

narec

distributed energy

www.narecde.co.uk

Manufex: Renewable Heat Incentive & Feed in Tariff



Content

Unduly Burdensome? – the Renewable Heat Incentive 13:30 - 14:15

The promise of ‘The Greenest Government Ever’ seems a distant memory now; a recent report by MPs branded The Green Deal a failure with its high interest rates and that it has caused ‘frustration and confusion for both consumers and businesses’.

In this session, renewable experts from NDE critique the RHI and FIT schemes and aim to distil the seemingly complicated application processes into straightforward language.

A 15 minute Q&A session follows

Narec Distributed Energy

Narec Distributed Energy is part of the UK National Renewable Energy Centre group of companies.

We carry out a wide range of work within the renewable and low carbon sector, particularly within the built environment. Through our work we help our customers reduce carbon, alleviate fuel poverty, improve energy security, stimulate economic growth and educate energy users.



Technical Consultancy

A range of technical services on renewable and low carbon systems.



Strategic Consultancy

Energy Masterplanning from single buildings to whole cities.



Testing and R&D

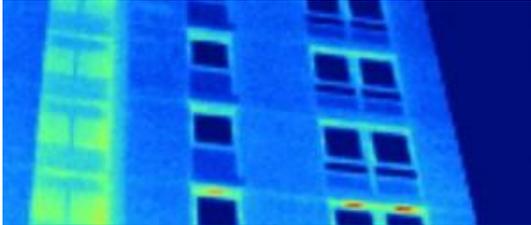
Testing and R&D on a wide range of renewable energy and low carbon system.



Renewable Energy Training

Accredited and bespoke training on renewable energy and low carbon systems.

Technologies



Energy Efficiency



Solar thermal



Heat pumps



Biomass and biofuels



Photovoltaics



Wind



Combined heat and power



Low carbon buildings



Integrating renewables

Testing and R&D



Monitoring of heat pumps for the Department of Energy and Climate Change



Computer modelling of low energy systems for cargo ships



Life Cycle Analysis and design assistance for algae biofuel facility



First UK independent test of a thermodynamic panel



Retrofit energy efficiency units for boilers



Energy performance trial for solar thermal and combi boiler systems

Consultancy



Due diligence & diagnostics
on building renewables



PV feasibility, design and
planning consent assistance



City and regional community
energy strategies



Building energy
management and renewable
energy feasibility



Biomass / RHI scheme
design for multi building
sites



MW scale solar farm DC
design, energy yield and grid
connection consultancy

Training Centre

- LOGIC accredited for PV, ST & HP installer courses
- Several low carbon technologies installed

Heat Pump

- Mitsubishi EcoDan 8.5kW Air Source Heat Pump
- oversized Myson Premierline double convector radiators

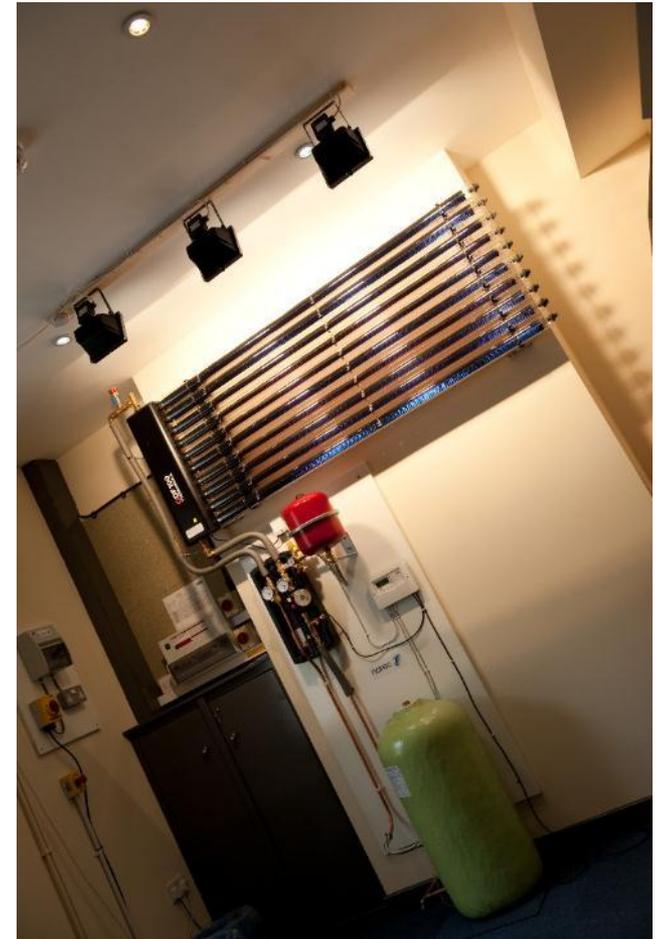
Solar thermal hot water

- Viessmann 2.5m² 200F roof integrated flat plate collector
- OSO 210 litre unvented twin coil cylinder
- Resol Flowcon D-HE pump station with remote performance display

PV system

- 6 x Romag PowerGlaz SMT6-60 225W PV modules
- SMA SB1100 inverter
- Sunny Web box for remote monitoring

Funded training available in certain areas



Green deal commentary - August

August 2014 comments:

- *This deal has been a complete disaster*
- *The Green Deal is a waste of time*
- *Big shocker Tory government misleads public*
- *Government handling has turned it into a fiasco*
- *It's the term "Government" which is the most misleading*
- *A smoke and mirrors deal*
- *Has this government actually managed to implement any scheme that worked as declared?*

theguardian

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Government's green deal ad ruled 'misleading'

Decc adverts implied energy savings were guaranteed and did not back up claim scheme boosted property prices, says ASA

Press Association
theguardian.com, Wednesday 27 August 2014 07.23 BST

 [Jump to comments \(9\)](#)



The green deal ad was fronted by TV designer Oliver Heath. Photograph: David McHugh

An advert for the government's "green deal" misled householders by implying that energy savings were guaranteed under the scheme, the advertising watchdog has ruled.

Green deal commentary - September

September 2014 comments:

- *Who on earth would take out a Green Deal loan when they can get the loan for a fraction of the cost elsewhere?*
- *Do these people know nothing about economics, consumers or the market?*
- *A totally idiotic, doomed-to-fail scheme*
- *Who wants to pay out over twice the cost of the supposed savings*
- *The scheme was clearly flawed, complex and very expensive yet still the idiots went ahead with it*

The Telegraph

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Green Deal energy efficiency scheme a 'disappointing failure'

Government should offer council tax or stamp duty cuts to revive interest in energy efficiency, after flagship loan scheme failed, MPs say



The Green Deal scheme aimed to encourage millions of households to take out loans to fund the cost of work such as installing insulation or new boilers, with the loans paid back in instalments on their energy bills. Photo: PA

Green deal status {at time of report}

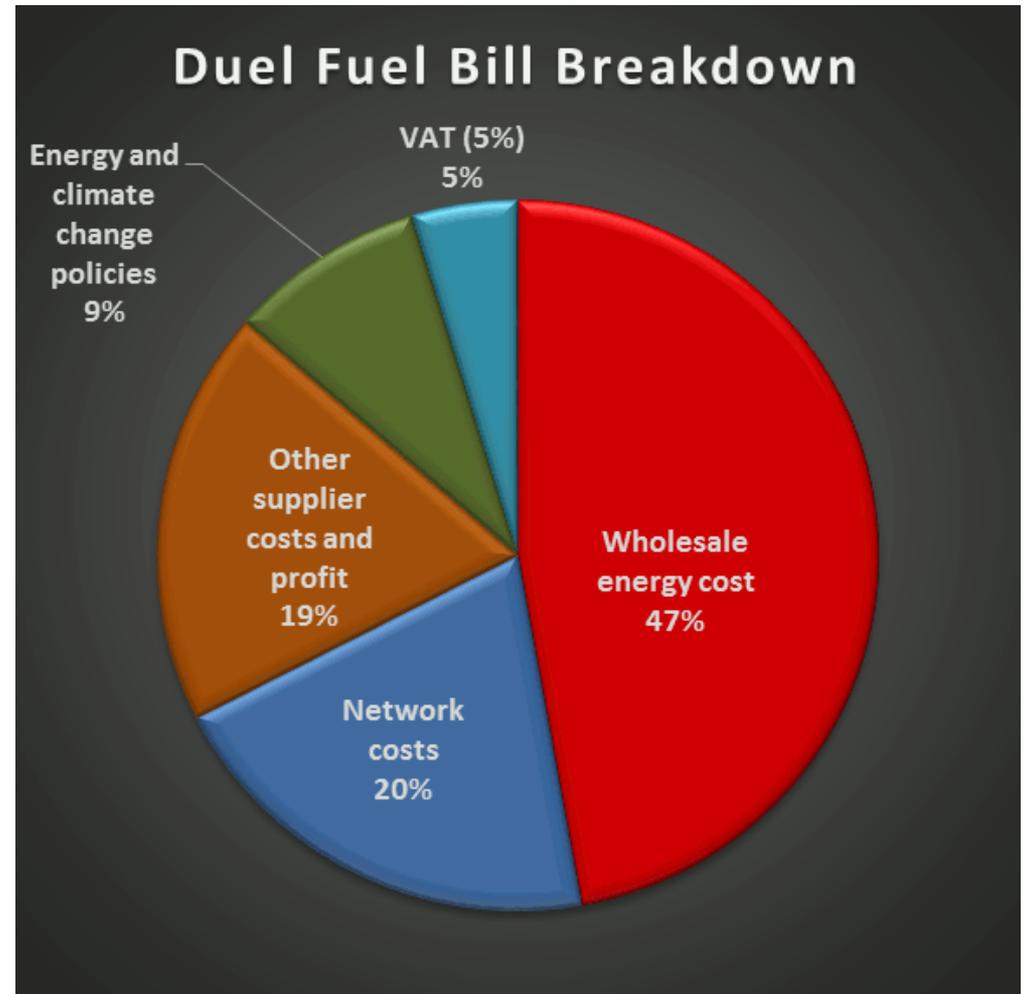
- 300,259 Green Deal assessments carried out
- Approx. 4000 Green Deal in the process of being set up {DECC August 2014}
- "deeply disappointing" level of uptake
- programme has not made "any real impact up to now"[Residential Landlords association]
- "falls a long way short of the 10,000 by the end of 2013 that the Minister was anticipating"

Green Deal stats - DECC, Oct 2014

- Provisional 965,000 measures installed in around 797,000 properties through ECO, Cashback, Green Deal and the Green Deal Home Improvement Fund to the end of August 2014
- 356,514 Green Deal assessments to end September 2014
- 29,631 GD Assessments in September; 11 per cent higher than August
- 5,736 households had Green Deal Plans in progress at the end of Sep 2014 (1.6%)
- 21 per cent more than the 4,737 at the end of August

What do the levies cost on average domestic bill?

- Fuel poverty £61 p.a. (4.8%)
 - Warm Home Discount £11
 - Smart Metering £3
 - ECO Scheme £48
- Renewables £37 p.a. (2.9%)
 - Feed in Tariff £7
 - Renewables Obligation £30
- Climate Change Policies £13 p.a. (1%)
 - actual taxes on carbon
 - EU Emission Trading Scheme
 - Carbon Floor Price



Tariff incentives FIT & RHI



FIT - Feed in tariff

- Designed to incentivise small scale low carbon electricity generation
- Came into force on 1st April 2010
- New installations of the following technologies are eligible:
 - Anaerobic digestion
 - Hydro
 - Solar Photovoltaic (PV)
 - Wind
 - Micro-CHP (<2kW)

Feed-in-tariff basics

- Tariff paid depends on the technology, the size of the installation and whether it is a new building or a retrofit
- Made up of generation and export tariff
- Exported energy metered on commercial systems
- Export “deemed” for small generators at 50% of generation
- The tariffs are guaranteed for 20 years
- The tariffs are linked to the retail price index (RPI) and could therefore go up (or down)

Feed-in-tariff eligibility

- PV, wind and hydro (<50kW) must use:
 - products approved by the Microgeneration Certification Scheme (MCS)
 - Installer accredited by MCS certification body
- Individuals, households, businesses and communities are all eligible
- Only “new” installations are eligible (15 July 2009 onwards)
- Grid connected AND off-grid installations are eligible

'Higher', 'middle', and 'lower' FIT rates

- The FIT rate quoted by DECC varies according to the installation type and the property energy efficiency (as defined by EPC)
- **Lower rate:** properties with an EPC rating of less than D
- **Middle rate:** Multiple installation tariff (>25 installations with EPC of D or above)
- **Higher rate:** Less than 25 installations and properties have EPC of D or above

Current PV tariffs

Capacity	p/kW (lower)	p/kW (medium)	p/kW (high)
<4kW (new build)	6.38	12.94	14.38
<4kW (retrofit)	6.38	12.94	14.38
4kW – 10kW	6.38	11.73	13.03
10kW - 50kW	6.38	10.92	12.13
50kW – 100kW	6.38	9.31	10.34
100kW – 150kW	6.38	9.31	10.34
150kW – 250kW	6.38	8.90	9.89
>250kW	6.38	6.38	6.38
Standalone (not fitted to building)	6.38		

Renewable Heat Incentive - RHI

- Funded by central Government (Treasury)
 - Scheme open to new installations until 2020
 - Designed for 12% rate of return
 - Payments made to the “owner” of installation
 - Payments made quarterly and for 20 years*
 - Tariffs adjusted annually in line with RPI
 - Two different schemes: Non domestic & domestic with different criteria
 - Domestic is defined as where renewable heat serves a single private residential dwelling only
 - Multiple single systems in residential units (e.g. social housing) are classed as domestic
- *domestic is based on 20 years of heat but payment paid over 7 years

Domestic RHI process

- Apply on line
 - System must have an MCS commissioning certificate (on line check)
 - Council tax bill and identity checks
 - Bank details
- Payments based on deemed heat load from EPC
- No metering equipment usually required, except if:
 - The renewable heat technology is working alongside a fossil fuel appliance (hybrid/bivalent)
 - The home where the renewable heat system is installed is only partially occupied (i.e. less than half a year i.e. 183 days)
 - A biomass boiler or stove does not provide space heating to the entire property
- 20 year payments are made over 7 years

Domestic Tariffs

Technology	p/kW
Biomass boilers and biomass stoves	12.2
Air source heat pumps	7.3
Ground source heat pumps	18.8
Solar thermal	19.2

RHI metering requirements

- Any class 2 flowmeter as defined in the EU Measuring Instruments Directive (MID) 2004
- MID stamped integrator & correct sensors
- Meter is fitted to the heat outlet of the renewable heat plant
- Tamper proof seals and maintenance according to manufacturers instructions
- RHI regulations must be adhered to
- “Complex” systems need careful thought and in many cases an independent verification of the metering arrangements
- Meters must be accessible for reading

Non-domestic RHI process

- Apply on line to Ofgem
 - System must have a commissioning certificate
 - Non domestic rates bill and several identity / anti fraud checks
 - Nominated financial person (e.g. finance director)
 - Bank details
 - Letter of authorisation
 - Photo evidence of installed plant and metering equipment
 - Upload evidence e.g. O&M manual, certificates, schematics
- Heat meter required
- Payments based on meter reads, and two tariff levels in most cases
- Tier 1; first 1314 run hours
- Tier 2; any heat generated after, lower rate
- Simple and complex systems

Non-domestic system eligibility

- Systems must have accredited metering in place
- Technologies eligible:
 - Solid biomass
 - Combined Heat and Power (CHP) systems for solid biomass, waste, geothermal and biogas
 - solid biomass contained in waste
 - heat pumps (ground source, water source and air-to-water)
 - solar thermal
 - geothermal
 - biomethane
 - biogas

Non Domestic RHI: Biomass tariffs

Technology	Capacity	p/kW (Tier 1)	p/kW (Tier 2)
Solid biomass including solid biomass contained in waste	<200kW	7.6	2.0
	200kW – 1MW	5.1	2.2
	>1MW	2	2
Solid biomass CHP systems	All	4.1	4.1
Biomethane injection	All	7.5	
Biogas combustion	<200kW	7.5	
	200kW – 600kW	5.9	
	>600kW	2.2	

Non Domestic RHI: Other heat tech tariffs

Technology	p/kW
Deep geothermal	5
Solar thermal <200kW	10

Heat pumps	p/kW (Tier 1)	p/kW (Tier 2)
Water/Ground-source	8.7	2.6
Air-source	2.5	2.5

Domestic metering installations - 1



Domestic metering installations - 2



Non domestic; simple or complex?

- Simple systems – one renewable heat generator meets entire building heat load e.g. a biomass boiler or heat pump in a single building with no underground pipework
- Most other systems are complex e.g.:
 - Biomass boiler with gas boiler back-up
 - GSHP with gas, oil etc. back up
 - Multiple buildings with underground pipework
- Complex systems need an additional “Independent Report on Metering Arrangements” [IRMA] by a suitably qualified person
- Heat loss calculations may be required for pipework
- Ofgem template for authors to complete
- May take a while to respond to all the queries

Application tips

- Keep all certificates for flow meters etc
- Ensure the flow meter is fitted in the correct pipe
- Make sure sensors are in proper pockets
- Note meter readings, and again 20 minutes later. Are they realistic?
- Ensure the installation matches the schematic diagram
- Photograph serial numbers
- Make sure system kW capacity, COP etc in the application matches that from 'manufacturer evidence' such as nameplate photographs
- Keep a diary and chase anything you need on paperwork
- Wait
- Phone help line and 'essential guidance' on web if you get stuck

Large metering systems

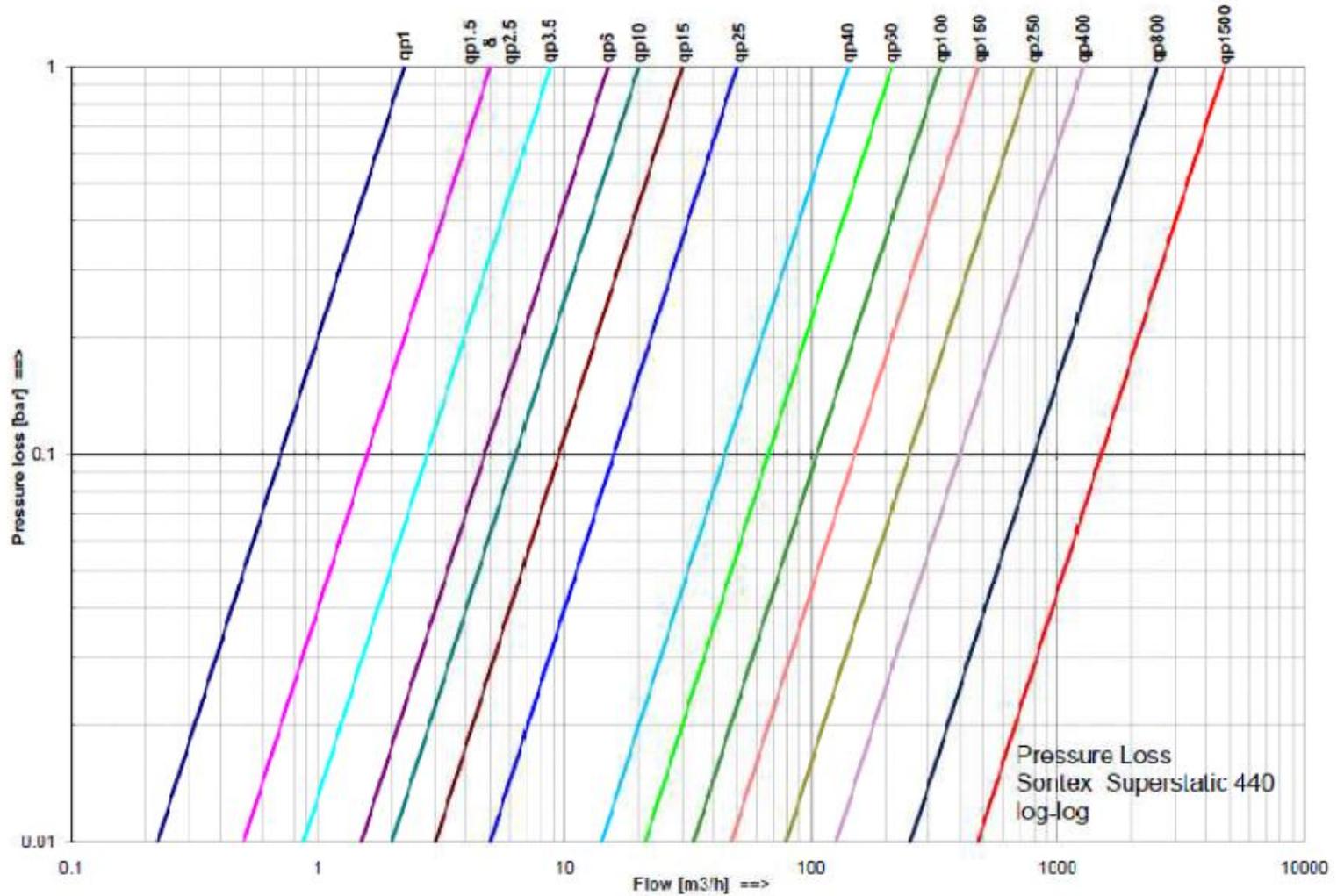


Using MID stamped integrator & ISO 4064 Class B flowmeter

Large class 2 flow meter heat meter



Design & Selection



Questions?

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