22nd January 2024

PV Gen - FarmGen

TEAGASC – Milk Quality Workshop

Dylan Cooke – PV Gen Agri. Solar

Introduction to PV Generation

PVGEN

- Established in 2015
- Based in Monaghan and Cork.
- 100+ employees – **No sub-contractors used**.
- One of Irelands longest established and trusted Solar Pv companies.
- Market leaders in Residential, Commercial and Agri Solar PV.
- Installation partners for Tirlán – Dairygold - Aurivo - The Defence Forces – Elverys – Kelleher Electrical/Rexel - AMS
- Installing from 2Kw – 2MW+ Solar Systems.

Introduction to FarmGen Programme

FarmGen is Tirlán's renewable energy solution and since its launch in 2019 by former Agriculture, Food & the Marine Minister, Michael Creed, farm families across 13 counties have invested in bespoke solutions to reduce their carbon emissions and cut their energy bills.

Technical partner, PV Generation, brings a wealth of experience to the industry-leading programme and 100% finance is available.

Dairygold have recently joined the FarmGen programme to offer the growing selection of fully-financed, turnkey, solar-powered energy solutions with industry-leading warranties that FarmGen offers to even more farm families across Ireland.

This new partnership between two of the country's leading farmer-owned cooperatives is a clear indication of the dairy sector's commitment to cut on-farm emissions and help farm businesses operate more sustainably and efficiently

TAMS 3 – Grant Information

The Solar Capital Investment Scheme (SCIS), part of TAMS III, presents an exceptional opportunity for farmers to future-proof their farm businesses. Under the scheme, farmers can secure grant aid of up to 60% for solar panels and batteries.

Every eligible farmer can avail of up to 60% grant aid towards the cost of a solar PV system under the SCIS.

Solar panel applications will fall under a standalone investment ceiling of €90,000. This means farmers can secure up to €90,000 in grant aid for a solar PV system without affecting their ability to claim grant aid on other TAMS items.

- €1,441 by 10 + €1,849 = €16,259.

Farmers are eligible to claim a grant of 60% of this, or a maximum of €9,917.4.

- Reference cost = €703 per installed kWh + €753.

For a 5kWh battery, the reference cost works out as €4,268. Farmers are eligible to claim a maximum grant of 60% of this, or €2,560.80.

ESB GRID – Application types

- **NC7 application** - Allows customers on single or 3 phase (non-domestic) to fit a larger systems (6-50KwP) to help meet needs on site. The NC7 is a new programme and is in its infancy of roll out. It is aimed at commercial use (farms, manufacturing processing etc) this scheme is tied into the Clean Export Guarantee which guarantees the customer a feed in tariff for 15 years minimum, currently **€0.135 per kwh** (TAMS 3 applications)

- **NC6 application -** The most common on small business, residential and farm in turn being the most common application for micro generators in the state, the NC6 application would be mainly for single phase connections up to 6kw or 11kw on 3 phase. The NC6 allows for the micro generation scheme (Pay back from the grid for excess) which can result in up to €0.24 per kwh sent back. (TAMS 2 applications)

- **NC5 application -** Aimed mainly at larger installations 50kwp – 1MW + the NC5 is very focused on self-consumption and currently has a minimum tariff value depending on electricity provider the NC5 states grid export has to be curbed depending on ESB requirements each NC5 will need a G10 rely a safety feature proposed by ESB Networks.

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  - 98% + of all FarmGen systems are now been sold/installed using **NC7 application**.

Examples of variable energy usage on farms

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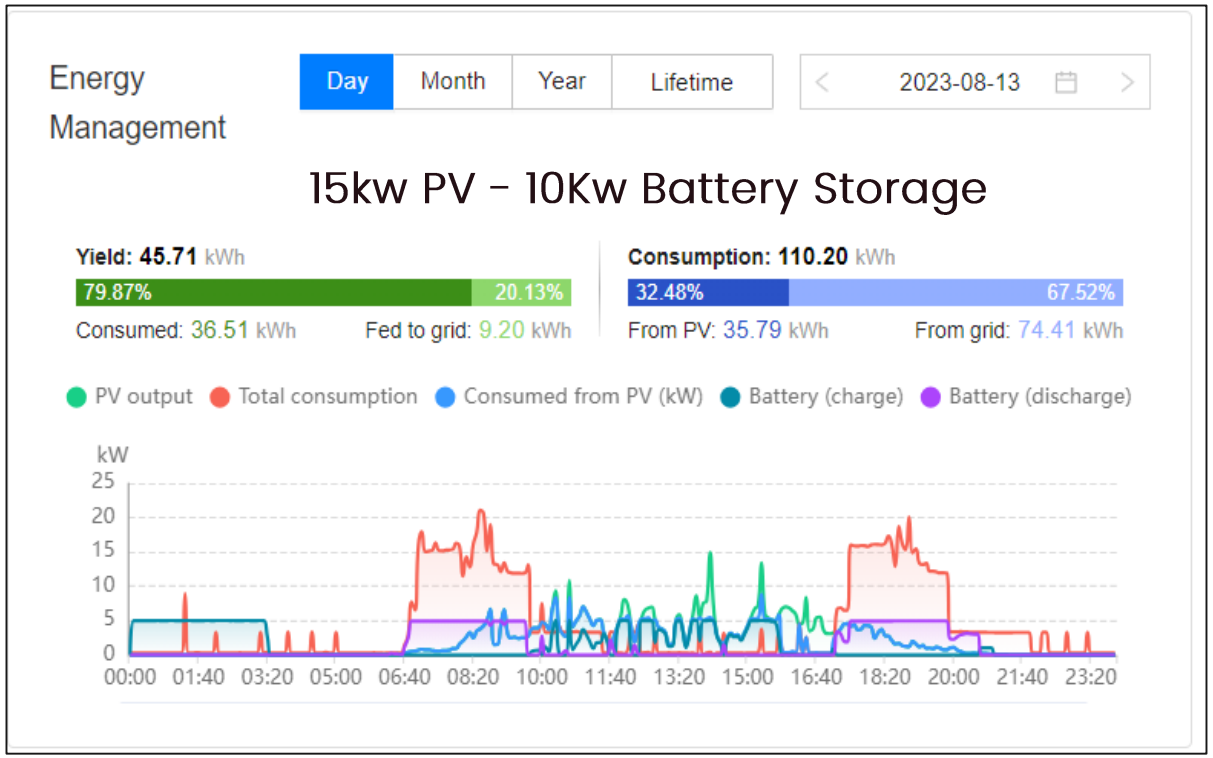
Herd size	H&F -Farm	KW Usage	Phase type	VSP	Gas	Electric Water
430	H&F	115,000	Single	Y	N	2 x 200ltr
100	H&F	22,000	Single	Y	N	1x 200ltr
250	H&F	115,776	Three	N	N	2 x 200ltr
50	H&F	20,000	Single	N	N	1x 200ltr
85	Farm Only	16,000	Single	N	N	1 x 200
230	Farm Only	31,000	Single	Y	N	2 x 200ltr
148	H&F	41,800	Single	Y	N	1 x 300
149	H&F	54,700	Three	Y	Y	
330	Farm Only	73,000	Three	Y	Y	
120	H&F	28,000	Single	N	N	Dairy Gyser
135	H&F	45,000	Three	N	N	N
200	H&F	35,200	Three	Y	Y	N/A
180	H&F	39,300	Three	Y	N	1x 300 ltr
140	H&F	34,000	Single	Y	N	1x300 ltr
310	H&F	50,465	Three	N	N	
250	Farm Only	44,000	Single	Y	N	1x 300 ltr
110	H&F	25,000	Single	Y	N	1x300
85	H&F	25,000	Single	N	N	1 x 200
220	Farm Only	55,000	Single	Y	N	1x 350 ltr
240	Farm Only	20,000	Single	Y	N	1x 300 ltr
180	H&F	60,000	Single	Y	N	2x 300 ltr

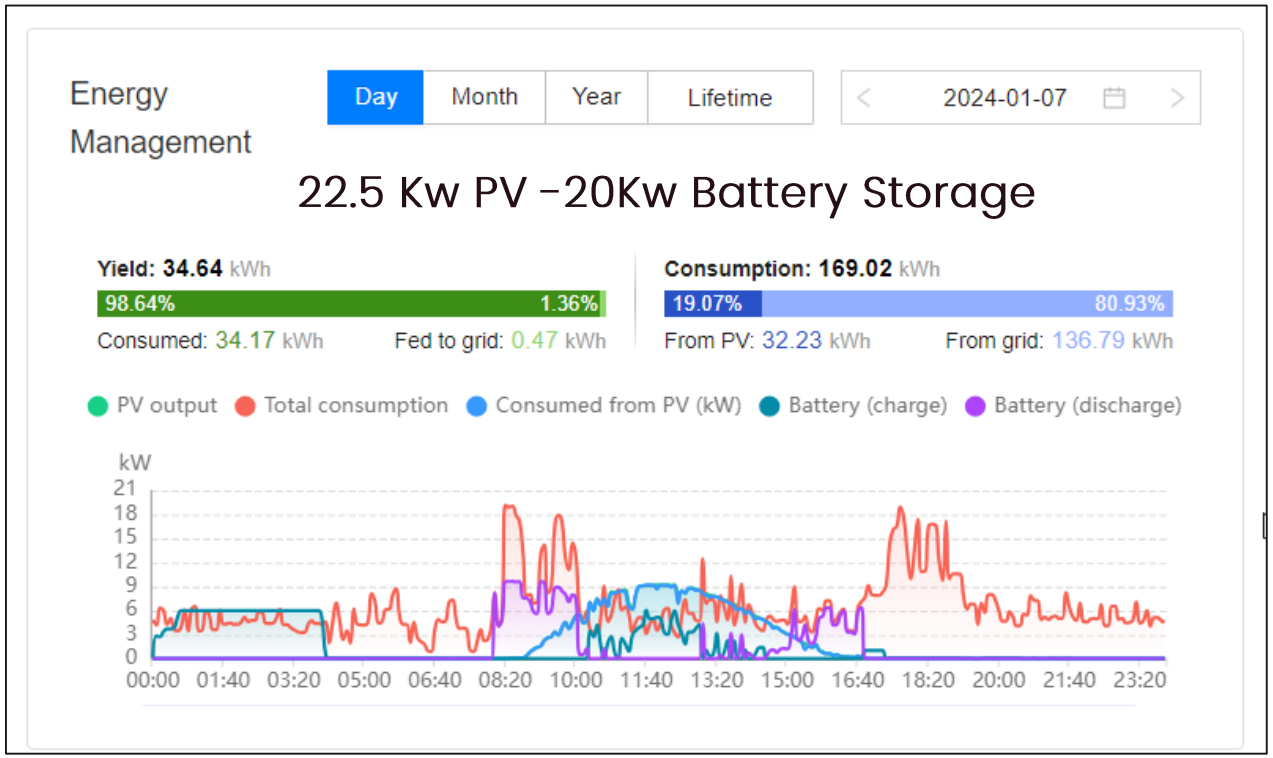
System sizing – The Facts

- There is NO correct system size per cow number.
- NC7 currently allows for a maximum of 22.5Kw on Single Phase or 50Kw's on Three Phase.

FarmGen
Farm-generated renewable energy

Benefits of on farm battery storage



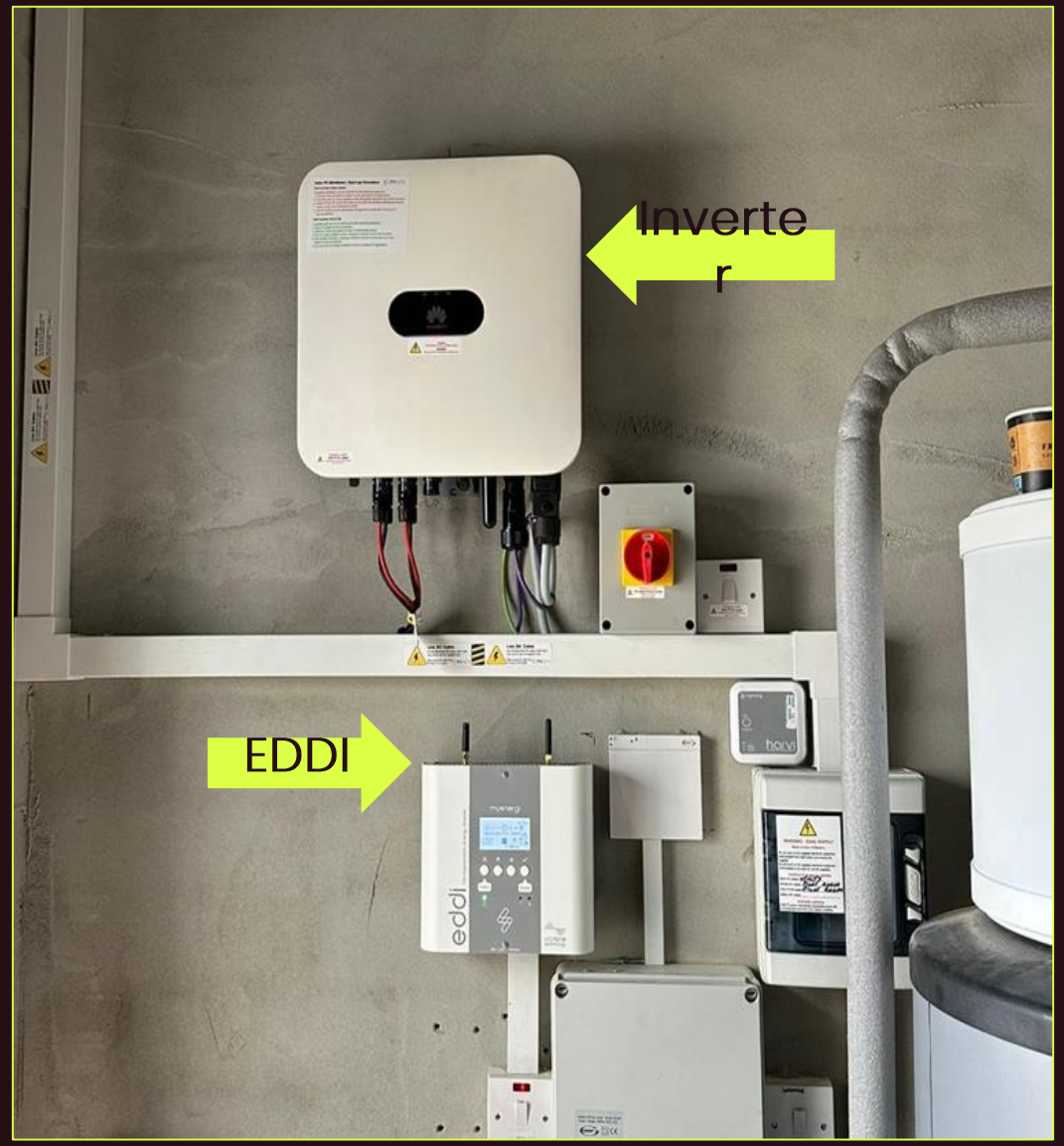


Key benefits of battery storage systems – Purple line

- Ability to deliver a larger volume of farms energy demand
- Less demand on grid at peak times
- Less energy exported – More energy consumed
- Maximum self-consumption – Greater Paybacks

FarmGen promotes larger battery storage systems on all farms.

Solar PV – Hot Water discussion



Overview of EDDI hot water diverter

Pros.

- ✓ Takes surplus energy and diverts to cylinder via immersion
- ✓ Works as a time clock and Hot Water diverter

Cons.

- ❖ Not designed to work in damp/outdoor areas – can be troublesome after 2-3 years
- ❖ Not a reliable solution for hot water problems - only surplus energy goes to the EDDI
- ❖ No IP rated – warranty 3yrs.N

NB.

- ✓ Exported power = 18-24 CPU
- ✓ Night rate =c.24CPU
- ✓ Power stored in battery and used = c.37CPU
- ✓ GAS 12.8 Cent/KW

Install imagery

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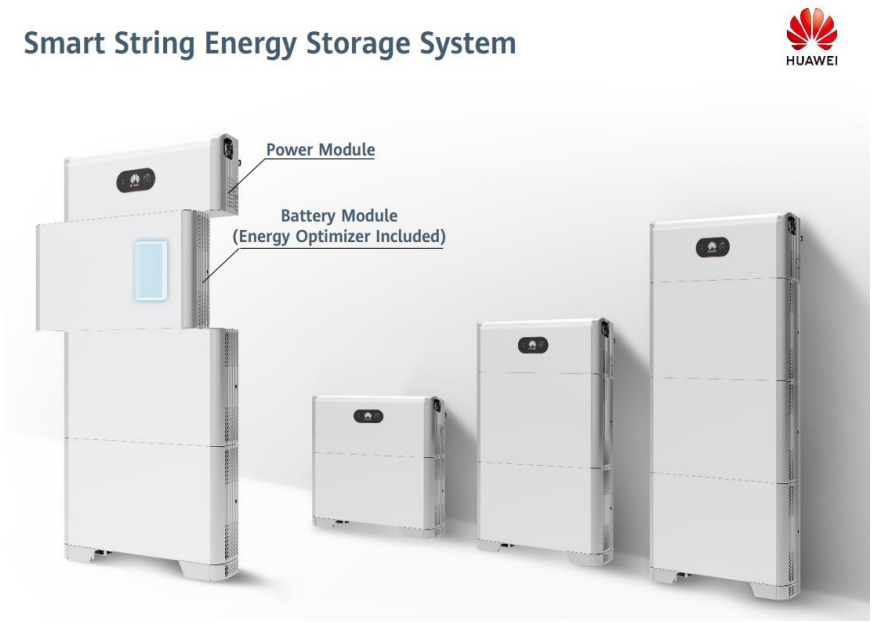
Farm-generated renewable energy

PVGEN™

Pv Components

Huawei Inverters
10 yr. warranty

Bifocal Panels
35yr. warranty



Huawei batteries
5KwH scalable+

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“It’s one of the few things in farming where's there’s no work and yet you get a return.

John Mc Evoy Laois

Q&A

Thank you


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Tirlán