

Wessex EEMG

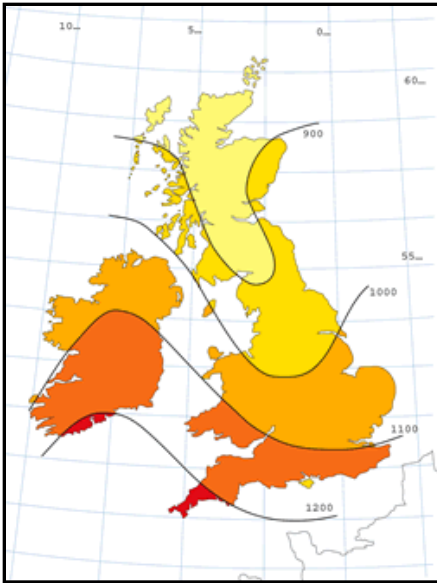
5<sup>th</sup> December 2011

# Update on Feed-in Tariffs and the

# Renewable Heat Incentive

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# Topics to be covered

- Introduction
  - a personal perspective (not representing Dorset County Council's position)
- Feed-in tariffs (FITs)
  - what has changed?
- Economic implications
- The politics of FITs
- The Renewable Heat Incentive (RHI)
- Questions and discussion at the end



Solar PV installation at Queen Elizabeth School, Wimborne

# Feed-in tariff rates proposed in April 2010

		April 2010	April 2011	April 2012	No. of years
Hydro	>15-100 kW	17.8	17.8	17.8	20
Hydro	>100 kW-2 MW	11.0	11.0	11.0	20
Hydro	>2 MW – 5 MW	4.5	4.5	4.5	20
MicroCHP pilot*	<2 kW*	10*	10*	10*	10*
PV	≤4 kW (new build)	36.1	36.1	33.0	25
PV	≤4 kW (retrofit)	41.3	41.3	37.8	25
PV	>4-10 kW	36.1	36.1	33.0	25
PV	>10-100 kW	31.4	31.4	28.7	25
PV	>100kW-5MW	29.3	29.3	26.8	25
PV	Stand alone system	29.3	29.3	26.8	25
Wind	≤1.5kW	34.5	34.5	32.6	20
Wind	>1.5-15kW	26.7	26.7	25.5	20
Wind	>15-100kW	24.1	24.1	23.0	20
Wind	>100-500kW	18.8	18.8	18.8	20
Wind	>500kW-1.5MW	9.4	9.4	9.4	20
Wind	>1.5MW-5MW	4.5	4.5	4.5	20


# Solar PV feed-in tariffs proposed on 31<sup>st</sup> Oct 2011

**Table 1:** Current and proposed generation tariffs for solar PV

<b>Band (kW)</b>	<b>Current generation tariff (p/kWh)</b>	<b>Proposed generation tariff (p/kWh)</b>
4kW or less (new build)	37.8	21.0
4kW or less(retrofit)	43.3	21.0
>4-10kW	37.8	16.8
>10-50kW	32.9	15.2
>50-100kW	19	12.9
>100-150kW	19	12.9
>150-250kW	15	12.9
>250kW-5MW	8.5	8.5*
stand alone	8.5	8.5*

Note feed-in tariffs for other renewable electricity technologies are currently unchanged and are subject to a separate consultation

# Impact of FIT reduction on householders



## Solar Energy Calculator Results

02 December, 2011

Thank you for completing the Solar Energy Calculator. You requested results for a 2.6 kW(p) system. These have been calculated using sophisticated data specific to your location. They are based on the details you submitted, shown at the end of the report for reference.

### Cost, income and savings


1. Income from generation tariff (in first year)	£1,036
2. Savings on electricity bill (in first year)	£77
3. Income from export tariff (in first year)	£36
Approximate installation costs (unless you provided a quote)	£9,000
Total income* (over 25 years)	£26,313
Total profit** (after 25 years)	£17,313

Total first year income £1,149

Payback time 9 years

Based on current approx installed costs and FIT of 43.3p up to 11<sup>th</sup> Dec

# Impact of reduced FITs on householders



## Solar Energy Calculator Results

02 December, 2011

Thank you for completing the Solar Energy Calculator. You requested results for a 2.6 kW(p) system. These have been calculated using sophisticated data specific to your location. They are based on the details you submitted, shown at the end of the report for reference.

### Cost, income and savings

1. Income from generation tariff (in first year)	£503	Total first year income £615
2. Savings on electricity bill (in first year)	£77	
3. Income from export tariff (in first year)	£36	
Approximate installation costs (unless you provided a quote)	£9,000	Payback time 16 years
Total income* (over 25 years)	£14,134	
Total profit** (after 25 years)	£5,134	

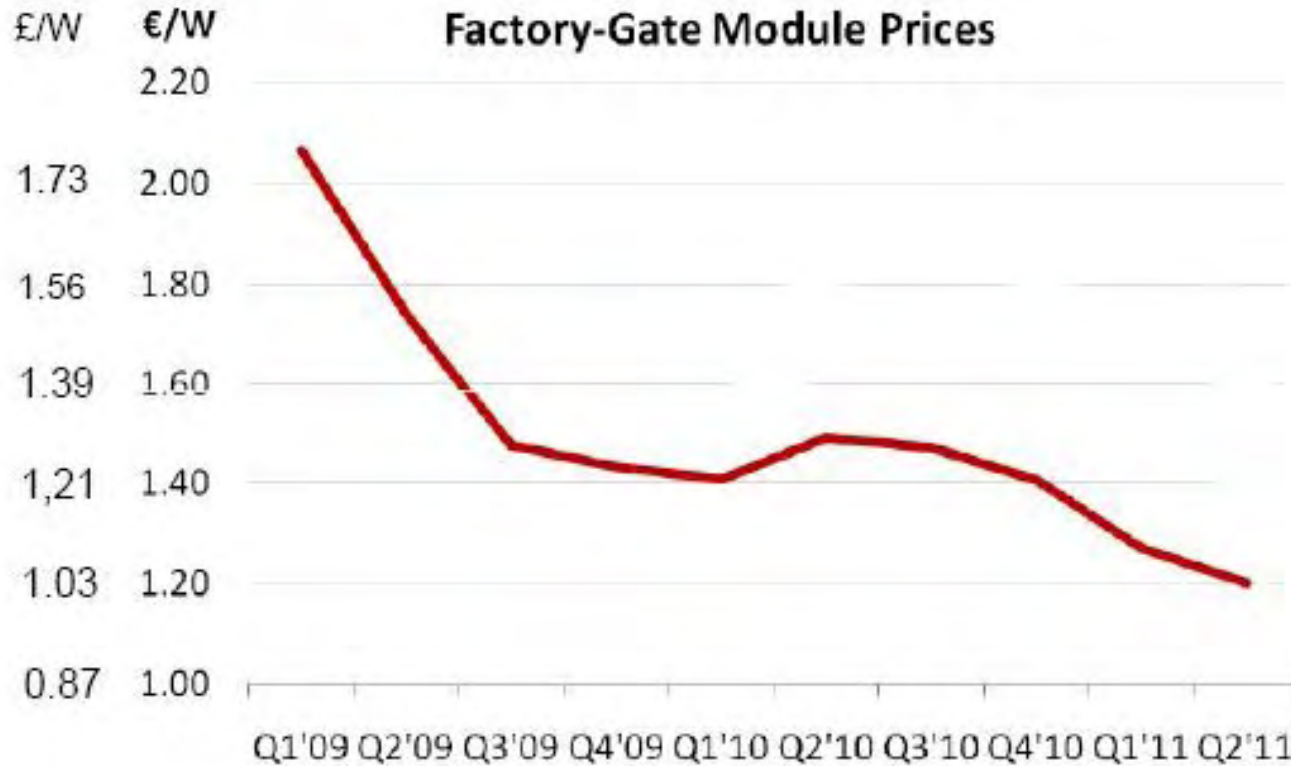
In addition the solar PV consultation proposes that dwellings must have an energy performance rating of C or above - excluding 90% of households

# Impact on Dorset County Council's £1m schools solar PV programme- put on hold from 4<sup>th</sup> Nov 2011



Original net financial benefit after loan repayment and interest estimated at £700,000 over 25 years plus free electricity for schools and local job creation. The proposed reduced FIT rate would lead to a net loss of approx £100,000

# But haven't PV module costs reduced?

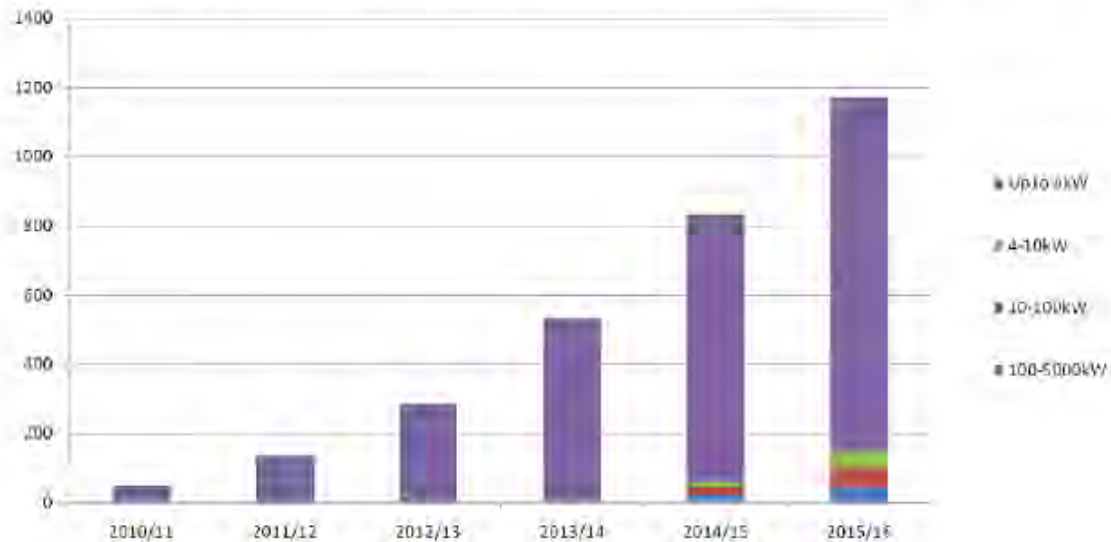


Slide from WEEMG feed-in tariff presentation 7<sup>th</sup> March 2011

# Leading to more PV installations than expected?

electricity. The modelling undertaken prior to the start of the FITs scheme projected that there would be 137 MW of PV installed under FITs in the first two years of the scheme (shown in Figure 1 below).

**Figure 1: Projected cumulative uptake of solar PV at start of FITs**

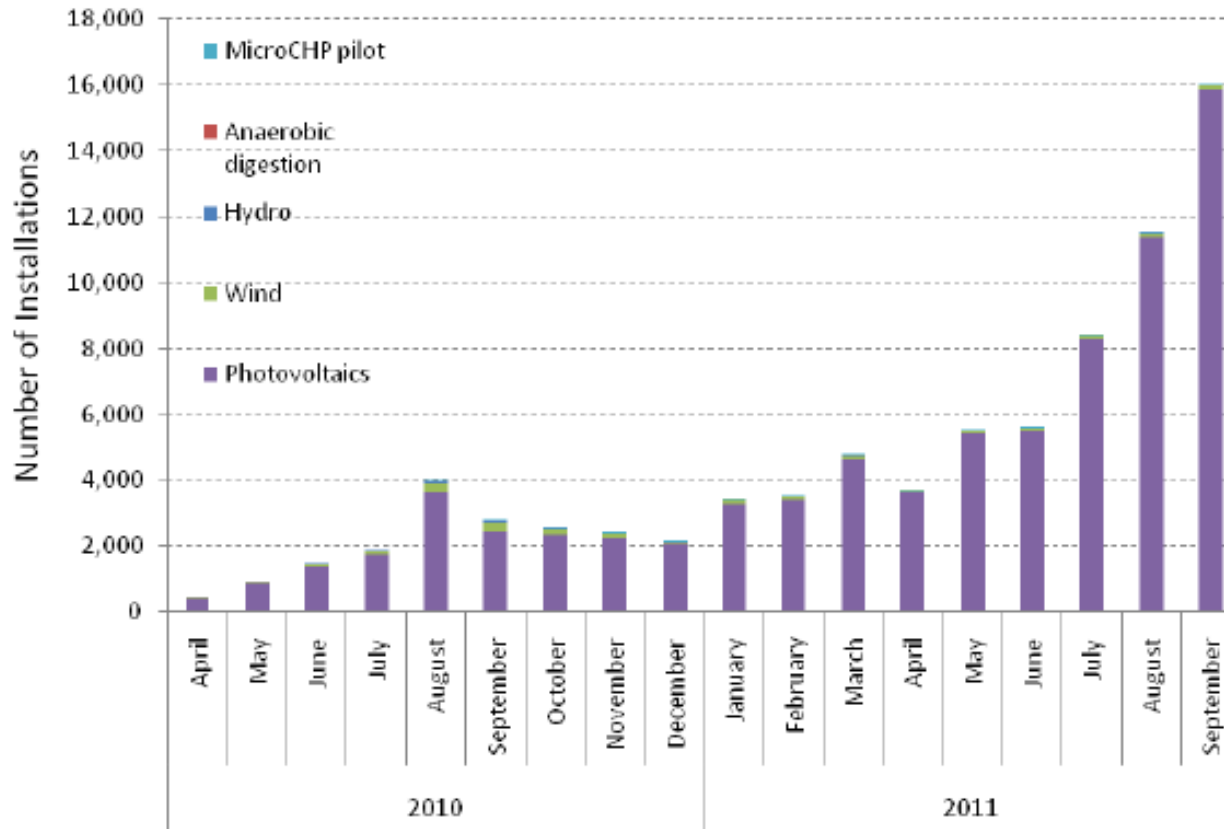


Note: Projected MW uptake in this graph is based on modelling that was undertaken prior to the start of the FITs scheme, and consistent with the February 2010 Government Response 1A.

). However, deployment of PV, particularly over summer 2011, has accelerated rapidly resulting in a level of uptake that is significantly above these projections (Figure 2).

# A success story?

**Figure 3:** Additional installations confirmed on central FIT register each month



Note if solar PV is uneconomic at the reduced FIT rate, what is left?

# But isn't this subsidy increasing our electricity bills ?

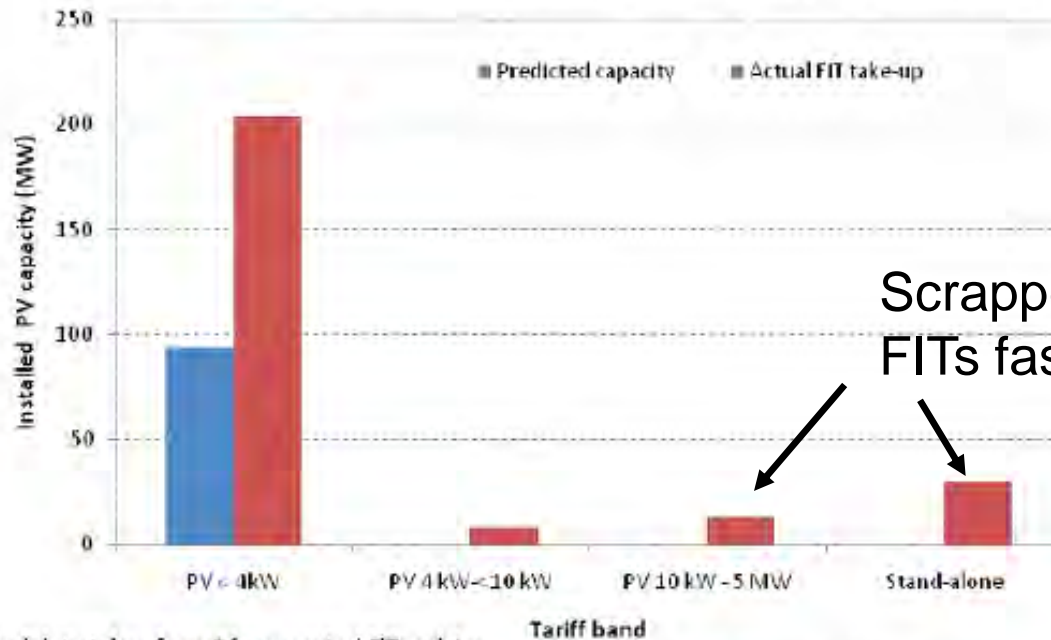
## Slide from WEEMG feed-in tariff presentation 7<sup>th</sup> March 2011

- There is a price “degression” as capital costs of installations fall due to the volume of the market.
- The cost of feed-in tariffs is passed to all electricity users and is estimated to add £3 per year to household electricity bills



# What is the cost of the unexpected high uptake of FITS on household electricity bills?

**Figure 2: Projected vs. actual uptake of PV (to 30<sup>th</sup> September 2011)**



Scrapped in August 2011  
FITs fast track review

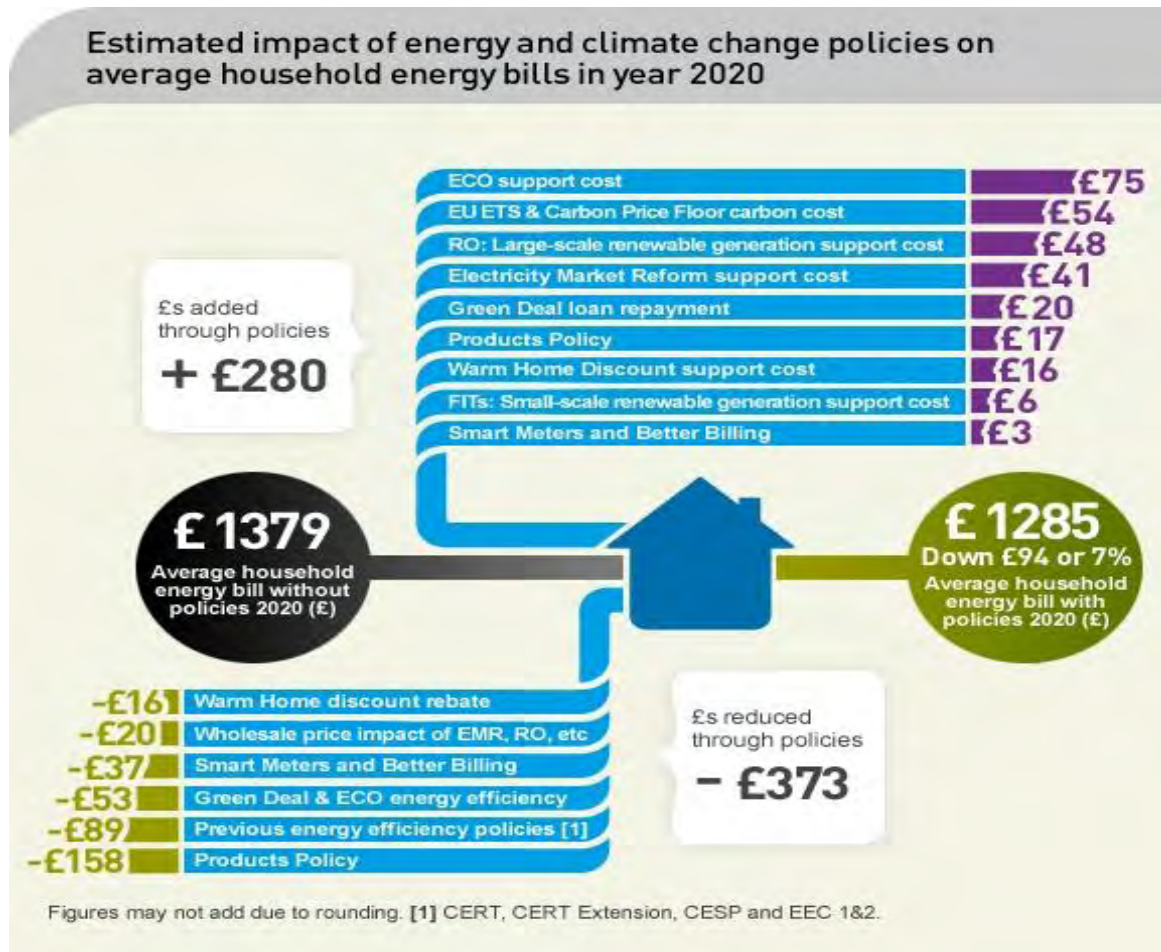
Actual data taken from Ofgem central FIT register.

Projections based on modelling undertaken for the Impact Assessment published in February 2010 prior to the start of the FITs scheme

$200\text{MW} \times 850\text{kWh/year} \times 46.4\text{p/kWh} = \text{£}78.8\text{m}$  over 18 months = less than £3 per household per year (25 m households)

In practice much less as FITS cost is also spread over businesses

# DECC environmental policy costs on household electricity bills (November 2011)

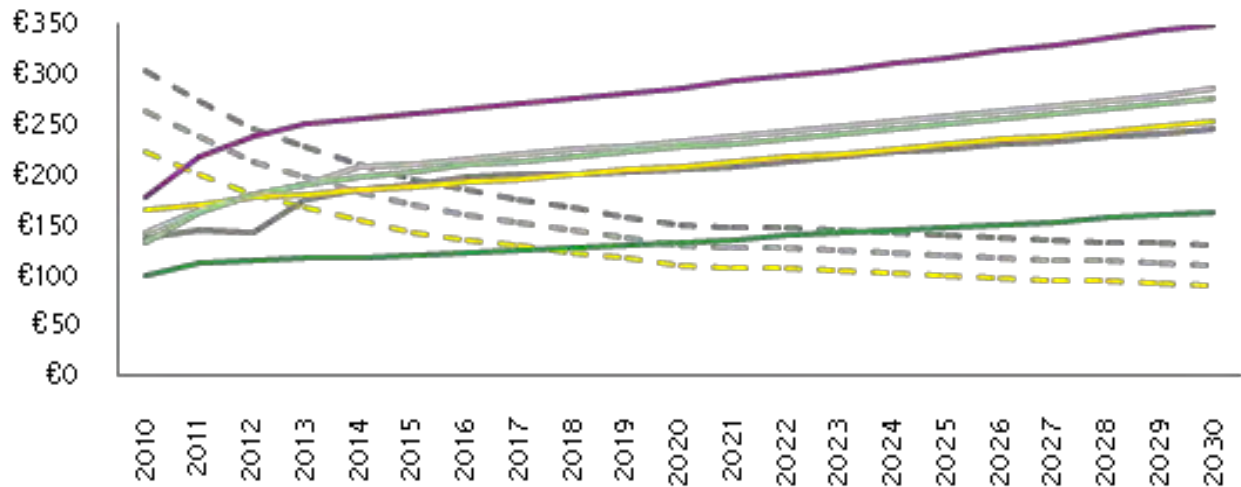


# Economic viability of solar PV (without subsidy) compared to fossil fuels- grid parity

Note economic viability graph courtesy of Ernst and Young

Euros  
per  
MWh

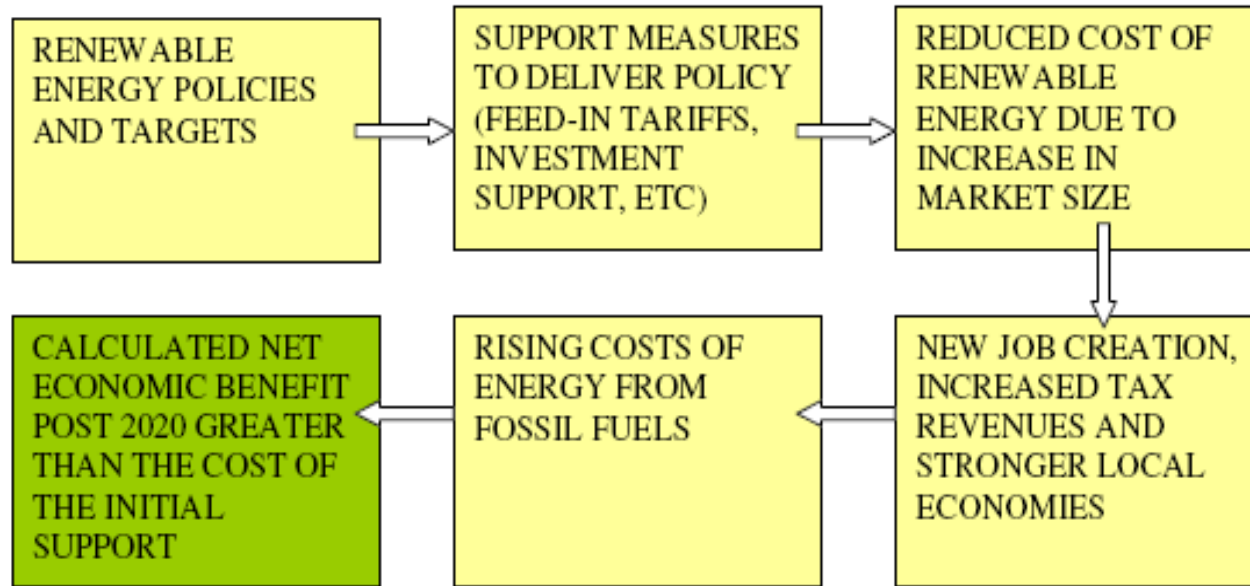
100€ per  
MWh =  
approx  
9p /  
kWh



--- Solar PV max      - - - Solar PV min      - - - Solar PV average  
— UK                      — Italy                      — Germany  
— Spain                      — US (California)      — US (New York)

Roof mounted solar PV- comparison with retail grid electricity prices

# 65 countries including China currently use feed-in tariffs to reduce renewable energy costs



## BENEFITS FROM FEED-IN TARIFFS

In the UK the £78m investment in FITS has reduced the cost of a typical 2kW domestic PV installation from £10k to £7k over 18 months, saving up to £250m per year for new householders installing PV and raising a further estimated £100m per year in tax revenues and creating 25,000 new jobs

# Meeting Europe's 2020 renewable energy target

## Renewable Energy Action Plans as submitted to the EU in 2010

Additional installed renewable electricity capacity 2010- 2020 (GW)  
(1 GW is equivalent to the output of a large fossil-fuel power station)

Country	Population	On-shore wind	Off-shore wind	Photovoltaics
Germany	82m	8.2	9.8	36
Spain	45m	15	3	4.3
Italy	60m	10	1	6.3
France	64m	13.4	6	4.3
UK	61m	10.8	11.6	2.6

### UK statistics breakdown:

Approx 5,000 on-shore wind turbines (2 MW each)- approx half in Scotland

Approx 2,300 off-shore wind turbines (5 MW each)

Approx 1,300,000 domestic houses with solar PV installations (2kW each)



# Implications for the Renewable Heat Incentive launched in November 2011

- Similar £860m budget cap to Feed-in Tariffs for renewable electricity
- All scales of renewable heat eligible – not limited to 5MW- impact of large scale biomass projects including woodchip and bio-liquid imports?
- Project development takes much longer than solar PV and need to be financed up front - contractual issues for ESCO's (eg liability for delays)



800kW woodchip boiler at Queen Elizabeth School, Wimborne

# RHI Tariff Rates

Levels of support					
Tariff name	Eligible technology	Eligible sizes	Tariff rate (pence/kWh)	Tariff duration (Years)	Support calculation
Small biomass	Solid biomass; Municipal Solid Waste (incl. CHP)	Less than 200 kWth	Tier 1: 7.6 Tier 2: 1.9	20	Metering Tier 1 applies annually up to the Tier Break, Tier 2 above the Tier Break. The Tier Break is: installed capacity x 1,314 peak load hours, i.e.: <b>kWth x 1,314</b>
Medium biomass		200 kWth and above; less than 1,000 kWth	Tier 1: 4.7 Tier 2: 1.9		
Large biomass		1,000 kWth and above	2.6		
Small ground source	Ground-source heat pumps; Water-source heat pumps; deep geothermal	Less than 100 kWth	4.3	20	Metering
Large ground source		100 kWth and above	3		
Solar thermal	Solar thermal	Less than 200 kWth	8.5	20	Metering
Biomethane	Biomethane injection and biogas combustion, except from landfill gas	Biomethane all scales, biogas combustion less than 200 kWth	6.5	20	Metering

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