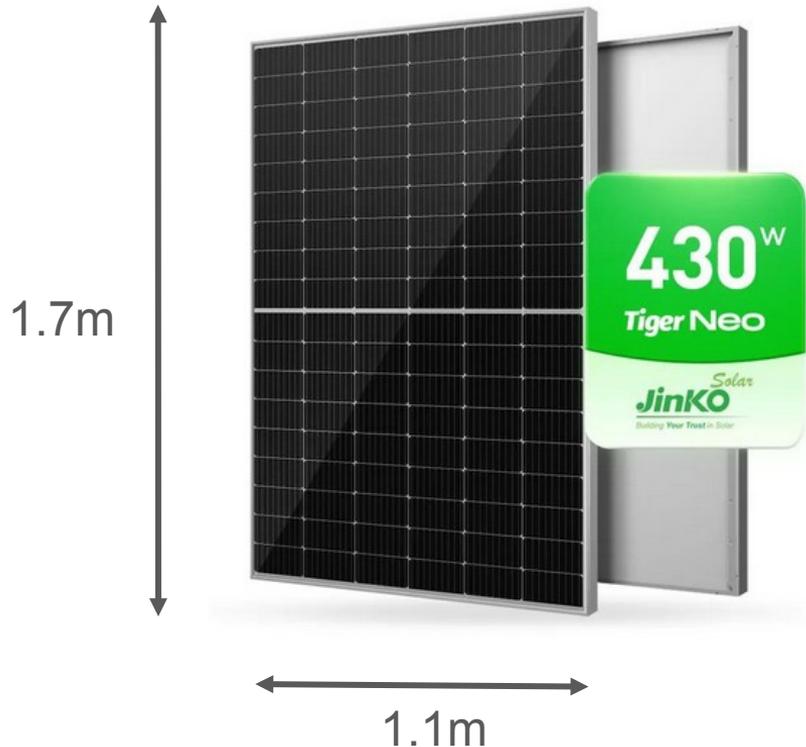
# Overview of a Solar PV system



1. Panels
2. Inverter
3. Fuse Board
4. Smart Meter
5. Grid
6. Battery (optional)
7. Hot Water (optional)
8. Changeover (optional)

# Location of PV Panels

# Solar PV Panels



- 12 panels will give a 5 kW system
- They will need ~25m<sup>2</sup> of roof
- And produce ~4500 kWh/yr

# Solar PV Panels : Standard Roof mount



Flashing for slates



Roof hook for tiles



# Solar PV Panels : On a farm shed



# Ground mounted



# Where will you put the PV system ?

- For TAMS , the panels go either on a shed or on the ground (can't go on the roof of the house)
- For domestic (non-TAMS), panels go on the ground or on the roof
  - Leave 500mm from the outside of the gutter
  - Leave 200mm from everything else (velux,dormer etc.)
- Think about your utility room / garage / attic for inverter / battery but can also go outside or in the attic

# The Inverter

- The brains of the system
- About the size of a carry-on suitcase
- Installed on a wall either inside or outside
- Connects to the distribution board (fuses)
- Uploads data to a website and app



# The Battery

- Stores PV production until needed
- Increases % of your power you get to use
- Big as a carry-on suitcase (5 kWh)
- Installed close to the inverter
- Can supply power if grid is down
- Can be charged cheap at night



# A changeover switch

- Allows full system to go off-grid if the grid goes down
- Panels/Battery keep on working
- Need to watch usage !!
- Needs some rewiring



# Sizing a PV system

# How big a PV system do you need/want ?

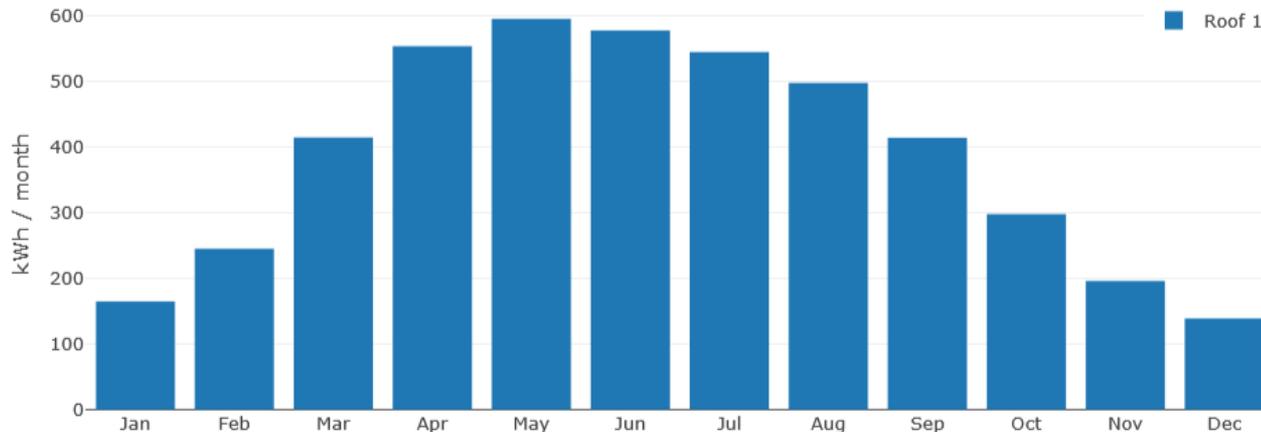
- Start with your usage, collect at least 12 months bills this chart
  - Ideally draw a monthly chart
  - If you have a smart meter, look at your supplier's website or [www.esbnetworks.ie](http://www.esbnetworks.ie)
- TAMS system sizes are based on your previous 12 months usage
  - Installer must do an energy survey for the application

# How much will you produce ?

Try the [PV Output Calculation Tool](#)

Eircode:	V95Y066	
System Size:	5 kW	5 kW
Roof Direction:	180°	4642 kWh/year
Roof Slope:	35°	
Annual Production:	4642 kWh	

PV Production of V95Y066 per month



# The Costs, the Grants, the Payback

# The Costs

## Main costs

- A 5 kW system, 5 kWh battery costs ~€11,000 (before grant)
- A 4 kW system, without a battery costs ~€7500 (before grant)
- BER post-installation ~€250

## Options

- each kW more costs ~€900
- Each 5 kWh of battery costs ~€1400
- Extra cost for Changeover switch or Critical Load Socket

# Farm and Business Solar PV Grants

## Farm grants

- 60% grant for PV systems (part of TAMS scheme)
- Can include the electricity usage of the home
- See the [Dept.of Ag](#) for full T&C's
- All forms, survey, installer list etc. is available [here](#)
- **Cannot be installed on the roof of the home**

## Business grants

- See [SEAI page](#)
- A 20 kW system gets **€6600**

Solar PV System	Grant Value
1kWp*	€900
2kWp	€1,800
3kWp	€2,100
4kWp	€2,400
5kWp	€2,400
6kWp	€2,400
7kWp – 20kWp	€300/kWp
21kWp – 200kWp	€200/kWp
201kWp – 1000kWp	€150/kWp

# Who will give you money ???

## Domestic grants

- See [SEAI PV page](#) for full details
  - €700/kW for the first 2kW
  - €200/kW extra up to 4kW
- Max grant of €1800
  - Apply @ <https://mgen.seai.ie>
- Must do a BER after the PV installation
  - No minimum BER required
- Any house built before 2021

## Payment for Export

- [Electric Ireland : 21c/kWh](#)
- [SSE Airtricity : 19.5c/kWh](#)
- [Energia : 24c / kWh](#)
- [Flogas : 20c/kWh](#)
- [Bord Gais : 18.5c/kWh](#)
- [Pinery : 25c / kWh](#)
- [Yuno : 15.9c/kWh](#)

# How to Calculate Payback

- How much will you produce ?
  - Let's assume a 5 kW system will produce 4500 kWh
- How much will you use / export ?
  - Let's assume 65% self-usage with a battery system
- How much does your electricity cost ?
  - Currently around €0.36/kWh
- How much can you sell electricity for ?
  - Lets assume €0.21c/kWh

[Now go to the Payback Calculator](#)

# Payback from a TAMS system

System size (kW)	System Cost (after grant)	Annual production (kWh)
5	4400	4500
Daytime Electricity Cost (€)	Feed in Tariff (€)	% of self-usage
0.36	0.20	65

Submit

Payback : 3.2 years

: Saving from self-usage : €1053

: Earning from export : €315

ROI : 31.1 %

# Payback from a domestic system

System size (kW)	System Cost (after grant)	Annual production (kWh)
5	9200	4500
Daytime Electricity Cost (€)	Feed in Tariff (€)	% of self-usage
0.36	0.20	65

Submit

Payback : **6.7 years**

: Saving from self-usage : **€1053**

: Earning from export : **€315**

ROI : **14.9 %**

# Getting and Understanding Quotes

# Who will give me a quote ?

- Look at the [Clare Energy Energy Map](#) and find the installers closest to you
- [All SEAI Registered installers](#) (from SEAI website)



# Writing a Request For Quote

- Eircode
- Photos of roof(s) or ground area(s) that you are considering.
  - If you have roof dimensions, all the better.
- A photo of the current fuse board.
- Your preference for inverter/battery location with photos of the area
- Electricity usage in kWh from the previous 12 months
- Required system size (allowing for future changes)
- Battery size if applicable.
- Specify if you want a Critical Load Socket or **Changeover Switch**

**GIVING AS MUCH INFO AS POSSIBLE INCREASES THE  
LIKELIHOOD OF A QUICK, ACCURATE REPLY !!**

# What to look for in a quote ?

- Brands for panels / inverter / battery
- Guarantee for panels / inverter / battery with option to extend
  - 25 year warranty for panels
  - 10 years minimum for inverter
  - 6000 cycles minimum for battery
- Are all civil works are included ?
- If outside, is a cover included ?
- Workmanship guarantee ? (Usually 2 years)
- Tidiness of quote and avoid all super discounts !

# Dear John.....

- Hello,
- Please provide me with a quotation for a Solar PV system for my home at V95 xxxx in xxxx. I'm looking for a XX kW system with a XX kWh battery.
- Please provide details of the brand, model and warranty for the panels, inverters and battery.
- I would like to have a changeover switch or Critical-Load-Sockets included in the installation
- Please also provide pricing for an extra 5 kWh of battery and also what an additional kW of panels would cost. Include details of any civil works including pricing.
- My roof is a SLATE/TILE roof (see pictures and satellite image attached ).
- I've also attached a picture of the fuse board.
- I would prefer to have the inverter/battery installed in the UTILITYROOM/GARAGE/ATTIC/OUTSIDE

# The Solar Meitheal

- Let me know if you are interested
- Everyone gets quotes from ~3 installers
- Send quotes to me or upload them to <https://www.clare-energy.ie/energyquotes/>
- Call me if you have questions
- I will share quote info on a weekly basis
- Online meeting in 2 weeks to review quotes & answer questions



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<http://www.clare-energy.ie>

Send text with name/e-mail to

**087 629 5679**

and I will send the presentation



This presentation