

APSE ENERGY


Wednesday 16th September 2015

**Solar PV projects in local government – A
Commercial Perspective**

Fraser MacKenzie – Edison Energy Limited



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Established 2011 – BUT 30 Years
Experience

Selected by Scottish Government

Largest Solar PV Installer in Scotland

UK Wide Coverage – Oakapple
Renewable Energy

INTRODUCTION

Our Capability

Renewables

Solar PV
Solar Thermal
Wind (Urban Wind)
Air Source Heat Pumps
Energy Storage

Ventilation

Maintenance

Energy Efficiency

Solid Wall Insulation
Loft Insulation
Cavity Wall Insulation
LED Lighting
Any other measure



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Our Projects

- Clackmannanshire Council – 100 Solar PV
- Knowes Housing Association – 350 Solar PV
- Social Housing New Build – 300 Solar PV
- Commonwealth Games Athletes Village – 200 Solar PV
- Berwickshire Housing Association – 1000 Solar PV
- Castle Rock Edinvar HA – 1200 Solar PV
- East Lothian Housing Association – 650 Solar PV
- North Devon Homes – 1700 Solar PV
- Gateshead Council – Leisure Centres / Schools
- Various Commercial Buildings.

Over 5000 installations by end of 2015.

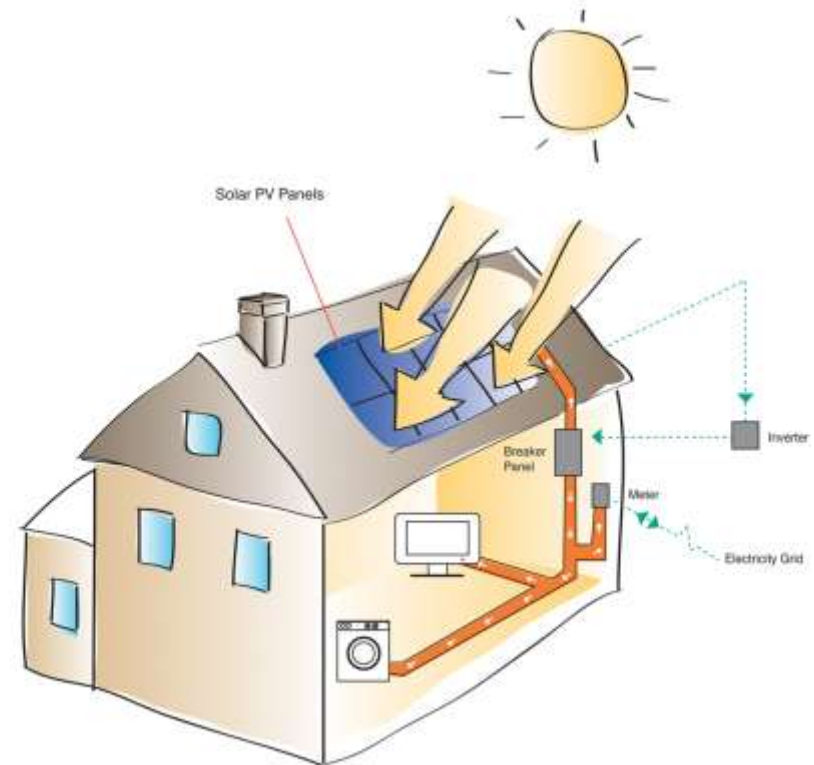


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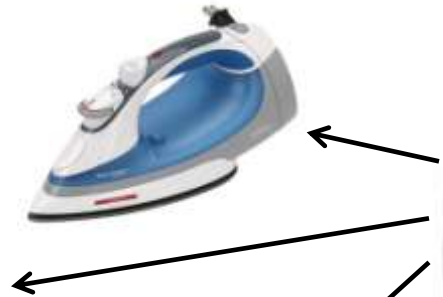
The Basics

Solar PV

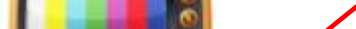
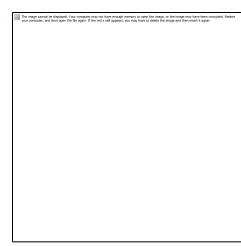
- In roof System or Retrofit
- Facing between E and W.
- System size ranging from 1.5 KwP to 4KwP
- This equates to 6 Panels to 16 Panel systems



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Policy Rationale / Drivers

- Fuel Poverty & wider social responsibilities
- Energy Efficiency Standard for Social Housing
- Building Standards - SAP
- Climate Change & Sustainability
- Carbon Reduction and Carbon Tax (Savings)
- Long Term Revenue Generation
- Municipal Energy
- DLO Installation



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Development Considerations

➤ **Technical**

- Orientation – East through to West. Desktop scope.
- Roof Structure.
- Shading.

➤ **Yield / Output**

- Scotland 10% lower than England – but not that simple!
- Detailed output calculations using industry recognised Software.
- Existing systems available as evidence.

➤ **Grid Connection / DNO Approval**

➤ **Planning & Approval Process – Building Warrant etc..**

- Permitted development rights.



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Key Considerations

- Tenant Consent
- Lender Consent (RSL's only)
- Maintenance, Insurance & Decommissioning
- Tenant Engagement
- Equality
- Deployment – Direct Labour Organisations
- Development Partner – APSE Energy



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MAINTENANCE & SYSTEM OPTIMISATION

In order to derive maximum benefit from the FIT, maintain the efficiency of the Solar PV Array and sustain System Optimisation over a 20 year period, an annual inspection and service will be required. Additionally, major components may require replacement as and when necessary to ensure the integrity of the system. With over 30 years experience in the management and fulfilment of maintenance programs, Edison Energy offer a two tiered approach to system maintenance.

"CWG Village" Portfolio details - Portal

Previous Next

Show 10 entries

Select all Deselect all

Search:

Meter Serial	Status	Type	MAPN / Desc.	Location	Performance	Edit?
13005613	Offline	AS230		1 Auckland Wynd	N/A	Edit
13005614	Offline	AS230		95 London Avenue	N/A	Edit
2120177407	Offline	Enrite	1700052532780	14 Christchurch Drive	N/A	Edit
EML1210005498	Online	Enrite	1700052530134	14 Victoria Loan	77%	Edit
EML1210005498	Online	Enrite	1700052530073	2 Victoria Loan	67%	Edit
EML1210005498	Online	Enrite	1700052530091	6 Victoria Loan	93%	Edit
EML1210005500	Online	Enrite	1700052530107	8 Victoria Loan	87%	Edit
EML1210005502	Online	Enrite	1700052530082	4 Victoria Loan	67%	Edit
EML1210005503	Online	Enrite	1700052530125	12 Victoria Loan	72%	Edit
EML1210005504	Online	Enrite	1700052530116	10 Victoria Loan	70%	Edit
EML1210005506	Online	Enrite	1700052530143	16 Victoria Loan	70%	Edit
EML1249010644	Online	Enrite	1700052530445	96 London Avenue	97%	Edit
EML1249010646	Online	Enrite	1700052530506	84 London Avenue	99%	Edit
EML1249010646	Online	Enrite	1700052530463			
EML1249010647	Online	Enrite	1700052532327			
EML1249010648	Online	Enrite	1700052530294			
EML1249010648	Online	Enrite	1700052530170			
EML1249010650	Online	Enrite	1700052532336			

Serial: EML1210005498 Period: 7.25kWh total per day CO₂: 3.5kg Income: 0.43 per kWh Period total Income: £3.14

Export this data as CSV

Date: 22 December, 2014 - 29 December, 2014

Output for 1700052530073 - Serial EML1210005498, Meter total 2748.671 kWh



< Last week Next week >

TIER 1

Funding Solutions – Past / Present

OUTRIGHT PURCHASE

- Capital cost 100% funded by the LA. FiT revenue 100% retained by the LA.
- Procurement - through standard procurement routes.
- Tenant Savings through electricity generated.
- Owned, operated and maintained by the LA.

INVESTMENT BACKED SOLUTION (Rent a Roof)

- Capital cost 100% funded by the Investor. FiT revenue 100% retained by the Investor.
- Procurement - Not subject to tendered procurement routes.
- Tenant Savings through electricity generated.
- Operated and Maintained by the Investor. Gifted to the LA at the end of FiT.

STAKEHOLDER / JOINT INVESTMENT

- Can reduce Initial Capital Outlay by up to 50%, in return for the equivalent FIT Income.
- Joint Venture between LA and Investor/ Developer.
- Both Parties have a vested Interest in the success of the Venture.



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Funding Solutions – Future

- **Community Feed in Tariff.**
- **PPA Based Models.**
- **Scottish Government.**
- **ESCO Model – Our Power / Robin Hood.**
- **Battery Integration.**
- **Future Social Housing Standard Obligations.**
- **The same drivers remain even without the FiT and new models will emerge.**



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Case Studies



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Knowes Housing Association – Clydebank, Glasgow.

- **Delivered over 3 phases.**
- **350 Solar PV & 105 External Wall Insulation.**
- **No cost to Housing Association or Homeowners.**



Knowes Housing Association – Clydebank, Glasgow.



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Knowes Housing Association – Clydebank, Glasgow.



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Commonwealth Games – Athletes Village.

- **Commonwealth Games (City Legacy)**
- **250 Units Installed by Edison**
- **700 properties now under O&M.**
- **Transferred to 3 RSL's & 300 owners**



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Commonwealth Games – Athletes Village.



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Clackmannanshire Council.

- 300 External Wall Insulation.
- 35 Loft Insulation.
- 8 Air Source Heat Pumps
- 8 Solar Thermal.
- 550 HTT Cavity Insulation.
- 100 Solar PV (Pilot).



Clackmannanshire Council.



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Clackmannanshire Council.



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Clackmannanshire Council.



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Clackmannanshire Council.



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<https://vimeo.com/114934369>

CLACKMANNANSHIRE VIDEO



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Berwickshire Housing Association

- Largest Crowd Funded Project in Europe
- 1000 properties out of a total stock of 1740
- Average system size - 2.9 kWp
- Producing over 2.7M kWh of electricity per annum
- Saving 1200 tonnes of carbon per annum
- Tenant Savings of £174 a year
- Delivered over 600 square miles.
- Major DNO constraints.



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BHA – Boston Court Sheltered Housing Complex.



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Berwickshire Housing Association.



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Solar Power benefits for BHA Tenants



bha
Thriving Communities

Saving you money 

During the night when the solar panels are not producing electricity or during the day when you are using more electricity than the panels are producing, electricity is simply imported through your mains electricity meter just as it is now. Simply put, the solar panels on your roof generate electricity, which if used by you, will reduce the amount of electricity drawn into your home through your mains electricity meter. This saves you money.



Helen Forgyth BHA, Chief Executive
"I'm delighted that we are installing so many solar panels on BHA houses, because this will save our tenants money. We will not increase rents as a result of panels being installed and no service charges will apply. Any savings our tenants make, they keep."

Duns Office:
55 Newtown Street, Duns,
Berwickshire TD11 3AU
T: 01361 884000
F: 01361 883404

Eymouth Office:
26 High Street, Eymouth
Berwickshire TD14 5EU
T: 01890 750 888
F: 01880 751 051

email: info@bhagroup.org.uk
www.bhagroup.org.uk

bha
Thriving Communities



Company Registered in Scotland Registration No. SP242RS Scottish Charity No. SC042342

EastHEAT

- Partnership
 - ❑ Edison Energy / Oakapple Renewable Energy
 - ❑ Castle Rock Edinvar Housing Association
 - ❑ East Lothian Housing Association
 - ❑ Sunamp
- Local Energy Challenge Fund - £3.2M / PV Funder £5.6M
- 1800 Solar PV Installations
- Minimum 650 Solar PV Batteries
- Average system size - 2.9 kWp
- Producing over 4.7M kWh of electricity per annum
- Savings per tenant are in the region of £150 - £500 a year
- Saving 2000 tonnes of carbon per annum



Up to 75% of your hot water FREE

Up to £300 energy savings per year

Avoids exporting Solar PV electricity

Still get all of the Feed-in Tariff

Plenty of hot water on demand

Unique, compact, combi-compatible

SunampPV

SunampPV stores excess electricity from a Solar PV array as heat. This delivers high flow rate hot water on demand, so that your instant water heater or combi boiler can operate much less, saving you money.

Unlike competing products, you don't need a bulky hot water cylinder, or a high cost electric battery.



SunampPV



Size of a gas boiler

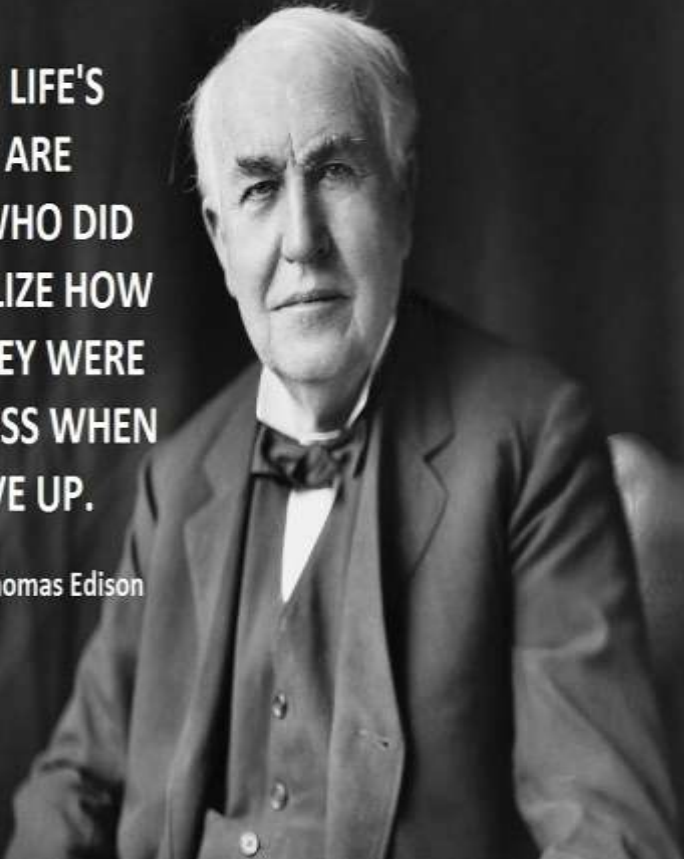
Triple the savings from your PV array with the SunampPV Heat Battery

Comparison	Typical Installed Price	Energy Generated	Generation Used	Total Annual Value*	Payback Period (In year)	Annual Energy Saving
4 kW Solar PV Array	£6,000	4101 kWh	1230 kWh	£796	7.54	£148
4 kW Solar PV Array plus Sunamp PV Package	£8,165	4101 kWh	3486 kWh	£1,067	7.65	£418

Illustration only, subject to change
*Fuel Saving, FIT & Export Tariff
Figures based on 12p/AWh electricity, Feed-in Tariff as at 1st April 2015

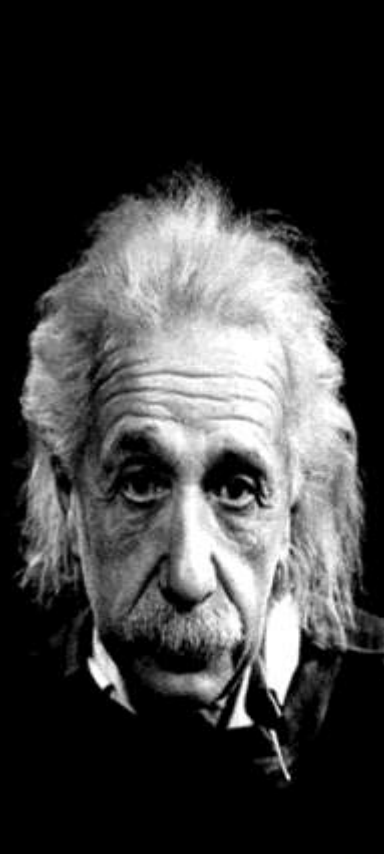
MANY OF LIFE'S
FAILURES ARE
PEOPLE WHO DID
NOT REALIZE HOW
CLOSE THEY WERE
TO SUCCESS WHEN
THEY GAVE UP.

-Thomas Edison



*Insanity Is Doing the Same
Thing Over & Over Again and
Expecting a Different Result*

- Albert Einstein



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QUESTIONS
& ANSWERS
