



Microgeneration Installations Regulations & Standards

David Cowburn
NAPIT Certification



Microgeneration

Why should we be concerned about standards
of work?

- This is a new sector
 - Easy to sell, easy to over-promise
 - Skills base is at the starting point, resource demand outweighs supply
- The investment can be significant
- The commitment is long-term



Microgeneration

- What is microgeneration?
- What is driving the interest?
- Regulations
- Standard of work
- Customer protection
- The Microgeneration Certification Scheme



What is Microgeneration?

- Carbon reducing
- Small scale
- Electrical generation (<50 kW_e)
- Heat generation (<45 kW_{th})
- Combined heat and power



What Microgeneration Isn't

- It is not always renewable
 - Micro-CHP uses gas or oil
 - Heat pumps usually use mains electricity
- It is not specifically about dwellings
 - The limit is on size not location
 - But the funding situation can differ



Microgeneration Technologies

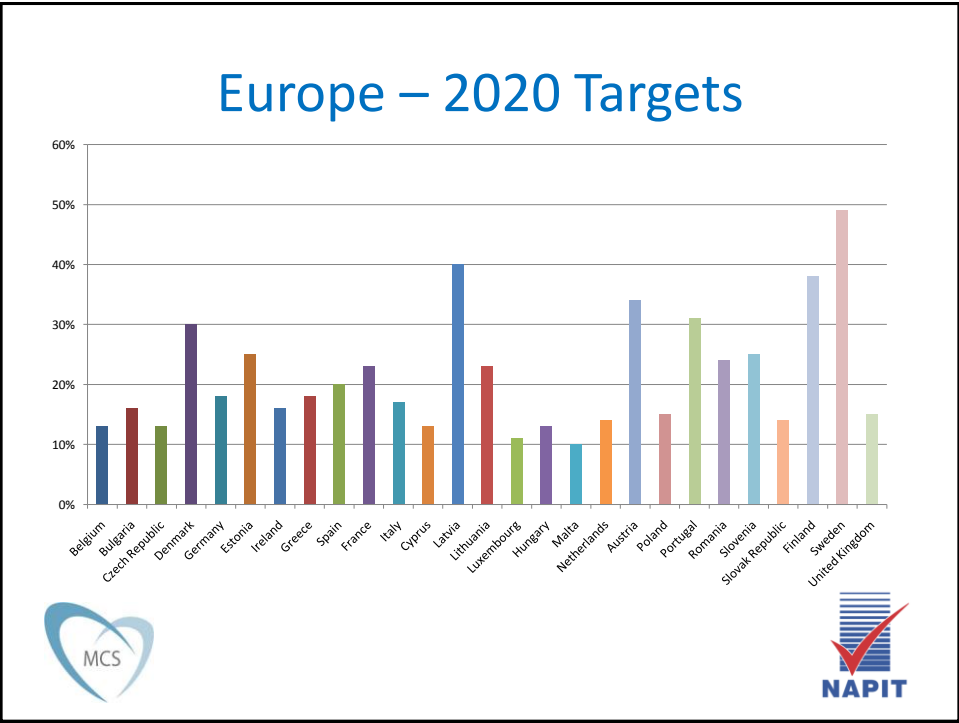
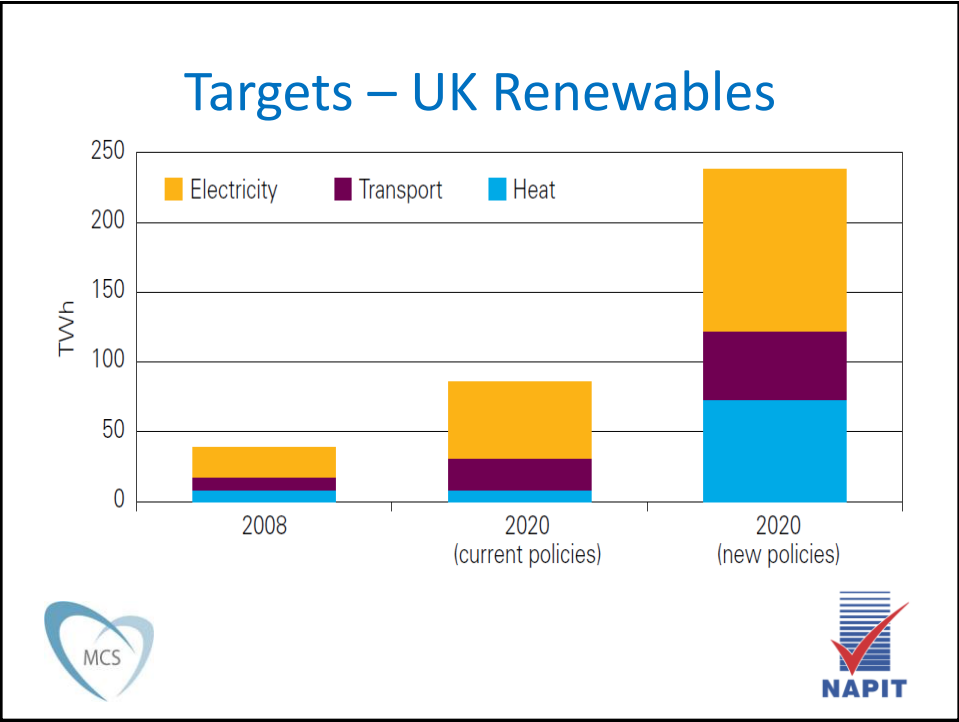
Current MCS Scheme

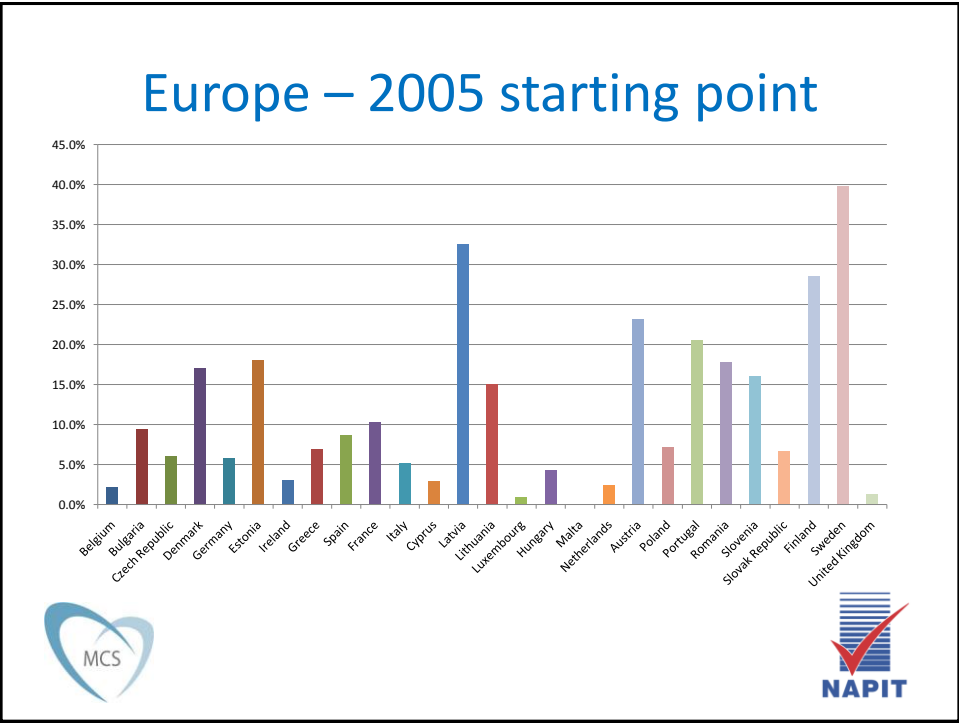
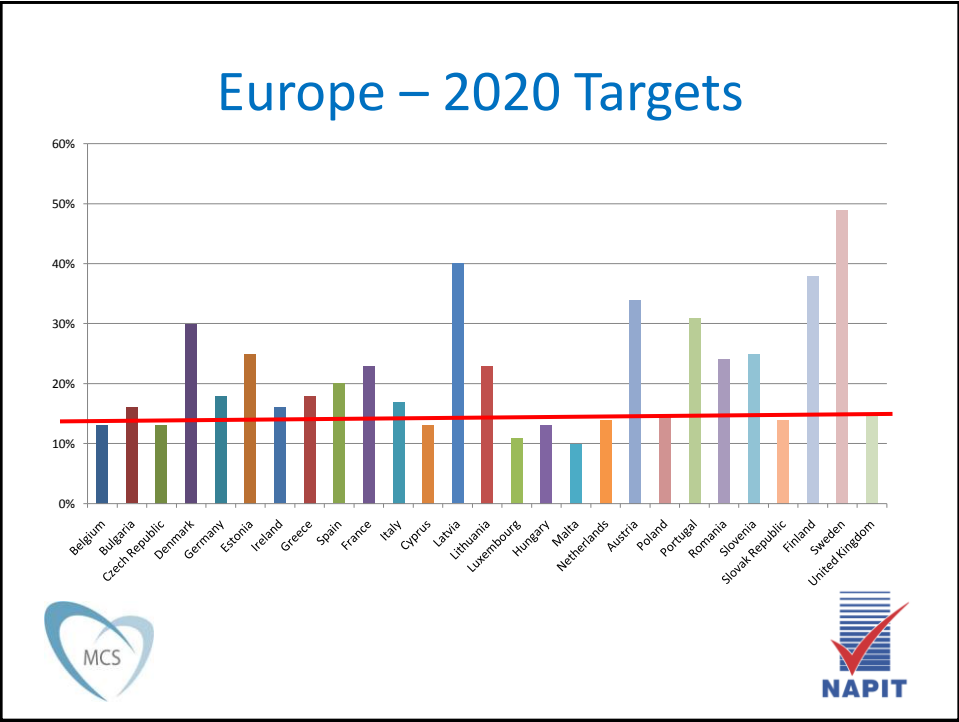
- Solar photovoltaic
- Wind turbines
- Solar hot water
- Heat Pumps
- Solid biomass heating
- Co-generation (CHP)

Others

- Small hydroelectricity
- Anaerobic digestion
- Liquid biofuels







Electricity – Feed in Tariffs

- Main payment - electricity generated
- Supplementary payment - electricity exported
- Significant saving over imported electricity
- Payments are index linked and tax free
- Payments are fixed for 20 or 25 years
- The “starting value” drops each year to encourage early adoption



Electricity – Feed in Tariffs Examples - installations to 31/3/2012

Technology	Scale	Generation Tariff (p/kWh)	Lifetime (years)
Solar panels	<4 kW (retrofit)	41.3	25
Solar panels	<4 kW (new build)	36.1	25
Wind turbines	<1.5 kW	34.5	20
Wind turbines	1.5-15 kW	26.7	20
Micro-CHP	<2 kW	10.0	10
Hydroelectricity	<15 kW	19.9	20

exports are paid at 3 p/kWh (all technologies)

see energysavingtrust.org.uk for complete information



Electricity – Feed in Tariffs

Example – solar panel installation

- House has an electricity demand of 4500 kWh
- Solar panels (3 kW rated) generate 2500 kWh
- House uses 1500 kWh from panels and imports 3000 kWh from the grid)
- Remaining 1000 kWh from panels is exported



Electricity – Feed in Tariffs

Example – solar panel installation

	Rate (p/kWh)	Electricity (kWh)	Income or (Cost)
Imported Electricity	10	3000	(300)
Generated Electricity	41.3	2500	1,032.50
Exported Electricity	3	1000	30
Annual Income (less costs)			£762.50

- The same house with no microgeneration, paying 10 p/kWh would have an annual electricity bill of £450
- So the “net annual benefit” of moving to microgeneration is actually £1,212.50



Heat – Renewable Heat Incentive

- Consultation closed, decisions awaited
- Proposed to start from June 2011
- Principles:
 - Fund the difference between renewable and fossil fuel alternative
 - Small scale “deemed” (not metered)
 - Obligation to maintain the installation
 - Issues about existing energy efficiency



Heat – Renewable Heat Incentive Examples – small installation proposals

Technology	Scale	Generation Tariff (p/kWh)	Lifetime (years)
Solid biomass	< 45kW	9	15
Bioliquids	< 45kW	6.5	15
Biogas	< 45kW	5.5	10
Ground source HP	< 45kW	7	23
Air source HP	< 45kW	7.5	18
Solar thermal	< 20 kW	18	20

NOTE THAT THESE ARE ONLY PROPOSALS



Regulations (focus on England)

- The Building Regulations 2010
- Electricity Safety, Quality and Continuity Regulations 2002
- The Feed in Tariffs Order 2010
- Planning Requirements
- Clear Air Act (biomass)
- Environment Agency (hydro)



Building Regulations

- Structure (A)
 - Roofing, wind loads, weight, roof penetrations
- Passage of Sound (E)
- Combustion (J)
- Conservation of power (L)
- Electrical safety (P)
 - The Wiring Regulations (BS7671)



Electricity Supply

- Electricity Safety, Quality and Continuity Regulations 2002
- Requirements for connection to the grid
- Working with the Distribution Network Operator
- Following Engineering Recommendations G83 or G59 in design, testing, commissioning and certification



Feed in Tariff Order

- Eligibility and payment of tariffs
- FITs covers more than “microgeneration”
- For microgeneration scale the legislation requires the use of an MCS Approved Installer
- Installations must be registered under MCS
- Ofgem and FIT licensed suppliers
- Metering and deeming requirements



Planning

- Planning permission via local authority
- Permitted developments:
 - Solar panels
 - Biomass
- Proposed Permitted Developments
 - Wind turbines
 - Air source heat pumps



Environmental

- Clean Air Act
 - Smoke control areas
 - Exempt appliances
- Environment Agency
 - Issues with water courses (hydro)
 - Extraction or discharge of ground water (heat pumps)



Microgeneration Certification Scheme



Microgeneration Certification Scheme

- Certification of equipment and installers
- Both must be true for eligibility for feed-in-tariffs and proposed heat incentives
- Since most loans will be linked to tariffs that means linked to most loans as well
- Up to the 50kWe / 45kWth limit



Microgeneration Certification Scheme

- There are several certification bodies
- Some (such as NAPIT) can also satisfy Building Regulations requirements
- Installers will always display the MCS logo and not just that of the certification body
- You can find approved equipment and installers at:



www.microgenerationcertification.org



Microgeneration Certification Scheme

- Must meet ALL applicable regulations
 - Electricians understanding BS7671 is not enough
- Survey, advice, reliable predictions
- Good contractual practice
- Control of staff and subcontractors
- Competence and skills, training
- Approved equipment, properly commissioned



Microgeneration Certification Scheme

- Customers provided with good documentation
- All installations registered
- Installers monitored by inspection
- Consumer Code of Practice (OFT Approved)
- Formal complaints handling, dispute resolution
- Warranty protection



Concluding Remarks

- The need to incentivise renewable energy installations will not go away
- The government is committed to the low carbon economy
- Simple existing trade qualifications and registrations don't cover the whole issue
- MCS seeks to ensure that all aspects of an installation are covered

