Ollscoil Teicneolaíochta an Atlantaigh

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Solar PV for Poultry Farms

The ATU Contract Research Unit (CRU) as part of the Research Office provides a dedicated outreach Research & Innovation support to regional enterprises, communities and individuals.

SUSTAINABLE ENERGY COMMUNITIES

AgroRES
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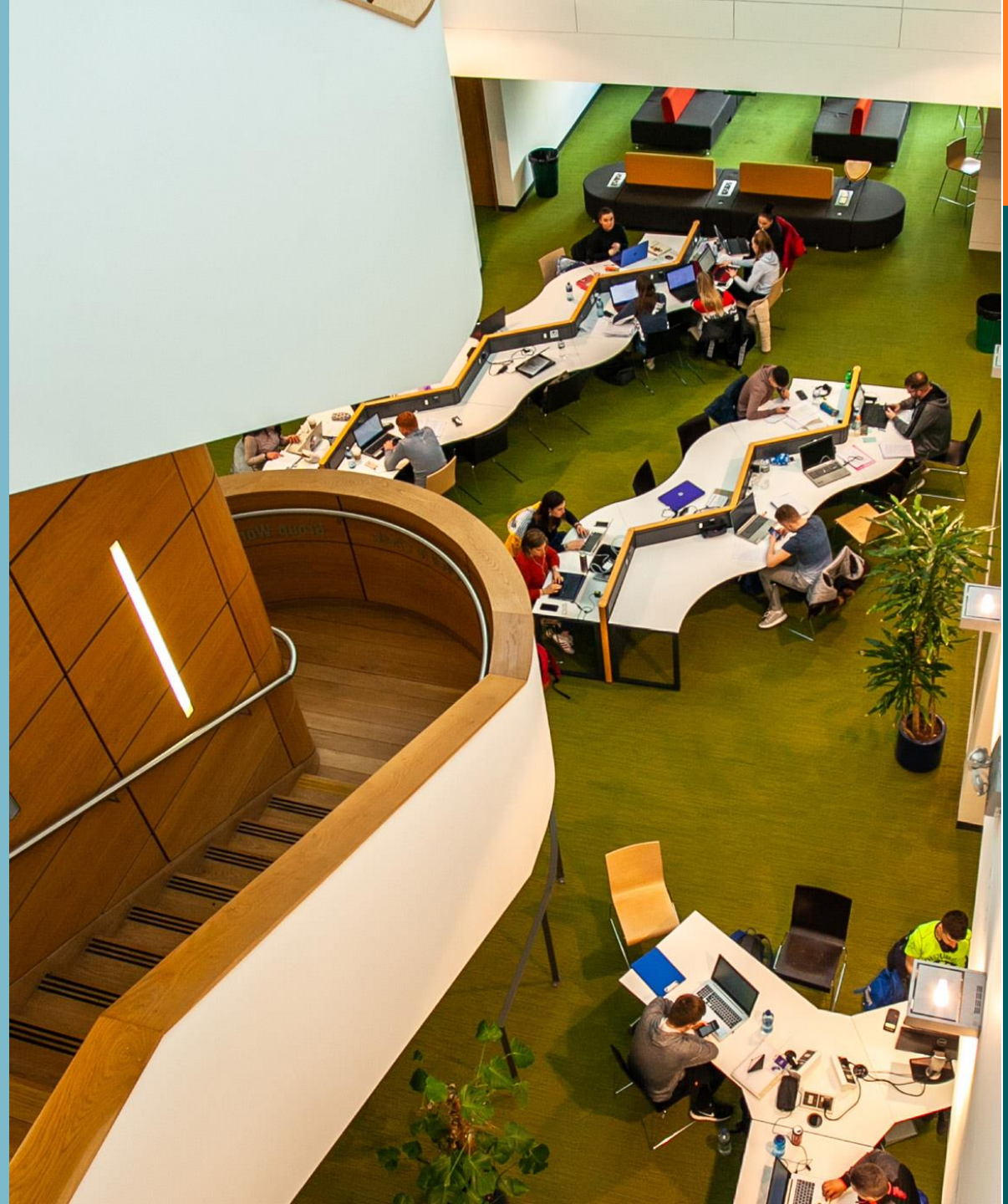
Microgeneration Support Scheme (MSS) & the Small-Scale Generation (SSG) support scheme



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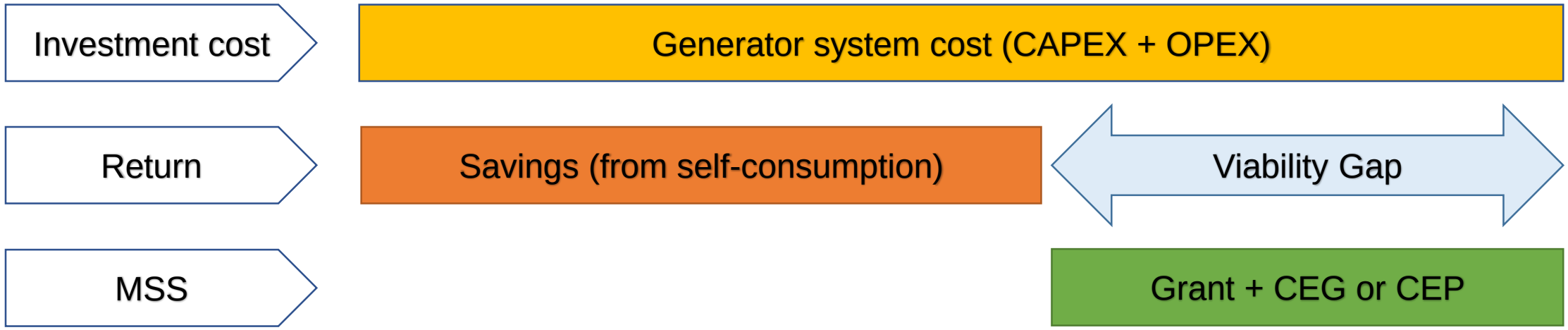
Policy support for Renewable Electricity

Support scheme for Small-Scale Generation
50kW to 6MW

Microgeneration Up to 50kW	Small-Scale Generation 50kW to 500kW	Large Scale Generation Over 0.5MW
Microgeneration Support Scheme (MSS): • Installation grant up to 6kW • Clean Export Guarantee (Domestic) • Clean Export Premium (Non-Domestic) • Improved regulatory routes: grid connection; planning	Support Scheme for Small-Scale Generation (SSG): • Identified for action in Climate Action Plan 2021	Renewable Electricity Support Scheme (RESS): • Auction based system for contract electricity price • Exclusive Community project pot • Community Enabling Framework

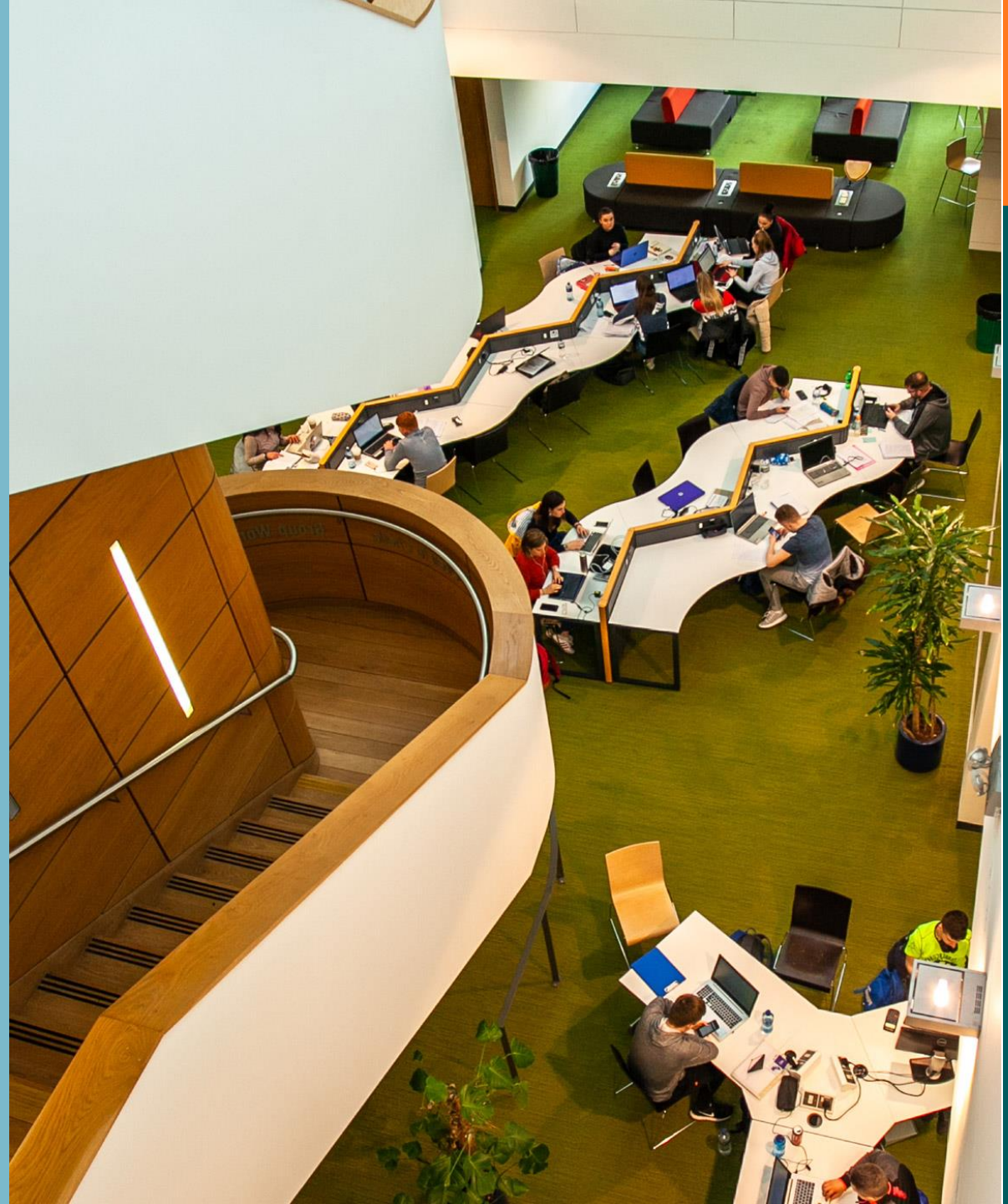
Microgeneration Support Scheme

Support design based on 'Viability Gap'



- **Installation grant:** For all projects up to 6kW. Max €2,400.
- **Clean Export Guarantee (CEG):** Paid by electricity supplier, linked to wholesale market price of electricity – variable.
- **Clean Export Premium (CEP):** For non-domestic 6.1kW to 50kW. Paid by the MSS (managed by suppliers) scheme at a fixed tariff for 15 years. Export capped at 80% of capacity.

Assessing the value of Solar PV for farms



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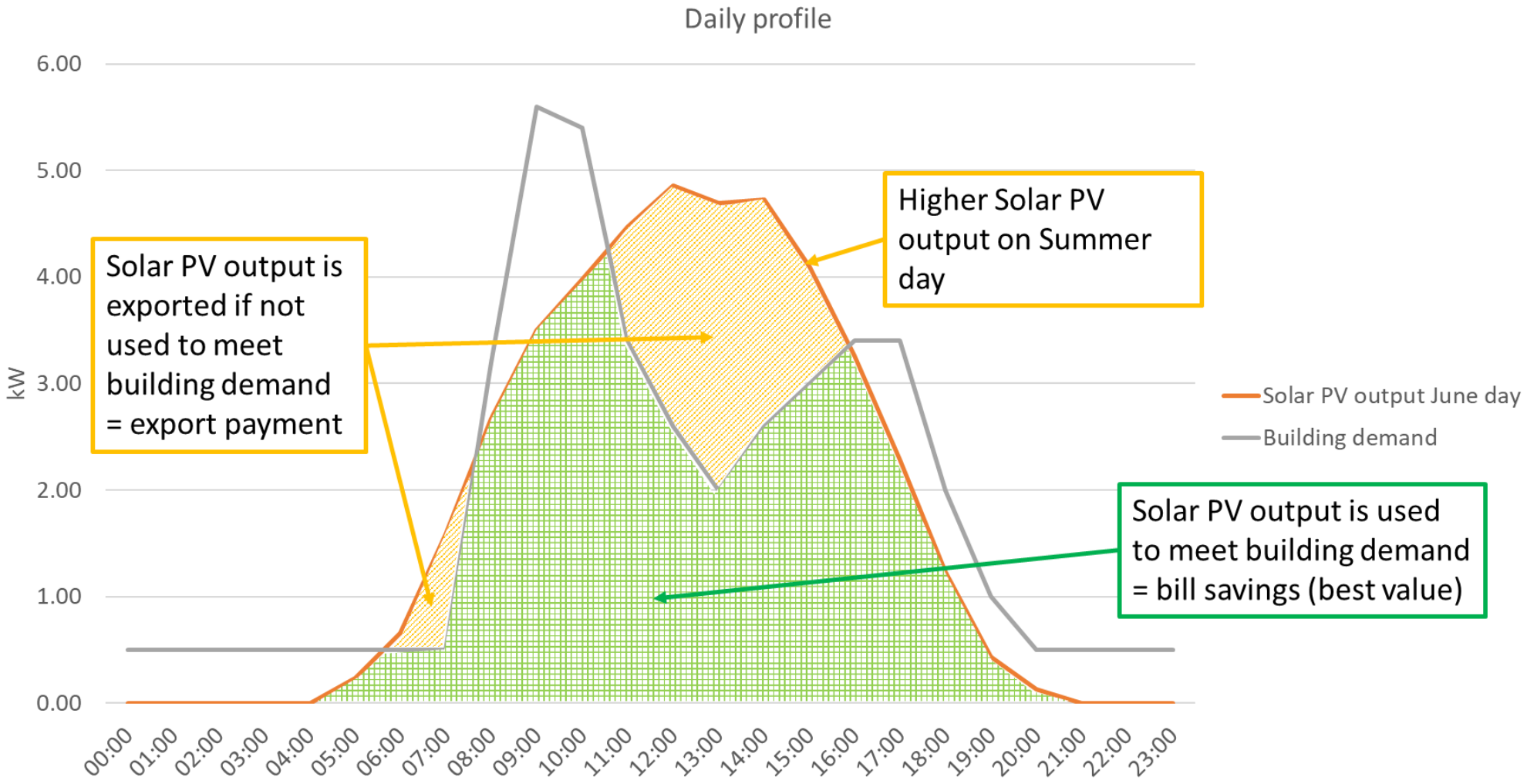
Is Solar PV right for your farm?

Solar PV v Electricity Demand

- Solar PV generates electricity during sunlight hours, increasing from sunrise to a peak around midday and decreasing to sunset.
- A Solar PV system will generate approx. 5 times more electricity on a summer day (May/June), than on a winter day (Dec/Jan).
- The best return on investment for Solar PV is to use the generated electricity in your own home or business as it is being generated.

Is Solar PV right for your farm?

Solar PV v Electricity Demand



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Farming sectors with daytime electricity demand

Sector	Potential electricity match for Solar PV	Notes
Pig & Poultry	○ Internal daytime lighting ○ Ventilation ○ Feeding systems ○ Heating pads	▪ Continuous lighting ▪ Ventilation generally increases in the summer – very good match for Solar energy
Horticulture	○ Cooling/Refrigeration ○ Food processing	▪ Cooling/refrigeration generally increases in the summer – very good match for Solar energy
Tillage	○ Grain drying (fans and electric heat)	▪ Seasonal operation ▪ Fans may be used mostly at night to utilise cheaper unit rates
Dairy	○ Milk cooling ○ Water heating ○ Milking machines / pumps	▪ **Peak demand is morning and evening – not a good match for Solar energy output** ▪ Water heating can use night rate electricity ▪ Battery storage may be required to make Solar PV effective – increases system cost

Do you need all the electricity you are using?

Look for energy reduction / efficiency first

- LED Lighting: C.50% reduction of energy demand V fluorescent
- Motors & Fans: Fitting Variable Speed drives improves efficiency, reduces wear & tear
- Building insulation (if heated)
- **Maintenance: Regular and scheduled**

50 kW Solar PV example

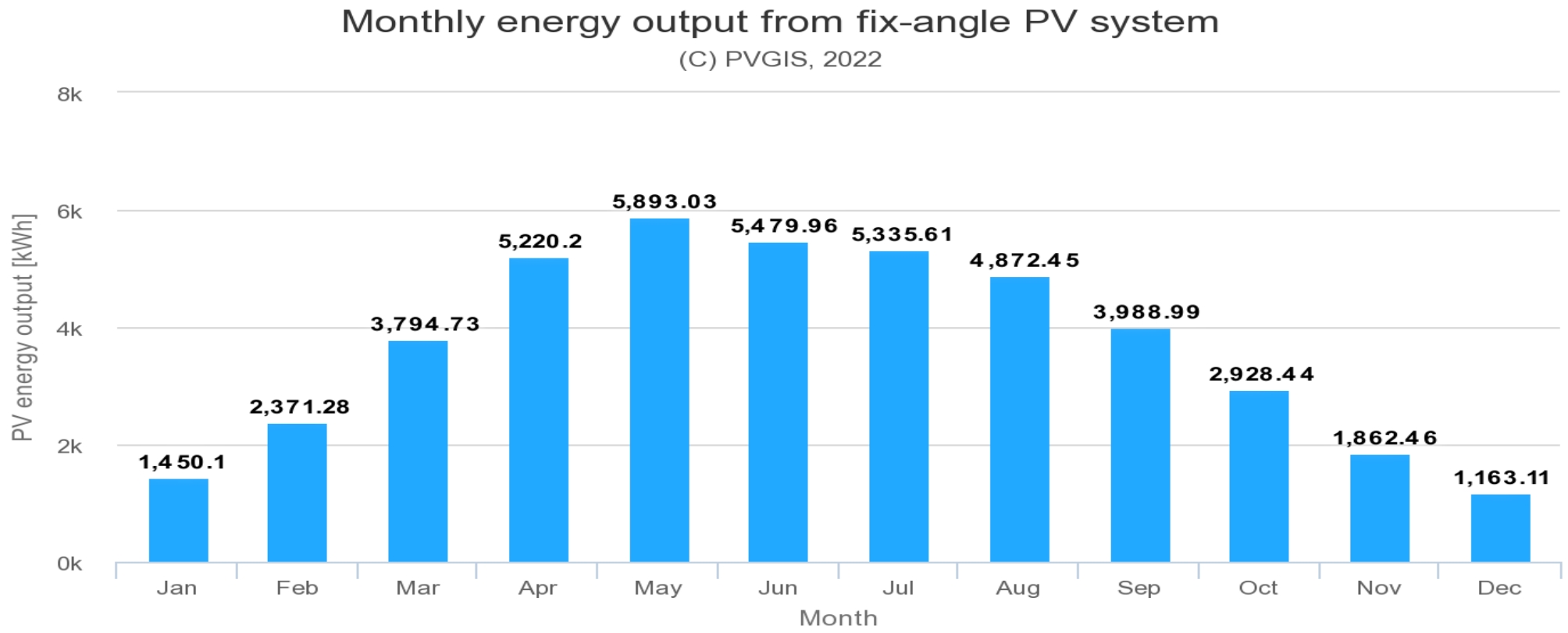
Example details

- Capital cost: €65,000 ex VAT (based on €1,300/kWp)
- O&M costs: €500/year; €4,000 Inverter replacement cost in year 15
- Cost of electricity in year 1 = €0.30/kWh
- CEG = €0.135/kWh (tariff payment for 15 years)

50 kW Solar PV example

Solar PV output

- Approx. 43,500 kWh in year 1;
- Levelised Cost of Electricity over 20 years = €0.09/kWh



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50 kW Solar PV example

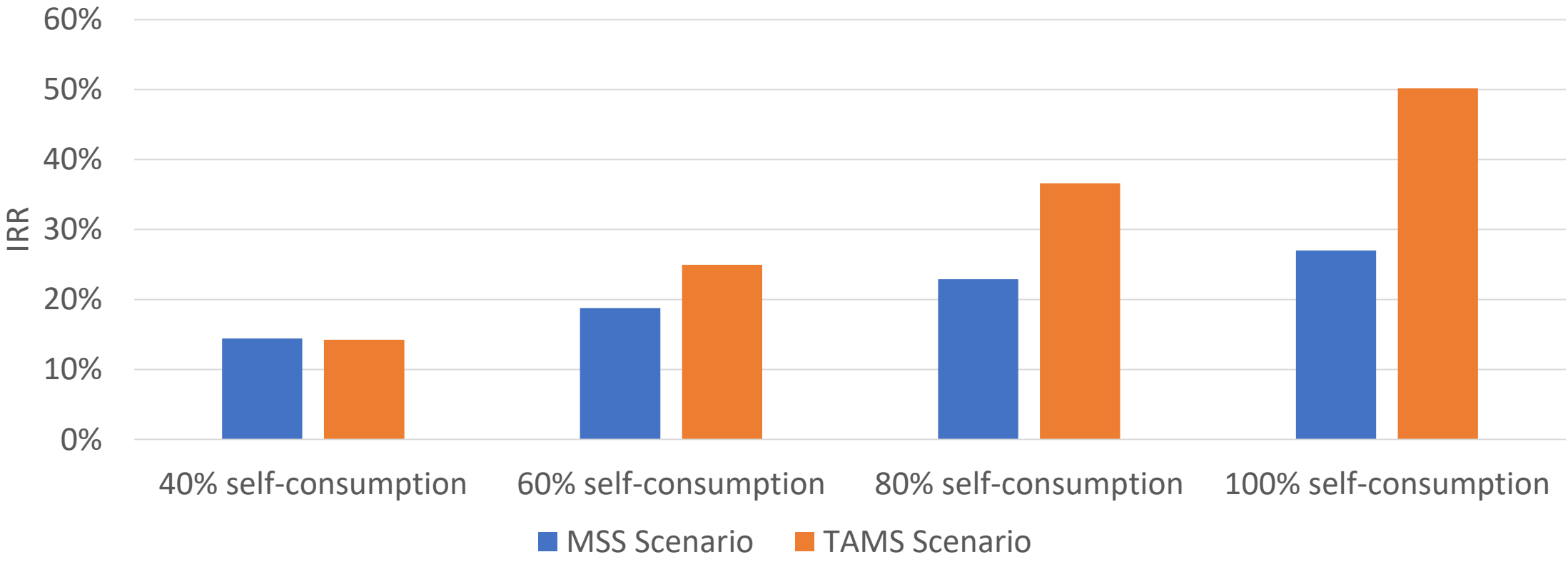
Comparison of MSS v TAMS

- **MSS Scenario:** No capital grant support; payment for export (spill) based on the Microgeneration Support Scheme (MSS) Clean Export Premium (CEP).
- **TAMS Scenario:** TAMS grant at 40% of total capital cost; no export payment
- **Sensitivity on self-consumption:** 40%, 60%, 80%, 100%

50 kW Solar PV example

Comparison of MSS v TAMS

- **Internal Rate of Return:** TAMS Scenario offers better IRR for all cases, where self-consumption is higher than 40%



Planning a Solar PV project

Consider installing an electricity monitor to confirm demand profiles

- Relatively cheap systems available
- Can be self-installed
- Require access to the main electricity meter cables and internet router

Efergy Energy Hub (available for single and 3-phase)

Owl Intuition (available for single and 3-phase)

Planning a Solar PV project

Planning Permission

- **Roof mounted:** Exempt unless your farm is in a Solar Safeguarding Zone (SSZ). Up to 60m2 (13kW) within a SSZ is exempt.
- **Ground mounted:** Up to 75m2 (17kW)

Grid connection limit for Microgeneration

- Single-phase connection up to 17kW
- 3-phase connection up to 50kW
- Your MEC can’t exceed your MIC

Planning a Solar PV project

Roof condition

- Solar PV systems are not particularly heavy, but the roof must be safe for the purpose of access for installation and maintenance. Solar PV systems can sometimes increase wind uplift effects.
- If the roof is in poor condition some repair or reinforcement may be required. Alternatively, if you have the space, you can choose a ground mounted system. Check with your supplier for cost implications.

Accelerated Capital Allowance

- **Confirm with your supplier that all equipment is on the Triple E register**

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Thank you