



Renewable Energy & the New Feed-in Tariff

What is the Feed in Tariff?

The Feed in Tariff (FiT) or 'Clean Energy Cashback Scheme' was introduced in the UK on 1st April 2010 under primary legislation from the 2008 Energy Act. It now enables households, business or community-scale renewable energy projects to receive a guaranteed annual payment for a 20 to 25 year period from their energy supplier based on how much power they generate, and which technology they use.

For the domestic and commercial market, and now for the investor market, the promise of an 8-10% ROI for solar photovoltaic (PV) installations, and far better for wind turbines has stimulated huge interest. With the income from the FIT's being tax free, index-linked (to the RPI) and guaranteed for 25 years (solar) or 20 years (wind) the sums make it a 'no brainer'. That's not just what we say; articles in all of the broadsheets have said the same.

The Energy Act also provides for similar tariffs for renewable heating from Air Source Heat Pumps, and Solar Thermal Panels and is called the Renewable Heat Incentive. This will start in April 2011.

Benefits of the Feed in Tariff from a Surveyor's Perspective

The redundant roof space of any commercial building can become income-producing. Clients with a property portfolio of offices, industrial warehouses, retail units and so on can all benefit from the scheme. For more rural locations such as industrial estates with vacant land, wind power can be a genuine option dependant on wind speed.

From an owner's perspective, a typical annual return on investment of 8-10% is received, with a higher return being achieved for wind power. This is secure income since it is paid by a PLC electricity company and has annual RPI index-linked uplifts which will ensure the real value of the income does not diminish with inflation. The installation of renewable energy will enhance the property value upon sale or in a valuation, since such an income stream will attract a strong yield as it is 20 or 25 year income from a PLC covenant.

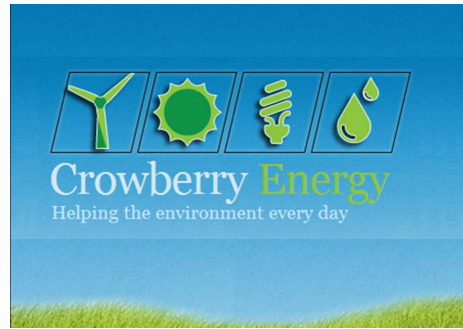
In terms of the service charge for a multi-tenanted property, the electricity produced can be sold to the tenants at the market rate, ensuring an income for the Landlord. Alternatively, the electricity could be given back to the tenants free of charge and reduce the service charge of the building, whilst the owner retains the FiT.

Following the installation of the renewable energy technology, the EPC rating of the building will be improved. In addition, the carbon footprint of a



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building is also improved. These factors will help attract tenants and improve the lettable of a property by differentiating it from its competitors, and offer genuine advantage e.g. reduced service charges or enhanced EPC rating. The installation of renewable technology will also assist with improving a commercial building's BREEAM rating, or within new build residential properties, achieving a target level for the Code for Sustainable Homes.

Which Renewable Energy sources does the FiT cover?

The scheme covers the following electricity-generating technologies, up to an installation size of 5 Mega Watts:

- Solar electricity (PV) (roof mounted or stand alone)
- Wind turbine (building mounted or free standing)
- Hydroelectricity
- Anaerobic digestion
- Micro combined heat and power (mCHP) (limited to a pilot at this stage)

The tariffs available vary depending on which technology is installed and the size of installation. In order to qualify for the Tariffs an MCS* certificated product and installer must be used. Please see www.greenbooklive.com or www.microgenerationcertification.org

*The Microgeneration Certification Scheme (MCS) is an independent scheme that certifies Microgeneration products under 50kW and installers in accordance with government standards. Please see www.microgenerationcertification.org for further information.



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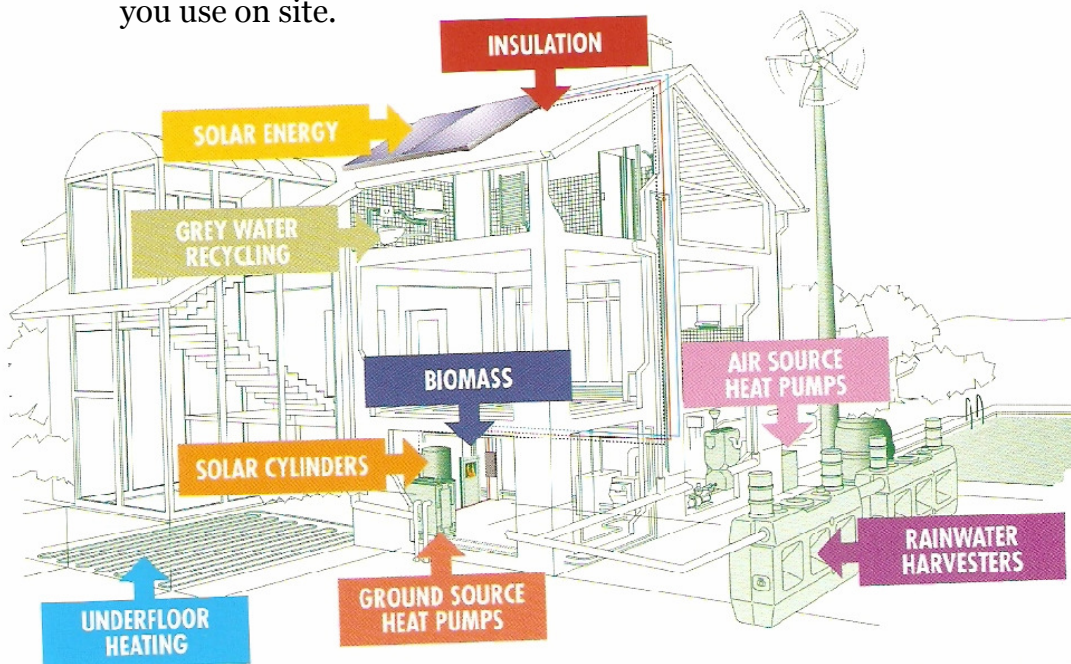
How the scheme works

If you are eligible to receive the Feed in Tariff (FiT) then there are 3 principle benefits:

1. **Generation tariff** – a set rate paid by the energy supplier for each unit (or kWh) of electricity you generate. This rate will change each year for new entrants to the scheme (except for the first 2 years) but once you join you will continue on the same tariff for 20 years, or 25 years in the case of solar electricity (PV). Please see the following link for the tariffs:

http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20mix/renewable%20energy/policy/fits/1_20100304142317_e_@@tableoftariffsuppto2013.pdf

2. **Export tariff** – you will receive a further amount; currently 3p/kWh from your energy supplier for each unit you export back to the electricity grid; that is when it isn't used on site. The export rate is the same for all technologies.
3. **Energy bill savings** – you will be making savings on your electricity bills, because generating electricity to power your appliances means you don't have to buy as much electricity from your energy supplier. The amount you save will vary depending how much of the electricity you use on site.





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An Example of how the Feed-in tariff works for a commercial property.

Take a 10,000 sq ft office building with a flat roof. Assume installation of a 58KW system with 270 solar panels extending to a roof area of 405 sq m (4,360 sq ft). This is likely to cost in the region of £190,000 to £200,000:

- This would generate 48,637 kWh of electricity per year.
- Your income from the FiT would be $48,637 \times 31.4 \text{ p per kWh} = \text{£}15,272$ per annum (index linked to RPI)
- Your annual saving on electricity bills would be $48,637 \times 12\text{p} = \text{£}5,836$ per annum.
- Any electricity not used would be exported to the grid at 3p per unit. In this model none is exported to the grid.
- This represents a total income and saving of **£21,108** per annum.
- This represents an annual return on investment of between 10.5 – 11% and a payback period of between 9-9.47 years.

Assumptions:

- I. Planning is not required for the installation
- II. The Roof structure is capable of supporting the panel weight. This may need to be verified by a building survey.
- III. Panels are oriented due south, and at an angle of 30 degrees from horizontal.
- IV. In the example above, half of the available roof space is assumed to be available for panels to be installed. The rest is taken up by plant, vents, lift housing etc and may suffer from shading issues.
- V. Electricity Cost to the Landlord is 12p per kWh.
- VI. 100% of electricity produced by the panels is used by the property.
- VII. Clearly each installation will be different and will require a survey to assess the property's suitability, and the size of installation.



Feed in Tariffs

As from April 2010 the main mechanism to incentivise the installation of solar PV and wind turbine projects are 'Feed in Tariffs'. This is a scheme where you will be paid for every Kilowatt hour (kwh) of electricity you generate, whether you use it or not. You will also save the equivalent amount by not having to buy the amount of electricity you have generated. You will also be paid for any electricity you export. These tariffs are dependant on you using MCS approved products and installers, available through Crowberry Energy.

Solar Photovoltaics (PV)

On domestic solar installations this typically means an income/saving of £800 to £1,300 per year, depending on the size of system. This rate is fixed for 25 years, is index linked and tax free.

How it works:

For retrofitted (not new build) systems under 4kwp (almost all domestic systems are), you will be paid 41.3p for each kilowatt hour (kwh) you generate, whether you use it or not. On top of this you will save the amount of electricity that you would have had to buy, had you not generated it yourself. On top of this you will be paid 3p for each kwh that you export. Typically over a year you will use 60% of the electricity you generate, and export 40%.

As an example, if you were to install a 3.22kwp system, generating 2.666 kwh's a year:

Your income from generation would be	2,666 x 41.3p =	£1,101.06
Your saving would be	1.599 x 11p	= £ 175.96 (60% of
generation, 11p typical cost per kwh)		
Your income from export would be	1,066 x 3p	= £31.99

A total tax free income/saving of £1,309.01 per year, and £32,725.25 over 25 years.

This equates to a 246% return on investment. (This will increase as energy prices go up)



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The payback on this system is 10.14 years. However, as the income is tax free, if you consider the amount of money you would have to earn to make this same amount, as a 22% or 40% tax payer, the payback reduced to 7.91 year or 6.09 years respectively.

For new build systems the FIT generation rate is 36.1p per kwh; as is the rate for systems between 4kwp and 10kpw (typically commercial projects). The savings and export rate would be the same.

Businesses and non domestic installations

Businesses of any size, schools, churches, community groups, not for profit organisations, in fact any organisation can benefit from Feed in Tariffs. You would need to speak to your accountants regarding the tax benefits, but the FIT's and savings would be as indicated above.

Wind

For a 10kw wind turbine the income/saving is an average of £6,000 to £8,000 per year, fixed, index linked and tax free for 20 years.

For wind turbines between 1.5kw and 15kw you will be paid 26.7p for each kilowatt hour (kWh) you generate, whether you use it or not. On top of this you will save the amount of electricity that you would have had to buy, had you not generated it yourself. On top of this you will be paid 3p for each kwh that you export. It is very hard to predict the amount of electricity you will export from your turbine as it depends on whether the use is commercial or domestic. For this 'domestic' example we'll assume 8% is used and 92% exported.

As an example, if you were to install a 10kwp system, generating 27,500 kwh's a year:

Your income from generation would be $27,500 \times 26.7p = £7,342.50$
Your saving would be $4,500 \times 11p = £495$ (8% of
generation, 11p typical cost per kwh)
Your income from export would be $23,000 \times 3p = £690$

A total tax free income/saving of £8,527.50 per year, and £170,550 over 20 years.



This equates to a 448% return on investment. (This will increase as energy prices go up)

The payback on this system is 4.45 years. However, as the income is tax free, if you consider the amount of money you would have to earn to make this same amount, as a 22% or 40% tax payer, the payback reduced to 3.5 years or 2.67 years respectively.

A 10kw turbine is reasonably large, ideal for schools, farms, industrial units and large houses, but you will get very good returns from a 6kw turbine too.

Businesses and non domestic installations

Businesses of any size, schools, churches, community groups, not for profit organisations, in fact any organisation can benefit from Feed in Tariffs. You'd need to speak to your accountants regarding the tax benefits, but the FIT's and savings would be as indicated above.

If you want any clarification on Feed in Tariffs please call us.

For impartial expert advice on any renewable energy or energy efficiency project, from technical questions to grant applications or for a quotation please give us a call.

Information on Crowberry Consulting an Crowberry Energy

Crowberry Energy is a social enterprise that up-sells micro-renewable technologies, and donates its profits to registered wildlife charities – including the Wildlife Trust.

Crowberry consulting Ltd is an environment, ethics and CSR management consultancy regularly involved in carbon footprinting and carbon management solutions. We support our clients with environmental management systems, strategy, policy and procedures and through our sister organisation Crowberry Energy solutions for a green energy future.



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