

# The Renewable Heat Incentive & District Heating

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# Our Aims



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**UKDEA is a Non Trade not for profit association, working together to:**

- Offer guidance to other organisations
- Raise awareness of district energy as a low carbon solution and the benefits that it can deliver – district heating/cooling and local electricity networks
- **Helping members of the UKDEA gain the tools and support that they need to develop and expand their own schemes**

# Our Members



- 
- **Membership growing rapidly – 4 new members in the last two weeks**
  - **Currently 18 Full and Associate members**
  - **Members cover public and private sector stakeholders in District Energy**
  - **Members operate many of the largest schemes in the UK**

# Full Members



- 
- **Birmingham City Council – *Birmingham Scheme***
  - **Cofely District Energy Ltd – *Birmingham, Leicester, Southampton, various in London including the Olympics***
  - **Enviroenergy Ltd – *Nottingham Scheme***
  - **E-ON Energy Services – *Exeter and Schemes in London***
  - **Leicester City Council – *Leicester Scheme***
  - **Newcastle City Council - *Schemes in Newcastle including Byker***
  - **Southampton City Council – *Southampton Scheme***
  - **Shetland Heat, Energy & Power Ltd – *Lerwick Scheme***
  - **Thameswey Ltd - *Woking and Milton Keynes***
  - **Veolia Environmental Services Ltd – *Sheffield Scheme***



# 1960s to current day



- **Historically, district energy in the UK had a bad reputation due to poor:**
  - installation → joint failures
  - pipe systems → insulation/pipe failures
  - control → poor heat distribution across the network
  - water treatment → internal corrosion and pipe failure
- **Many urban areas contained a scheme in 1950s/60s – most now removed**
- **ALL of these previous problems have now been resolved**
- **New breed of schemes leading the way - earliest commenced in 1980s**
- **Still only a small number of large scale schemes in the UK.....**
- Currently less than 2% (?) of heat from district heating in the UK
- **However, the message is finally being heard that DE works and many new schemes are being installed.**

# UKDEA Members Today



- 
- ✓ **Over 100 MW of low carbon generation plant (gas fired CHP, geothermal, biomass, EFW, heat pumps etc)**
  - ✓ **Supported by over 400 MW of conventional back up boiler plant**
  - ✓ **Delivering over 600,000,000 kWh of heat each year**
  - ✓ **across energy networks which, if combined, would extend for more than 200 km**
  - ✓ **Together these schemes save over 100,000 tons of CO<sub>2</sub> emissions per annum**

# Our Work



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## Our Work Streams include:

- **Market Survey – understanding the existing extent of DE across the UK**
- **Policy research – identifying the impacts of EU & UK policy, on DE**
- **Consultation responses and Government engagement – making sure DE stakeholders' views (both public & private) are effectively represented**
  - Electricity Market Reform & Carbon Price Support
  - Current EU Energy Efficiency Directive Consultation
  - Current Consultation on Street Works Lane Rental
- **Technical R&D – basic exploration of delivering more low carbon technologies in a DE context**
- **Guide for local authorities and other organisations seeking to develop DE in the UK – this will be a balance of public and private sector perspectives and case studies from ALL members. To be issued early 2012, the Guide will spell out each step:**
  - Feasibility
  - Procurement
  - Project Agreement

# Renewable Heat Incentive



- 
- Designed to provide a guaranteed revenue stream
    - IRR of 12% (?)
    - IRR not estimated against *total* project capital expenditure
  - Phase 1
    - Commercial
    - Includes communal residential and dwellings on district heating systems

# RHI Tariffs



<i>Tariff name</i>	<i>Sources of energy or technology</i>	<i>Installation capacity</i>	<i>Tariff (p/kWh)</i>
Small commercial biomass	Solid biomass including solid biomass contained in municipal solid waste and CHP	Less than 200kWth	Tier 1: 7.9 Tier 2: 2.0
Medium commercial biomass		200kWth and above up to but not including 1MWth	Tier 1: 4.9 Tier 2: 2.0
Large commercial biomass		1MWth and above	1.0
Small commercial heat pumps	Ground source heat pump, water source heat pump, deep geothermal	Less than 100kWth	4.5
Large commercial heat pumps		100kWth and above	3.2
All solar collectors	Solar collectors	Below 200kWth	8.5
Biomethane and biogas combustion	Grid injection of Biomethane and biogas combustion	All biomethane injection and biogas combustion below 200kWth	6.8

- Tiered Tariffs
  - Tier 1 → first 15% of maximum annual generation
  - Tier 2 → remainder of annual generation

# Heat Losses



- Heat Losses Between Buildings
  - Revenue isn't just: Renewable Heat  $\times$  Tariff
  - Must also multiply by factor below:

$$\frac{\text{Total System Heat (Eligible) Use}}{\text{Total System Heat Generated}}$$

# Metering



- Metering Accuracy
  - Measuring Instruments Directive (MID) (2004/22/EC)
  - “Class 2” Accuracy
  - As a whole or components
  
- “Complex Metering”
  - All plant, all consumers
  - Metering report
  - Schematic

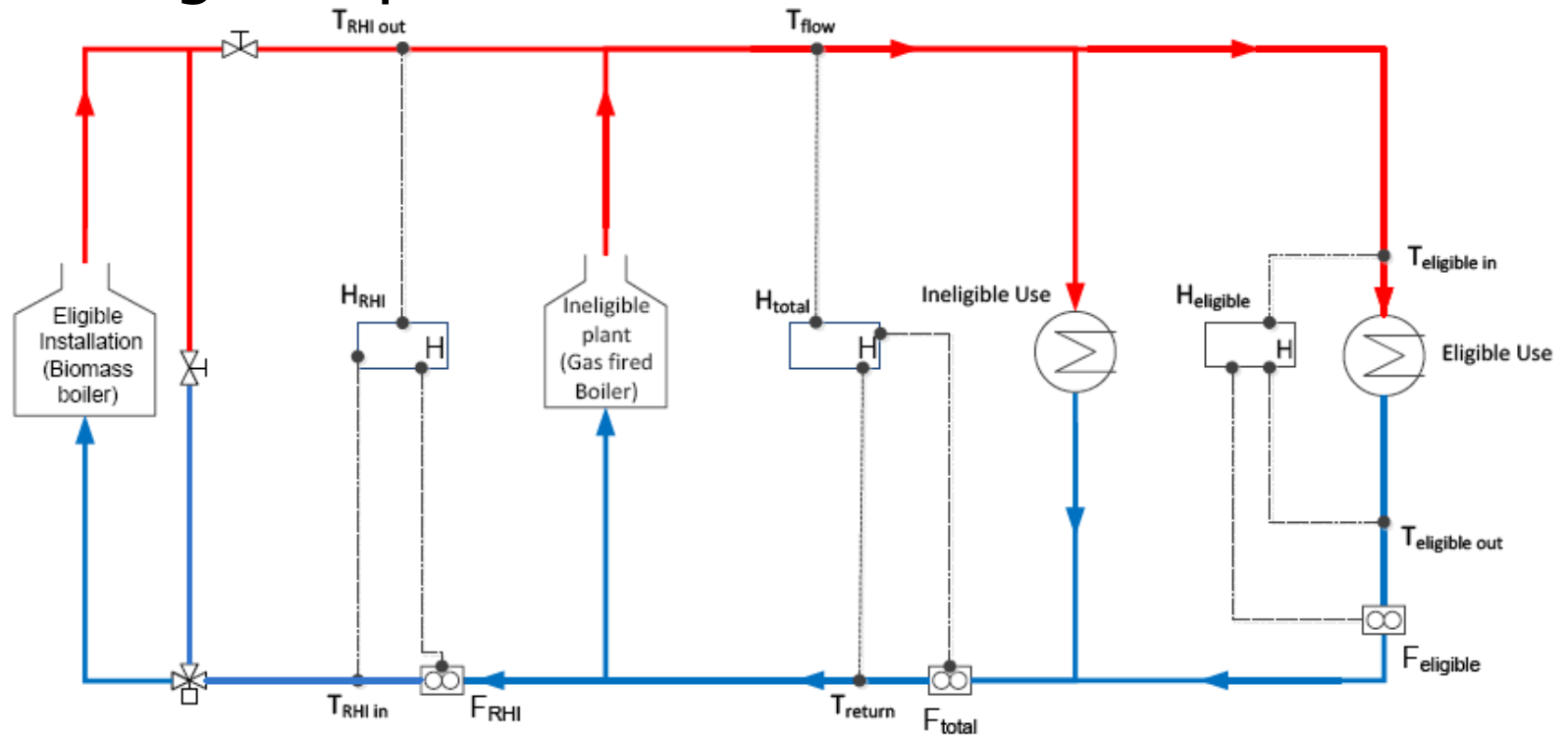
# Complex Metering



1. The Renewable Plant
  2. All Heat Plant (including fossil fuel top-up/back-up)
  3. All “Eligible Use” – every consumer building
- Where this is “highly impractical or disproportionately expensive”:
    - Agreed percentage may be deducted from the eligible heat use
    - Based on heat loss calculations
    - Methodology yet to be finalised

# Schematic

- Relative positions of:
  1. All Heat Plant
  2. Pipework
  3. Metering Components



# Metering Report



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- Independent Metering report
  - Regulations:
    - “Competent Person”
  - Ofgem:

# Metering Report



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- Independent Metering report
  - Regulations:
    - “Competent Person”
  - Ofgem:
    - 1. An experienced and suitably qualified engineer (at least HND or equivalent in an engineering discipline from a recognised academic institution);
    - 2. Has demonstrable experience and expertise in flow measurement and heat/steam measurement systems demonstrated by training and development records;
    - 3. Has a relevant background (involved in energy, utilities, building services, heating system design, heating system operation & maintenance);
    - 4. Covered by Professional Indemnity Insurance of at least £1m (through employer or directly);
    - 5. Is unbiased and impartial.

# Phase 2



- Phase 2 introduces the domestic side of the RHI

Also a chance to change things for the existing parts of RHI:

- **Reduce complexity of metering requirements**
  - want this to be the same as installing renewable plant into a single building
- **Incentivising the *networks***
  - Introduce an uplift for good quality renewable district heating

# Summary



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- Heat Losses
    - Eligible Use / Heat Generated
  - Metering Requirements
    - All plant, all consumers
      - or heat loss calculation?
    - Metering report
    - Schematic

Questions...



Ofgem E-Serve Renewable Heat  
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Questions...



Any Questions?