

Solar PV Information Evening

Focus on Farms

Connolly Sustainable Energy Community



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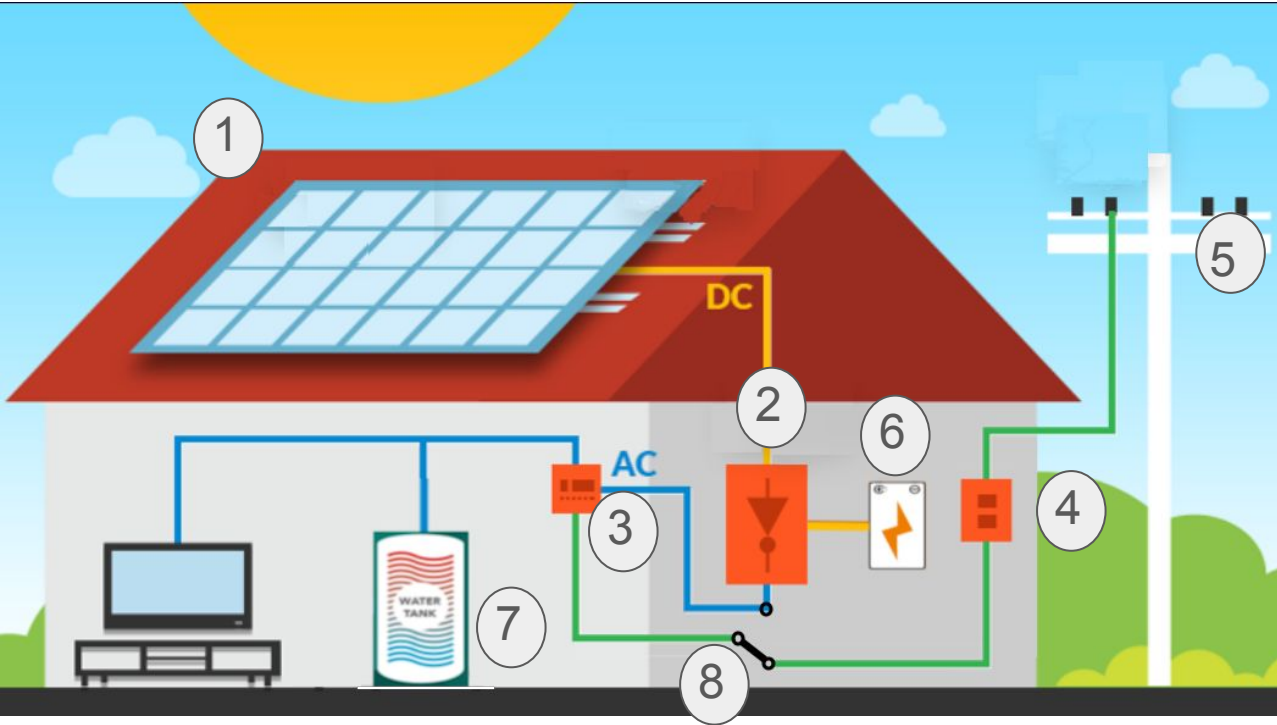
<http://www.clare-energy.ie>

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

Solar PV system components

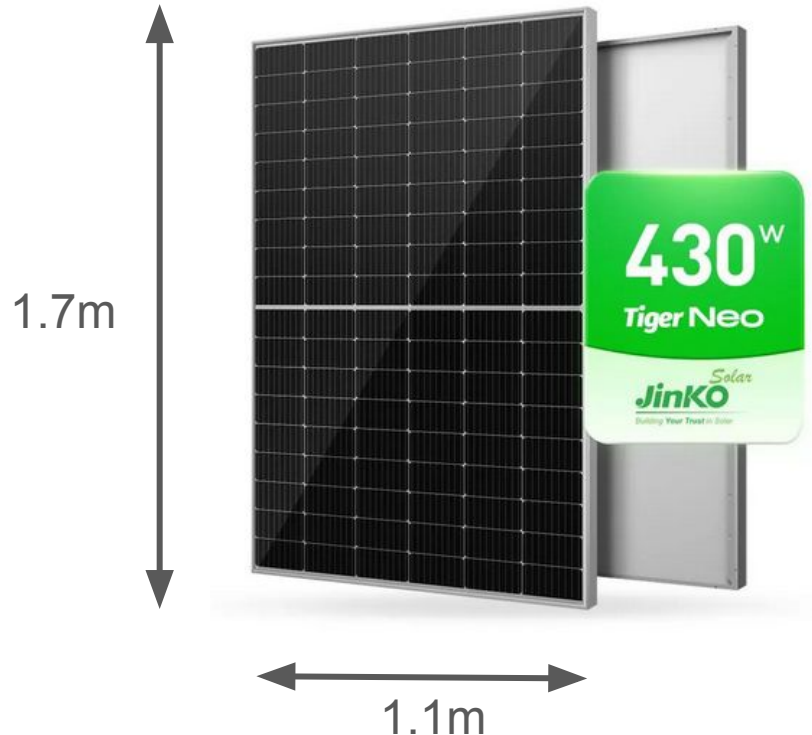
Overview of a Solar PV system



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

Different options for PV Panels

Solar PV Panels



- 12 panels will give a 5 kW system
- They will need $\sim 25\text{m}^2$ 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



slates

Ground mounted



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



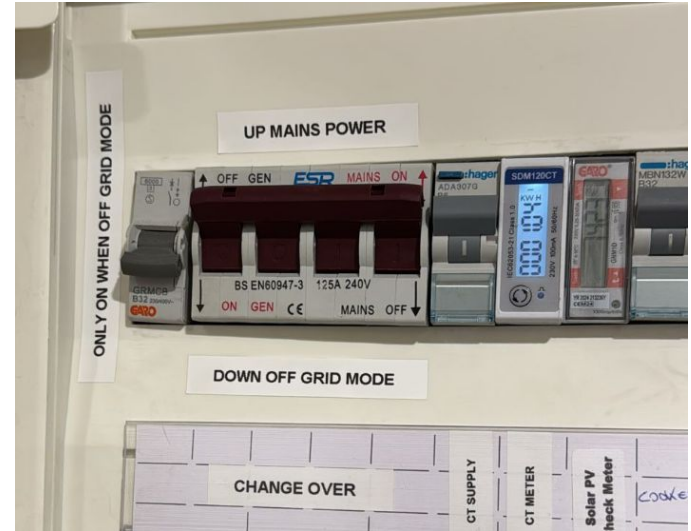
The Battery

- 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
- TAMS system sizes are based on your previous 12 months usage
 - Installer must do an energy survey for the application

Where will you put the PV system ?

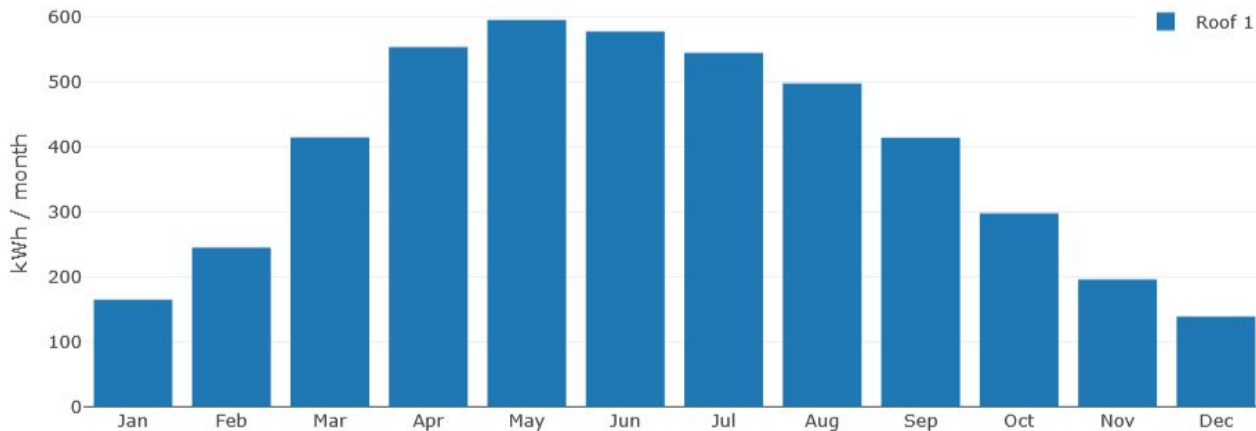
- TAMS Solar PV systems go either on a shed or on the ground
- For domestic (non-TAMS)
 - Leave 500mm from the outside of the gutter
 - Leave 200mm from everything else (velux,dormer etc.)
- Think about your utility room / garage / attic for inverter / battery

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 ~€2200
- 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 €1*00
 - 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](#)
- [Pinergy](#) : [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)
<input type="text" value="5"/>	<input type="text" value="4400"/>	<input type="text" value="4500"/>
Daytime Electricity Cost (€)	Feed in Tariff (€)	% of self-usage
<input type="text" value="0.36"/>	<input type="text" value="0.20"/>	<input type="text" value="65"/>

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)
<input type="text" value="5"/>	<input type="text" value="9200"/>	<input type="text" value="4500"/>
Daytime Electricity Cost (€)	Feed in Tariff (€)	% of self-usage
<input type="text" value="0.36"/>	<input type="text" value="0.20"/>	<input type="text" value="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 ?

- [All SEAI Registered installers](#)

Company	Address	Phone	E-mail
Fitzgerald Electrical	Ennis	085 844 2526	info@fitzgerald-electrical.com
Future Proof Energy	Ennistymon	086 083 6073	hello@futureproofenergy.ie
EnergieXPro	Galway	01 5292 788	info@energiexpro.com
JFW Renewables	Loughrea	087 377 9805	info@jfwrenewables.ie
NuSolas	Shannon	085 263 8535	wasim@nusolas.com

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 ?
- Workmanship guarantee ? (Usually 2 years)
- Tidiness of quote and avoid all super discounts !



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Send text with name/e-mail to

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and I will send the presentation