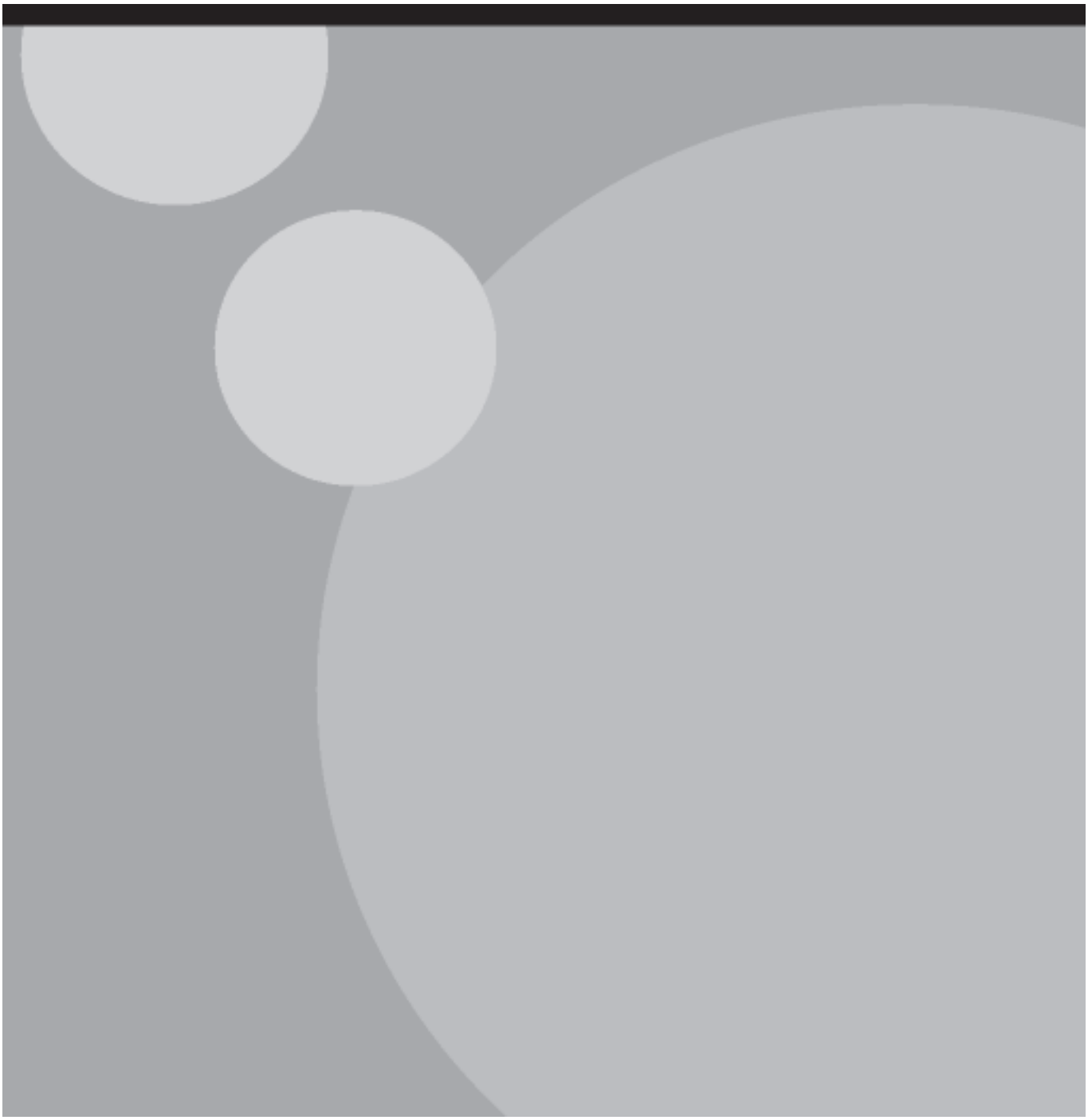
Communities and Local Government

Permitted development rights for installations of microgeneration equipment on non-domestic premises

Impact assessment



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March 2012
Department for Communities and Local Government

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March, 2012

ISBN: 978-1-4098-3388-8

Title:	Impact Assessment (IA)
PERMITTED DEVELOPMENT RIGHTS FOR INSTALLATIONS OF MICROGENERATION EQUIPMENT ON NON-DOMESTIC PREMISES	**Date:** 20/10/2011
IA No:	**Stage:** Final
Lead department or agency: Department for Communities and Local Government	**Source of intervention:** Domestic
	Type of measure: Secondary legislation
Other departments or agencies:	**Contact for enquiries**: Darren McCreery (0303 444 4352)

Summary: Intervention and Options

RPC Opinion: Amber

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANCB on 2009 prices)	**In scope of One-In, One-Out?**	**Measure qualifies as**
£3.3m	£2.2m	£ - 258 000	Yes	Out

What is the problem under consideration? Why is government intervention necessary?

Government policy is to encourage the take up of small scale renewable and low carbon energy technologies as part of its renewable energy and climate strategies. The planning application process can be a disincentive to the take up of microgeneration technologies, as submitting a planning application for the equipment imposes time and financial costs on an applicant.

Government intervention is necessary to remove disincentives to the take up of these technologies. Permitted development rights remove the requirement for specific planning permission to be sought for development which meet certain criteria (designed to minimise impacts)

What are the policy objectives and the intended effects?

•To encourage the uptake of microgeneration on non domestic premises by removing the requirement to submit a planning application to the local planning authority.

•To contribute to the Government's commitments on renewable energy and carbon reductions.

•To reduce bureaucracy in the planning systems and ease the administrative burden on business and communities

- To deliver greater consistency by bringing the permitted development rights for non domestic premises into line with freedoms available for domestic properties

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

•Option 1 – Do nothing : do not introduce permitted development rights for installations of ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions sytems and associated waste and fuel stores (agricultural and forestry) on non-domestic premises.

•Option 2 – Grant permitted development rights for installations of small ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions sytems and associated waste and fuel stores (agricultural and forestry) on non-domestic premises.

Option 2 is the preferred option because is removes a disincentive to the take up of renewable energy.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 12/13

Does implementation go beyond minimum EU requirements?			N/A		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	**Micro** Yes	**< 20** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)			**Traded:** 0.08	**Non-traded:** 0	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister: ---------- Date: ----------

Summary: Analysis & Evidence

Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2011	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: 1.9	**High:** 5.9	**Best Estimate:** 3.3

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0		9,000	**69,000**
High	0		24,000	**189,000**
Best Estimate	0		16,000	**126,000**

Description and scale of key monetised costs by 'main affected groups'

Annual costs are the air quality (damage) costs of the increase in use of biomass microgeneration technology. The average annual cost in 2011 prices is estimated to be between £9,000 and £24,000.

Other key non-monetised costs by 'main affected groups'

We have identified these potential costs but have not been able to monetise them at present:: Impacts on third parties; Increased number of enquiries / applications for lawful development certificates to local authorities for confirmation that installations are lawful

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0		236,000	**1,925,000**
High	0		741,000	**5,882,000**
Best Estimate	0		421,000	**3,381,000**

Description and scale of key monetised benefits by 'main affected groups'

Annual benefits (average per year):
Planning application fee savings and admin savings to business: £227,000 to £317,000.
Administrative savings to local planning authorities: £6,000 to £13,000
Greenhouse gas savings to society (Carbon Dioxide): £3,000 to £412,000

Other key non-monetised benefits by 'main affected groups'

We have identified these potential non-monetised benefits: Energy cost savings for business. Secondary benefits as increased demand leads to increased investment in microgeneration technology; reduction in carbon emmisions from reduced demand for non-renewable energy. Society will benefit from greater energy security.

Key assumptions/sensitivities/risks **Discount rate (%)** 3.5

The estimates of costs and benefits are sensitive to the assumptions made around existing uptake and the growth in uptake over time. The assessments of the impacts has not taken into account other policies, such as Feed in Tariffs and Renewable Heat Incentives which will affect uptake of these technologies and therefore provides a conservative estimate of the impacts. Further impacts have been monetised, but excluded from the above analysis, because they represent a transfer

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: -258,000	**Benefits: 272,000**	**Net: 272,000**	Yes	OUT

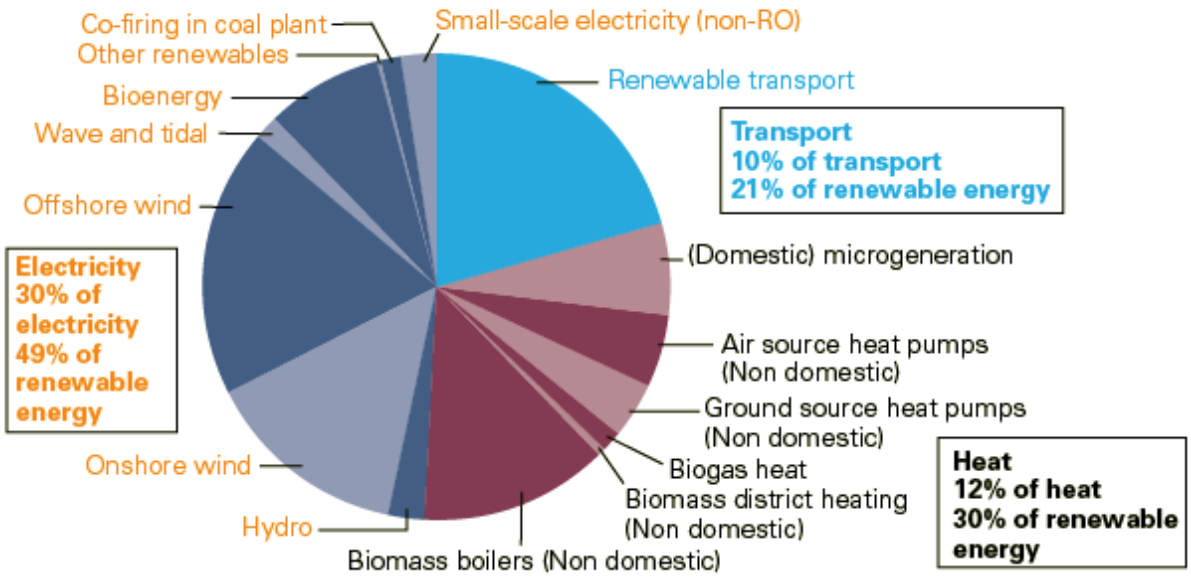
Evidence Base (for summary sheets)

The Government has set out its intention to promote the uptake of green energy in its programme for government:

The Government believes that climate change is one of the gravest threats we face, and that urgent action at home and abroad is required. We need to use a wide range of levers to cut carbon emissions, decarbonise the economy and support the creation of new green jobs and technologies. We will implement a full programme of measures to fulfil our joint ambitions for a low carbon and eco-friendly economy.

One of these levers is to promote the uptake of small scale renewable energy and low carbon technologies. The chart below from the UK Renewable Energy Strategy gives an illustrative breakdown of the final shares of different types of renewable technology in 2020 and shows that non-domestic microgeneration will play an important part in meeting the Government's goal of delivering 15% of energy from renewable sources by 2020.

Illustrative mix of technologies in lead scenario, 2020 (TWh)



Source: DECC analysis based on Redpoint/Trilemma (2009), Element/Pöyry (2009) and Nera (2009) and DfT internal analysis

The planning system and microgeneration

The planning application process can be a disincentive to the uptake of microgeneration technologies - the costs and time of making a planning application can be seen as a barrier by some people and on the margin can make projects financially unviable. The work and cost involved in applying for planning permission can sometimes be disproportionate to the scale and impact of what is being proposed. The current planning application fee for non-domestic development is likely to be around £550 [1], but the total costs of making a planning application are higher than this once the costs of producing scaled drawings, the time and effort in filling in the application form, and the 8 week waiting period for a decision, are factored in.

Current position

Presently, the installation of ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions systems and associated waste and fuel stores (agricultural and forestry) on non-domestic premises is likely to require an application for planning permission, with an associated fee and other costs payable by the applicant. The requirement for planning permission is seen as one of the

[1] DCLG – Planning Costs and Fees – November 2010 (http://www.communities.gov.uk/documents/planningandbuilding/pdf/1769333.pdf)

disincentives to take up of these technologies. An outcome is that society forgoes the benefits that renewable energy can bring.

Proposal

It is proposed to grant permitted development rights for these technologies on non-domestic premises, subject to conditions and limitations designed to limit potential impacts on third parties. The proposals have been informed by the results of extensive research, consultation with the microgeneration industry, local authorities and the general public. We have also held extensive discussions within Government (notably with Department for Energy and Climate Change (DECC) and the Department for the Environment, Food and Rural Affairs (Defra).

Work undertaken in 2008 by Entec Ltd on behalf of the Department for Communities and Local Government (DCLG), looking at the scope for extending permitted development rights to renewable energy and low carbon technologies on non-domestic premises, has also informed the proposals and this impact assessment.

Rationale for Intervention

The Government wishes to promote measures to address the issue of climate change and avoid the substantial costs this would impose on society. One measure that can contribute towards this goal is to incentivise the take up of small-scale renewable energy by removing the associated costs and burdens, which include the requirement to submit a planning application for approval by the local authority. This can be done by granting permitted development rights for installations of microgeneration equipment. Increased demand will promote increased investment in research and development by the industry and this will lead to improved technologies. As the market for these products grows, economies of scale could lead to reductions in price which in turn will stimulate further uptake of renewable energy technologies.

Objectives

The measures meet a number of objectives

- They encourage the uptake of microgeneration on non domestic premises by removing the requirement to submit a planning application to the local planning authority.
- They contribute to the Government's commitments on renewable energy and carbon reductions.
- They represent a deregulatory initiative that will reduce bureaucracy in the planning systems and ease the administrative burden on business and communities.
- They deliver greater consistency by bringing the permitted development rights for non domestic premises into line with freedoms available for domestic properties

Options

Two options are considered in this 'final proposal' stage impact assessment:

- Option 1 – Do nothing : do not introduce permitted development rights for installations of ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions systems and associated waste and fuel stores (agricultural and forestry) on non-domestic premises.

- Option 2 – Grant permitted development rights for installations of ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions systems and associated waste and fuel stores (agricultural and forestry) on non-domestic premises.

The second option is preferred as it would meet the policy objectives outlined above. A wider range of options were considered and rejected at earlier stages of policy development but are not included in the scope of this impact assessment.

Consultation
The proposals which we intend to take forward into legislation have been informed by the need to encourage take up of renewable energy as part of our wider response to climate change and take account of the responses to the 2009 consultation[2] on permitted development rights for microgeneration installations (which are reflected in the impact assessment where appropriate). They have been developed in consultation with other Government departments, in particular DECC and Defra.

Sectors and groups affected
The sectors most likely to be affected by the proposal are:

- Those businesses and other organisations (including community and third sector organisations) wishing to purchase and install ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions systems and associated waste and fuel stores (agricultural and forestry) on non domestic premises (particularly those who are encouraged to do so through reduced planning costs).
- Manufacturers, installers, and retailers of ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions systems and associated waste and fuel stores (agricultural and forestry) (who will benefit from greater demand as disincentives to take-up are removed).

There may also be secondary effects to:

- Planning services/staff at local authorities who will have increased certainty as to what is acceptable without the need for an application for planning permission.
- Third parties who live or work in the vicinity of new installations may be affected.
- Society more widely is likely to benefit from reduced carbon emissions as well as potential improvements in energy security.
- Non-renewable energy suppliers who may experience reduced demand for their energy as further disincentives to the take-up of renewables are removed.

Cost-Benefit Analysis

Option 1 - 'Do nothing' scenario
There will be no additional costs or benefits from not reforming permitted development for microgeneration. The planning application process would continue to be a disincentive to the take-up of ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions systems and associated waste and fuel stores (agricultural and forestry) on non-domestic premises. Those communities and organisations wishing to install these technologies on non-domestic premises would continue to pay planning fees and the administrative costs of making a planning application, and these costs may deter greater uptake which will prevent the carbon savings associated with Option 2 coming about. This in turn will compromise the effectiveness of Government renewable and low-carbon energy initiatives and impact upon national carbon reduction targets.

For the purposes of the subsequent analysis, we assume that the number of planning applications in future will broadly move in line with economic growth (using Office for Budget Responsibility forecasts[3]).

Table 1: *Planning applications for renewable technologies in the years 2012 to 2021 in the do nothing scenario*

Year	Solar	Heat Pumps	Biomass	Total

[2] DCLG - Permitted development rights for small scale renewable and low carbon energy technologies, and electric vehicle charging infrastructure : Consultation (http://www.communities.gov.uk/documents/planningandbuilding/pdf/microgenelectriccars.pdf)

[3] Latest GDP forecasts (Office for Budget Responsibility), March 2011.
http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook-march.html

2012	121	6	29	155
2013	124	6	29	160
2014	128	6	30	164
2015	131	6	31	169
2016	135	7	32	173
2017	138	7	33	178
2018	142	7	34	183
2019	146	7	35	188
2020	150	7	35	193
2021	154	8	36	198

Option 2 - Grant permitted development rights

In making the assessment of costs and benefits it is important to distinguish between planning applications that would have happened under the "do nothing" scenario, and those cases where this policy change, that is, the introduction of new permitted development rights, would lead to greater uptake of micro generation technologies. We identify and describe all sources of costs and benefits below and have attempted to quantify these and express them in monetary terms wherever this is possible given available evidence.

Outline of benefits:

i) Reduced application fees and administrative cost for applications that will now fall under permitted development rights

- Businesses and other organisations will make savings from submitting a reduced number of planning applications: reductions in fees and administrative costs related to making a planning application. Community and third sector organisations, where there is greatest risk of the planning fee and other costs of making an application serving as a disincentive to take up, will benefit in particular. Savings on these costs will allow community resources will be able to be spent elsewhere with additional benefits to society generally. Local planning authorities who will no longer need to assess planning applications will also see administrative costs fall. Savings will be made in the case of applications that would otherwise have been required in the counterfactual (where permitted development rights did not extend to micro generation) but that no longer need planning permission, i.e. those that would have occurred even without the policy change. These savings have been **monetised.**

ii) Reductions in carbon and other costs from additional applications that are made as a result of permitted development rights being amended

- Carbon savings are expected to stem from the additional microgeneration units installed when the disincentive to uptake is removed, benefiting society at large. This applies to additional renewable applications submitted as a result of the policy change i.e. those that would not have occurred in the counterfactual. These savings have been **monetised**.

- Energy cost savings from additional microgeneration units installed due to the removal of the disincentive to uptake. These have not been included in the monetised costs and benefits in the final stage impact assessment as they are likely to be largely offset by the expense of purchasing and installing the micro generation equipment (given that the policy is likely to lead to an increase where the private benefits are currently marginal). These savings have **not been monetised**.

- Firms involved in the manufacture, installation or retailing of ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions systems and associated waste and fuel stores (agricultural and forestry) will benefit from increased sales and revenues as demand for microgeneration units increases. These benefits to 'green' firms will be offset by reductions in

revenues for suppliers of conventional energy and represent a transfer of resources rather than a net economic benefit. However this redistribution of revenues should provide incentives for firms to invest in the development of new technologies for non-domestic use which may be of benefit to society more widely. It can be argued that the policy removes regulation that creates friction in the market and that as production of micro generation equipment increases in response to demand, economies of scale may allow cheaper production with reduced embodied energy costs. These benefits are **not monetised**.

- Society may also benefit from greater energy security. Small scale renewable energy production can contribute positively towards renewable energy targets, increasing the overall stock of UK energy supply. There are benefits to society from installations on community buildings such as village halls that may raise awareness of renewable energy and climate change issues amongst communities. These benefits are **not monetised**.

Outline of costs:

iii) Cost to third parties from installations and local authorities from additional applications that are made as a result of permitted development rights being amended

- There may be costs to third parties living in the vicinity of new microgeneration equipment as a result of impacts of the installations. Local planning authorities might also incur costs investigating complaints. The permitted development right limitations and conditions that are proposed are designed to minimise the impacts that permitted technologies may have on neighbouring properties and the wider environment and experience from permitted development rights introduced for domestic installations in 2008 suggests that numbers of complaints will be very small indeed. The damage costs of emissions resulting from the installation of additional biomass units are **monetised** in this impact assessment. Other impacts on third parties are **not monetised**.

- Local authorities may also face an increased number of enquiries relating to whether new installations are acceptable and meet the limitations and conditions laid out in the permitted development rights. Given that local authorities currently respond to queries on the requirement for planning permission, it is considered that local authorities should be able to meet these enquiries with their existing resources and adjust standard communications (i.e. websites) to deal with enquiries more efficiently, and therefore there would be no net additional costs.

- Those wishing to install units may want to apply for certificates of lawful development to confirm that an installation is lawful. A lawful development certificate application is voluntary and will not result in every case. The extent to which this might happen is unknown. These applications attract a fee, but as they are voluntary it is for the consumer to weigh up whether the fee cost is worth the benefit (i.e. the certificate). These costs (and the associated benefits) have **not been monetised.**

Monetised benefits and costs

Uptake of Microgeneration Technology

<u>Baseline uptake</u>
Data relating to existing uptake of micro generation technologies has been used to estimate the number of planning applications each year that would no longer be required as a result of non-domestic installations of ground and water source heat pumps, solar panels, flues for biomass and combined heat and power systems, and structures to house biomass boilers, hydro turbines, anaerobic digestions systems and associated waste and fuel stores (agricultural and forestry) being granted permitted development rights.

In order to do this, a survey of the number of applications submitted by technology type was conducted by Entec. The results for 17 local authorities in England have been used to estimate the number of planning permissions that will be affected by the policy change. The sample contains local authorities from across England in both rural and urban areas but may not be fully representative of all local authorities in England.

The number of applications in the sample was then divided by the number of total planning applications in each authority[4] to calculate the proportion of all applications that relate to each technology type. The average proportion of permissions for each technology type across the sample was then multiplied by the total number of planning applications in England to give an estimate of the baseline number of planning applications which will be affected by the change in policy. This estimate was up-rated in line with the Office for Budget Responsibility forecast for economic growth to provide figures for each year of the 10 year appraisal period. Entec did not provide information about anaerobic digestion systems and therefore costs and benefits relating to these types of installations have not been quantified.

Not every new microgeneration unit installation will meet the requirements to constitute "permitted development" after the legislative change but we have reason to expect that many will. Consumers will have an incentive to choose microgeneration units that are classed as permitted development in order to save planning costs. Thus the proportion of microgeneration units that meet the requirements over time should increase as manufacturers adapt to meet the permitted development parameters.

To acknowledge the uncertainty surrounding this issue we consider 3 scenarios for permitted development. For our high scenario, the proportion of microgeneration units that meet requirements to constitute permitted development has been assumed to increase from 75% to 100% over the assessment period. For the low scenario, the proportion has been assumed to increase from 50% to 75%. The central proportion assumed is the mid point between these ranges with 62.5% increasing to 87.5% coverage. Assumptions on take up are the same as those included in the consultation impact assessment – which the majority of those responding on this issue agreed are reasonable.

These scenarios imply that in the first year following the coming into force of the legislation (taken to be 2012 for modelling purposes), the number of applications that would be removed from the planning system as a result of new permitted development rights would be approximately 79 under the low scenario and 119 under the high scenario. These refer only to those applications that that would have occurred anyway, in the 'do nothing' scenario. Table 2 shows the estimated number of reductions in applications for each type of technology that would be affected between 2012 and 2021 under both low and high scenarios.

[4] The number of non householder applications per English planning authority is collated and published by CLG. See http://www.communities.gov.uk/planningandbuilding/planningbuilding/planningstatistics/developmentcontrolstatistics

Table 2: *Total number of applications that would have been made in the absence of permitted development rights that will now fall under permitted development rights under all scenarios 2012-2021*

		Solar	Heat pumps	Micro combined heat and power	Biomass
Option 2	Low	864	43	23	204
	Central	1,035	51	27	245
	High	1,206	60	32	285

The main aim of the policy is to incentivise further up-take of non-domestic renewable technologies, which we move on to next.

Additional uptake

Removing a disincentive to the installation of these renewable technologies, i.e. reducing the effective cost to businesses and other organisations, will also mean that uptake of these technologies is greater than it would have been under the "do nothing" scenario.

The planning application process is of course not the only disincentive to greater uptake of renewable technologies. A report by the Energy Savings Trust for DTI[5] which was based on a survey of 395 stakeholders indicated that the most important barrier to uptake was the high cost of technology (identified by 61% of respondents). Asked to identify the next major barrier to uptake, 43% then identified legislation and regulation constraints. While this report looks primarily at the domestic sector, comparisons can be drawn with the non-domestic sector for the purposes of illustrating barriers to growth.

However it is unlikely that the planning system provides the sole legislative/regulatory disincentive. Three growth scenarios are envisaged: the low scenario assumes increase in uptake of 2% per annum whilst the high scenario projects an increase of 5% per annum as a result of the extension of permitted development rights to this type of development. A central assumption of a 3.5% increase per annum as a result of the extension of permitted development rights is used for the best estimate. Consultation responses (2009 consultation) found that the majority of respondents (68%) considered that this growth estimate of uptake (between 2% to 5% annually) to be reasonable.

Table 3 shows the expected number of additional microgeneration units that would be installed as the introduction of new permitted development rights encourages increased uptake under the low growth scenario and the high growth scenario. The proposal leads to approximately 219 extra units under the 2% growth scenario, and an extra 602 units under the 5% growth scenario.

Table 3: *Estimated total growth in the uptake of the different microgeneration technologies between 2012-2021*

	Growth in take up	Solar	Heat pumps	Micro combined heat and power	Biomass
Option 2	2%	167	8	4	39
	3.5%	306	15	8	72
	5%	459	23	12	109

Note: Due to rounding, applications by type may not sum to quoted total

[5] Potential for Microgeneration Study and Analysis, http://www.berr.gov.uk/files/file27558.pdf

Savings for applicants from reduced cost of planning applications

In making a planning application the applicant incurs the following costs:

- Direct cost: the planning application fee.
- Indirect costs: transaction costs such as professional fees, production of scaled drawings, time spent compiling and presenting information etc.

If the requirement to seek planning permission were removed these costs would no longer be incurred. The saving per application would be as follows:

- The planning application fee will vary depending on the site size. An average planning fee of £550[6] for minor applications has been calculated previously by DCLG and has also been used for the estimates of benefits made here.
- The average (estimated) administrative cost is £1450[7].

This produces an estimated total saving of £2000 per installation. This cost can be a particular disincentive for community and third sector groups, where upfront funding for projects can be difficult to secure.

Table 4 below sets out estimates of the average annual savings from the reduced number of planning applications. These projections are based on the estimated savings in terms of application fees and administrative costs. The low end estimate is based on the number of planning applications saved under the assumption that in 2012, 50% of installations would fulfil the requirements to be permitted development. The high end estimate is based on the number of planning applications saved when that assumption is raised to 75%.

Table 4: *Estimated average annual savings from the reduced number of planning applications*

Fee and Admin Savings	Low	Central	High
Average annual (£)	227,000	272,000	317,000
10 Year Present Value (£m)	1.8	2.2	2.6

Savings for local authorities from administration of planning applications

Local authorities will benefit from a reduced number of planning applications, freeing-up resources to be employed elsewhere. However, they will also now not receive the fee income associated with having to assess the planning applications that they previously would have received. In practice it is likely that local authorities do not achieve full cost recovery from levying planning fees and so some administrative savings will arise. These administrative savings are estimated at around 10-15%[8] of fee costs. If the fee is £550[9], the average annual administrative savings to local planning authorities are estimated to range from £6,000 to £13,000.

Savings for society from reduced carbon emissions

[6] DCLG – Planning Costs and Fees – November 2010 (http://www.communities.gov.uk/documents/planningandbuilding/pdf/1769333.pdf)

[7] Based on the PwC Administrative Burdens Measurement Project. The transaction cost of a minor application was calculated as £1450.

[8] Planning Costs and Fees Report (November 2010) – Arup for DCLG (http://www.communities.gov.uk/publications/planningandbuilding/planningfeesreport)

[9] DCLG – Planning Costs and Fees – November 2010 (http://www.communities.gov.uk/documents/planningandbuilding/pdf/1769333.pdf)

Microgeneration provides a more environmentally sustainable form of energy production than non-renewable sources. It has been possible to calculate the potential carbon savings from the increases in take-up. A number of assumptions have been made in the calculation:

- The increase in take-up was estimated according to the methodology described above leading to 2%, 3.5% and 5% annual growth.

- Potential savings in gas and electricity were then calculated on the basis of a range of typical electricity and gas consumption provided by Entec. Energy consumption is likely to vary substantially according to the type of non-domestic use and we consider three scenarios. Low scenario energy consumption has been estimated based on land uses such as warehousing, while the high scenario energy consumption has been based on non-domestic uses such as hospitals and schools. The variation in typical energy consumption leads to a very wide range in the estimate of carbon savings. Table 5 shows the energy consumption assumed for low, central and high scenarios.

Table 5: *Energy consumption scenarios per applicant*

Energy Consumption	Low	Central	High
Electricity (kWh)	40,000	345,000	78,000
Gas (kWh)	650,000	2,039,000	4,000,000

- Different technologies will lead to different energy savings. Table 6 shows the estimated saving associated with the different technologies based on the professional experience of the consultants. Note that air source heat pumps use grid electricity in their operation but would be able to meet all of a household's heating and hot water requirements.

Table 6: *Percentage energy savings associated with different microgeneration technology*

Energy	**Solar thermal**	**Solar photovoltaics**	**Heat pumps**	**Micro combined heat and power**	**Biomass**
Electricity	0%	40%	-30%	20%	0%
Gas	60%	0%	100%	-15%	70%

- The savings in average energy use were calculated for each technology and the DECC emission factor applied to estimate the consequent reduction in carbon (in tonnes).

- These reductions in carbon emissions are converted into monetary savings using DECC value for traded carbon as energy generation is in the EU Emissions Trading Scheme [10].

Table 7 shows the average annual carbon savings for the proposal based on the assumptions above when compared with Option 1 ("do nothing"). The low scenario in this case takes the estimated number of extra units installed given the low scenario of 2% increase in uptake of micro generation technologies p.a. and the low consumption values for each fuel (see bullet above). The central and high scenario uses the same approach assuming the central and high growth in extra units installed and the central and high consumption values for each fuel.

[10] http://www.decc.gov.uk/en/content/cms/about/ec_social_res/iag_guidance/iag_guidance.aspx

Table 7: *Estimated annual carbon savings*

Savings	Low	Central	High
Average annual saving (£)	3,000	140,000	412,000
10 Year present value (£)	26,000	1,086,000	3,186,000

The 10 year present value figures above underestimate potential greenhouse gas savings as an appraisal period of 10 years has been used – however the lifespan of most microgeneration equipment will be much longer. This assessment does not take into account the cost of embodied energy due to there being insufficient evidence on the embodied costs of different microgeneration technologies.

Costs to society relating to emissions from biomass technology (air quality)

Biomass installations emit nitrogen oxides and particulate matter. The assumptions made in the calculation of the costs are as follows:

- The costs are calculated for the extra biomass units installed as a result of the change in planning policy under all three growth scenarios.

- The emissions are calculated assuming 45kw/h output running at 100% capacity for 24 hours a day, 365 days a year. Units with a 45kw/h output are the largest units that will be allowed under the permitted development regulations, so assuming output at this level for all the extra units, these calculations may overestimate the costs.

- The damage costs associated with these emissions were from the AEA report as used in the consultation impact assessment.

- Although biomass units have an expected lifetime of 20 years, estimates of damage costs have been made for the 10 year period 2012 to 2021. This will underestimate the costs over the lifetime of the units.

Table 9 *Average annual cost of emissions from biomass technology under low and high growth assumptions (between 2012 and 2021)*

Costs	**Low**	**Central**	**High**
Average annual cost (£)	9,000	16,000	24,000
10 year present value (£)	69,000	126,000	189,000

Costs to local authorities:

The proposed permitted development rights would allow renewable energy technologies to be installed without the need to obtain planning permission from the local planning authority. This will have the effect of reducing workloads for planning departments but this reduction will be offset in cost terms by the loss of the fee for the planning application that is no longer required.

Further costs to planning departments may arise from a breach of the conditions or limitations of the permitted development rights which require the planning authority to investigate complaints or initiate enforcement. Planning officers may become involved in enforcement activity, although we think that the greater clarity provided by setting out limits and conditions for permitted development should reduce the need for enforcement activity generally. The Government expects complaints to be few in number because the limitations and conditions are designed to minimise the impacts of the technologies. Permitted development rights were introduced in 2008 for domestic installations of solar panels, ground and water source heat pumps, and flues for biomass and combined heat and power systems. Experience from these permitted development rights also suggests that complaint levels will not be significant in number.

On balance, it is considered that local authorities should be able to meet their planning enforcement requirements through their existing enforcement teams.

No information exists how many appeals there have been relating to these technologies. It is, however, expected that the provision of clear permitted development standards will provide the certainty that is needed to ensure that the number of appeals will not grow commensurately with the expected uptake of new technologies commences. This too will help to offset any increased costs on local authority environmental health departments.

There may be an increased number of enquiries by individuals relating to whether new installations are acceptable and meet the conditions laid out in the permitted development rights. This could impose some administrative costs on local planning authorities in terms of dealing with these queries. However, even in the absence of these permitted development rights, the local planning authority would receive pre-application enquiries regarding their policies on the technologies concerned and their views of development proposals. It is therefore considered that the permitted development rights would result in a transfer of resources from dealing with planning application queries to permitted development rights' queries that will broadly net out overall.

Sensitivity Tests

The magnitude of the costs and benefits is affected by the assumptions made about the number of existing applications that are covered by the introduction of permitted development rights. This assumption does not affect the relativity of costs and benefits, therefore an increase (or decrease) in the number of applications covered will simply increase (or decrease) the costs and benefits proportionately.

Similarly, the percentage growth of micro generation as a result of permitted development rights will vary the scale of the associated costs and benefits. However, these will remain in proportion to those given in this impact assessment.

Future uptake not due to permitted development policy proposal

As well as the proposed new permitted development rights in the planning system, there are two other new policy initiatives which will encourage the uptake of microgeneration technologies – Feed in Tariffs and the Renewable Heat Incentive. Under the "do nothing" option, there may therefore be some increased installation of microgeneration units as a result of Feed in Tariffs and the Renewable Heat Incentive making it more attractive to take-up renewable technologies. Availability of incentives and perceived viability of an installation may vary depending on technology and the specific land use. Without more information on this we have not included the impact in the baseline figures.

Carbon Values

Department for Energy and Climate Change traded carbon values have been used to assess the impact of a variation in carbon values. Table 11 shows the impact of DECC low, central and high carbon prices. This significantly changes the carbon savings, varying between £72k and £180k annually and, therefore, significantly affects the overall present value benefit (£3.1m - £4.0m). Additionally some carbon benefits are counterbalanced by the increased damage costs resulting from increased biomass usage.

Table 11: *Impacts of Low, Central and High Carbon values*

Carbon Values	Average Annual (£)	Total Present Value Benefit (£m)	Net Present Value (£m)
Low	72,000	3.1	3.0
Central	140,000	3.7	3.6
High	180,000	4.0	3.8

Planning Fee and Administration Cost Savings

The total benefit and net present value of the permitted development rights are sensitive to value of the planning fee and administration cost of preparing an application. Table 12 shows the central planning fee and a 10% reduction and increase. This varies the total present value benefit by £0.5m. The savings is affected by total application numbers and currently represents around 90% of average annual benefits.

Table 12: *Impact of low, central and high planning fees and administration costs*

Planning Fee and Admin Cost	**Average Annual (£)**	**Total Present Value Benefit (£m)**	**Net Present Value (£m)**
Low	245,000	3.4	3.3
Central	272,000	3.7	3.5
High	299,000	3.9	3.8

Uptake by technology type

The analysis assumes that the growth in applications that results from the introduction of permitted development rights retains the proportional spilt across Solar Thermal, Solar photovoltaics, Heat Pumps, Micro combined heat and power and Biomass technologies as shown in Table 2. A variation of this split would result in changes to the net carbon emissions and net damage costs because of the affect on energy consumption, as shown in Table 6. Using the central scenario (best estimate) for all assumptions but assuming all applications are for the least beneficial technology, biomass, reduces the net present value of the option. If all additional applications are biomass there are carbon savings but these are offset by large increases in air quality damage costs. Under this highly pessimistic assumption the net present value remains positive at £3.3m.

One In One Out:
This policy is deregulatory and will therefore accrue savings for businesses wishing to install microgeneration technologies. It is classified as an OUT for One in One Out purposes.

The costs of the introduction of permitted development rights for non domestic micro generation are born by society in the form of increased damage costs from the use of biomass technology. There are no direct costs to business.

The benefits that accrue to business are the savings in planning fees and administration costs for all non domestic micro generation applications that will now be covered by permitted development rights.

Table 13: *Cost to business*

Equivalent Annual Net Cost to Business (£)	0
10 year net present value (£m)	3.3

Specific Impact Tests

Statutory equality duties:
We have undertaken an equalities impact screening and have not identified any adverse impacts upon equalities.

Small firms impacts:
There may be positive impacts for small firms involved in the manufacturing or installation of microgeneration units. In addition small firms involved in the supply chains of these firms could benefit. Suppliers of conventional energy, who may lose out from the policies, tend to be large firms.

Competition impacts:
An assessment of the potential competition effects of the options has been undertaken. The main conclusions that can be drawn are that:

- Non domestic energy electricity and gas are supplied mainly by large energy supply companies. The preferred option is likely to have relatively negligible affects on their operations. If take-up of non domestic microgeneration were to rapidly increase, however, this may potentially result in increasing activity in this sector from such companies (indeed, a number of major energy supply companies are already active in the microgeneration industry). Furthermore, increased take-up of microgeneration may provide price competition with the more conventional fossil fuels.

- Fewer restrictions to planning regulation are likely to make microgeneration products more competitive and may stimulate greater demand for their products. This is turn may allow these companies to benefit from economies of scale in their production techniques with greater mechanisation and worker productivity. The result may be a reduction in costs to microgeneration products which in turn may stimulate further demand.

- It is possible that more short term research and development and efforts will be focused on smaller scale renewable technologies rather than creating efficient and affordable larger scale technologies. This may affect the achievement of renewable energy targets depending on the level of take-up of smaller scale microgeneration technologies.

- Fewer planning restrictions may reduce barriers to market entry for new businesses. Smaller microgeneration manufacturers may face a more favourable environment compared to the current situation. However, existing firms which are already more efficient in their production methods may be able to create barriers to entry through competitive pricing (thereby reducing the profitability of entry).

Greenhouse gas assessment and wider environmental issues:
There are carbon savings from reduced emissions, increasing as uptake increases. However, fuel savings for heat pumps can be affected by the price of the fuel being replaced and the price of the electricity used for powering the heat pump.

Conditions and limitations in the permitted development rights have been designed to limit wider environmental issues.

Rural proofing:
Microgeneration equipment could potentially impact on the quality and character of the natural and built rural landscape. Conditions and limitations in the permitted development rights have been designed to limit visual impact.

Health impacts:
No impacts

Implementation
If these proposals are adopted, permitted development rights would be granted through an amendment to the Town and Country Planning (General Permitted Development) Order 1995.

Monitoring
The Green Energy (Definition and Promotion) Act 2009 commits the Government to reviewing the operation of permitted development rights for installations of certain microgeneration technologies as soon as reasonably practicable after 1 December 2013. As part of taking a holistic approach to the issue we propose to also look at the operation of these non domestic permitted development rights at this time – to broadly look at any issues that have come to our attention while the rights have been in force.

The objective of the review will be to consider the practical evidence that has been generated as a result of the implementation of these new rights, and to investigate what impacts the new regulations are having on the ground, and whether the conditions and limitations have been set at levels that are appropriate and proportionate.