Northern Ireland Planning Service

Regulatory Impact Assessment (RIA) for Permitted Development Rights (PDR) for Non-Domestic Microgeneration

Final Report

July 2009










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Northern Ireland Planning Service

Regulatory Impact Assessment (RIA) for Permitted Development Rights (PDR) for Non-Domestic Microgeneration

Final Report

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Entec UK Limited

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Executive Summary

This Regulatory Impact Assessment (RIA) is a statutory requirement for policy appraisals of a significant size. This RIA provides a policy appraisal of recommendations set out in the report titled "*Review of Permitted Development Rights for Non-domestic Small Scale Renewable Energy Development*". The report sets out several recommendations for the extension of permitted development rights for microgeneration technologies. The RIA contains a cost benefit analysis of the recommendations using the following options:

- Option A: 'Do nothing' scenario – This is required in all RIAs undertaken for consultation. This option relates to the business as usual scenario where developers will continue to apply for planning consent for all non-domestic microgeneration technologies, in other words current trends of take up are expected to continue.

- Option B: All recommendations scenario. This would comprise of the implementation of all recommendations set out in the report.

- Option C: 'Partial recommendations' scenario which would involve adopting some of the recommendations from the report. This option would consider the adoption of all the recommendations with the exception of wind power, which would continue to require planning consent. Wind power is currently excluded as a precautionary approach taking into account potential noise and safety concerns (this is considered in more detail later in this RIA).

Table 1 presents the annual net benefits of each policy relative to Option A (the BAU (Business as Usual) situation). The results show the estimated additional benefits minus the additional costs. The annual net benefit results are also separated by affected groups. The findings of the analysis is summarised below:

- Planning Service - The costs to the Planning Service are expected to be cost neutral. This is because it is assumed that the application fee is set equal to the costs of processing applications. Therefore any loss in revenue from application fees is equally offset by the avoided cost of processing applications. Non monetised impacts to consider are the potential resources that become available which can be used elsewhere in the Planning Service. Part of this might be taken up by dealing with additional complaints about microgeneration technology that are now permitted development (PD).

- Users of microgeneration that is now permitted development - Taking into consideration the purchase costs of the microgeneration technologies themselves, there are significant net benefits to the additional users (over the lifetime of the technology), who decided to install a microgeneration technology as result of extensions to the permitted development rights (PDR). These benefits include fuel savings and the avoided cost of applications. There are also several non-monetised considerations such as the greater security over the supply of energy, less exposure to energy price fluctuations and creating a more "green" image for the user.

- Society – The monetised net benefits to society include the reduction in CO_2 emissions and the avoided damage costs from the generation of electricity from fossil fuel sources. Other non-monetised benefits include the greater awareness and demand for clean technologies. The main non-monetised

social costs are related to wind turbines (and biomass storage), which are perceived by some to be visually intrusive or may be affected by other visual aspects (e.g. size and shadows it may cause) or the noise from wind turbines. It is for this reason, that the RIA presents an option (Option C) where wind microgeneration still requires planning consent.

The results show that both options B and C result in positive monetised net benefits. It is estimated that over one year Option B will result in greater monetised net benefit to all affected parties relative to Option C, however over the time period 2009 to 2020 Option C would result in a greater monetised net benefit. This is because the assessed costs and benefits of greater uptake in microgeneration wind technology have been taken into account as a factor in option B with the difference between costs and benefits changing disproportionately over time with greater uptake. As uptake increases over time, the differences between costs and benefits increases because the payback period for microgeneration wind technology is longer than the policy period being analysed. Under option C there may be less non-monetised social costs to do with wind turbines, since these would still require planning consent.

Table 1 Annual net monetised benefits

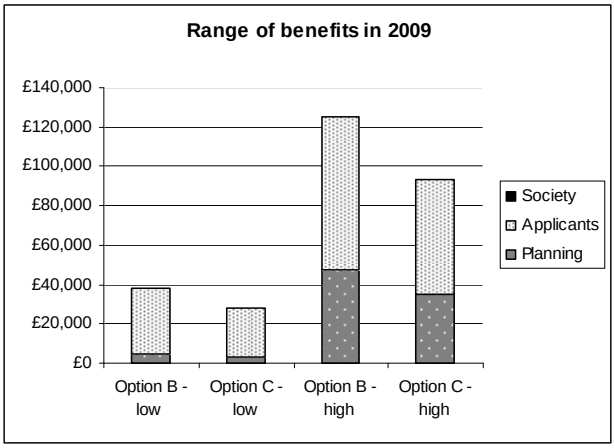
Option	Planning Service	Users	Society	Total
B	£0	£28,643 - £59,677	£41 - £175	£28,685 - £59,852
C	£0	£21,941 - £47,006	£30 - £94	£21,971 - £47,099

Table 2 Net monetised benefits over the period of 2009-2020

Option	Planning Service	Users	Society	Total
B	£0	£149,895 - £269,760	£2,959 - £12,947	£152,853 - £282,707
C	£0	£156,950 - £439,970	£2,210 - £7,353	£159,160 - £447,323

The figures in the graphs below summarise and compare the costs and benefits for options B and C. Both costs and benefits tend to be higher for option B than for option C over both one year and the time period to 2020.

Figure 1 Range of costs and benefits in 2009



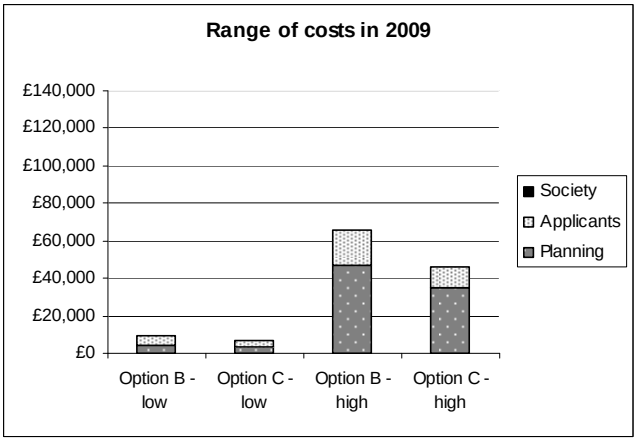
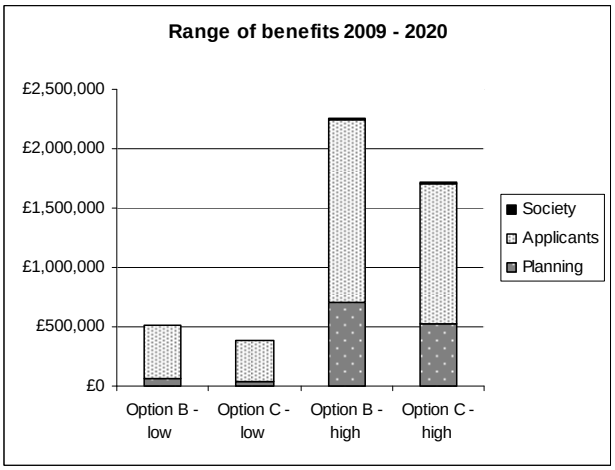
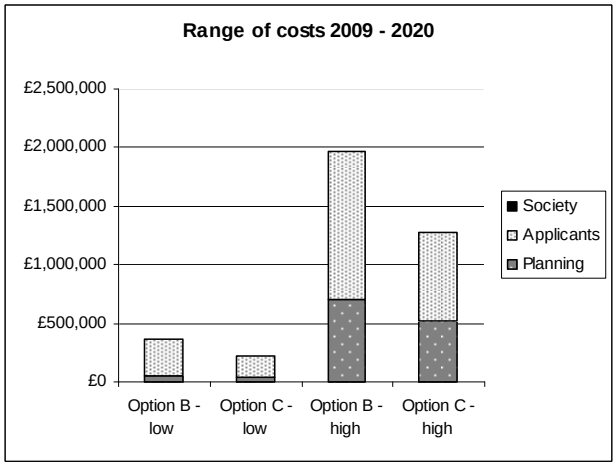


Figure 2 Range of costs and benefits in 2009 - 2020





Those costs and benefits that could not be reliably monetised (and not included in the graphs above) were qualitatively described in the relevant sections of this report. These impacts are listed in the table 3:

Table 3 Summary of non-monetised costs and benefits

Option	Non-monetised costs	Non-monetised benefits
B	Costs to Planning Services of dealing with complaints	Redistribution of resources previously spent processing applications
	Liability costs to applicants	Increased property value
	Wind power - Visual impacts to those in immediate vicinity related to size, height, colour, reflectivity and number of turbines	Reduced exposure to energy security and fuel price volatility for applicants
	Wind power - Annoyance to those in immediate vicinity caused by shadow flicker, noise and vibration	Improved green image to the applicant
	Biomass unit - Visual impacts relating to new boiler, flue or fuel store	Reduction in demand for non-clean technologies
	Embodied energy costs of microgeneration technologies to society	Stimulate innovation and research in micro-generation technologies
C	Costs to Planning Services of dealing with complaints	Redistribution of resources previously spent processing applications
	Liability costs to applicants	Increased property value
	Biomass unit - Visual impacts relating to new boiler, flue or fuel store	Reduced exposure to energy security and fuel price volatility for applicants
	Embodied energy costs of microgeneration technologies to society	Improved green image to the applicant
		Reduction in demand for non-clean technologies
		Stimulate innovation and research in micro-generation technologies

Contents

1. Purpose and Intended Effect of Measures

Objectives

As set out in the report titled *"Review of Permitted Development Rights for Non-domestic Small Scale Renewable Energy Development"* (hereafter referred to in this RIA as the 'report') microgeneration technologies are defined for both small scale renewable and low carbon equipment as "equipment that can generate electricity to power the needs of the non-domestic land use to which they apply, rather than be used for the commercial generation of electricity. These technologies include solar, wind, biomass and CHP, hydro and heat pumps" (Entec UK 2009).

Article 3(1) of the *Planning (General Development) (Northern Ireland) Order 1993*[1] (the GDO) grants planning permission for the classes of development set out in Schedule 1. The classes describe the types of development that can be undertaken in Northern Ireland without requiring a planning application and are known as permitted development rights (PDR). Permitted development rights generally relate to minor building operations or land uses where the effects of the development on neighbours or the environment is likely to be small. Where PDR are not appropriate for a particular development, the developer can still apply for planning permission in the normal manner.

Rational for government intervention

The purpose and intended effects of changes to the PDR is set out briefly below:

- Contribute to reductions in greenhouse gas (GHG) emissions – It is hoped that removing some of the regulatory barriers to the uptake of microgeneration would help stimulate its use in the non-domestic sector. It is estimated that by 2050, microgeneration could provide 30-40% of the UK's electricity needs[2] with significant savings in GHG emissions.

- More security in energy supply – The UK is increasingly becoming a net importer of energy and is particularly dependant on imports of natural gas as North Sea reserves decline. Global supply of proven fuel reserves are also diminishing. This has resulted in above-inflation price rises in both gas and electricity. This is of particular interest in NI where there is a lack of indigenous energy sources and it is highly dependent on a finite supply of imported fossil fuels. The use of microgeneration provides greater security over energy supply and users should be less exposed to higher energy prices from suppliers who use fossil fuels.

- Reduction in costs to applicants – Making the PDR more favourable for those microgeneration technologies that have minimal impacts on neighbours and the environment, means that there are no

[1] Statutory Rule 1993 No. 278

[2] http://www.berr.gov.uk/files/file27558.pdf

longer the 'nuisance barriers' and direct (fees) and indirect costs (e.g. time) associated with applications.

2. Options

This section briefly describes the 3 policy options to be explored for the purposes of this Regulatory Impact Assessment (RIA). These options are based on the recommendations made in the work undertaken by Entec UK and presented in the report *Review of Permitted Development Rights for Non-Domestic Small Scale Renewable Energy Development: Policy Consideration* and do not include any actions beyond those recommended. For the purposes of considering what effect the extension of PDR may have on the uptake of non-domestic microgeneration technology in Northern Ireland, the policy options to be assessed are:

- Option A: 'Do nothing' scenario – This is required in all RIAs undertaken for consultation. This option relates to the business as usual scenario where developers will continue to apply for planning consent for all non-domestic microgeneration technologies, in other words current trends of take up are expected to continue.

- Option B: All recommendations scenario. This would comprise of the implementation of all recommendations set out in the report.

- Option C: 'Partial recommendations' scenario which would involve adopting some of the recommendations from the report. This option would consider the adoption of all the recommendations with the exception of wind power, which would continue to require planning consent. Wind power is excluded as a precautionary approach taking into account potential noise and safety concerns (this is considered in more detail later in this RIA).

The recommendations for each technology, as outlined in the 'report' (Entec UK 2009) are summarised in table 2.1 below.

Table 2.1 Summary of permitted development recommendations for non-domestic uses

Generic permitted development recommendations for all microgeneration permitted development	
Energy production	• Microgeneration equipment installed under permitted development must be primarily for the purpose of providing heat or electricity within the agricultural unit or building curtilage in which it is erected or, in the case of solar or wind microgeneration only, to provide commensurate energy for a development undertaken by statutory undertakers or others carrying out development permitted under Part 13 of the GDO or carried out by Road Service Northern Ireland
Disused equipment	• Microgeneration equipment installed under permitted development that will no longer be used for the purpose for which it was installed should be removed as soon as reasonably practicable, and, where appropriate the land restored to its condition before the development took place

Solar panel permitted development recommendations	
Roof mounted solar panels	• For pitched roofs panels must not exceed the highest part of the roof and, where facing onto and visible from a road, must not protrude more than 20cm from the roof plane • Maximum height of 2m for panels mounted on flat roofs • Minimum of 2m from edge of roof for panels mounted on flat roofs • Panels must not exceed the boundary of the existing roof • No permitted development for panels erected in a Conservation Area, AONB, National Park or World Heritage Site where panels face onto and are visible from the road • Not permitted development within the curtilage of a Listed Building unless Listed Building Consent for the development has previously been granted
Wall mounted solar panels	• Panels must not exceed the boundary of the existing wall • Where any part of a solar panel fitted to a wall within 3m of the boundary of the curtilage extends above 4m in height, panel should not extend more than 20cm beyond the plane of the wall • No permitted development for panels mounted on walls that face onto and are visible from a road in a Conservation Area, AONB, National Park or World Heritage Site • No permitted development within the curtilage of a Listed Building unless Listed Building Consent for the development has previously been granted
Free standing solar panels	• Maximum height of 2m • Maximum surface area of $20m^2$ for free standing solar panels erected under permitted development within the curtilage of a building or in an agricultural unit • Minimum of 5m from boundary of building curtilage or agricultural unit • No permitted development for panels erected in an AONB, National Park, World Heritage Site or Conservation Area where panels face onto and are visible from the road • No permitted development in an Area of Special Scientific Interest or Site of Archaeological Interest • No permitted development within the curtilage of a Listed Building unless Listed Building Consent for the development has previously been granted

Wind turbine permitted development recommendations	
Building mounted wind turbines	No permitted development for any building mounted wind turbine until issues on noise, vibration, health and aircraft safety and other critical communications systems are resolved. If these can be agreed satisfactorily we recommend the following restrictions on permitted development: • Maximum height to blade tip of 3m above the highest part of the roof • Maximum blade diameter of 2.5m for horizontal axis wind turbines and maximum swept area of $5m^2$ for vertical axis wind turbines • Maximum of one turbine with permitted development on a single building • No permitted development for turbines which extend over a road or publicly accessible open space • No permitted development in an AONB, National Park, World Heritage Site or Conservation Area where mounted on a principal or side elevation that faces a road • No permitted development in an Area of Special Scientific Interest • No permitted development within the curtilage of a Listed Building unless Listed Building Consent for the development has previously been granted

Wind turbine permitted development recommendations	
Free standing wind turbines	No permitted development for any free standing wind turbine until issues on noise, vibration, health and aircraft safety and other critical communications systems are resolved. If these can be agreed satisfactorily we recommend the following restrictions on permitted development: • Maximum height to blade tip of 15m • Maximum blade diameter of 6m for horizontal axis wind turbines and maximum swept area of 28m^2 for vertical axis wind turbines • Minimum of 17m from the boundary of building curtilage or agricultural unit and from any road • Bottom of blade must be a minimum of 5m above ground level • No permitted development within an AONB or National Park unless the wind turbine is located within 50m of the building or group of buildings which will utilise the electricity being produced by the turbine • No permitted development in a Conservation Area, World Heritage Site, Area of Special Scientific Interest or Site of Archaeological Interest • No permitted development within the curtilage of a Listed Building • Maximum of one turbine with permitted development within the curtilage of a building or in an agricultural unit

Hydro permitted development recommendations	
In stream works	• No permitted development for in-stream works
Turbine house	• Maximum of 3m in height • Maximum floor area of 10m^2 • Development must be located at least 5m from the building curtilage and not nearer to any road which bounds the curtilage than the part of the existing building nearest to that road • No permitted development in a Site of Archaeological Interest, Area of Special Scientific Interest, Conservation Area or World Heritage Site. • No permitted development within the curtilage of a Listed Building unless Listed Building Consent for the development has previously been granted

Biomass, CHP and Anaerobic Digestion permitted development recommendations	
Biomass and CHP boiler room	• Maximum floor area of 10m^2 for buildings with a floorspace of up to 1000m^2 • Maximum floor area of 75m^2 for large non-domestic buildings with a floorspace of 1000m^2 or more • Must not exceed 3m in height • Development must be located at least 5m from the boundary of the property and not nearer to any road which bounds the curtilage than the part of the existing building nearest to that road • Flue must not exceed 1m in height above the highest part of the roof of the boiler room • Maximum of one extension or new building to contain a biomass or CHP boiler within a building curtilage or agricultural unit to be permitted development • Fuel should not include products derived from animals or animal wastes other than those biomass and CHP boilers in agricultural holdings, or wood containing dangerous substances • No permitted development in a Site of Archaeological Interest or Area of Special Scientific Interest • No permitted development within the curtilage of a Listed Building unless Listed Building Consent for the development has previously been granted
Biomass and CHP fuel store	• Maximum floor area of 10m^2 for buildings with a floorspace of up to 1000m^2 • Maximum floor area of 75m^2 for large non-domestic buildings with floorspace of 1000m^2 or more • Must not exceed 3m in height • Development must be located at least 5m from the boundary of the property and not nearer to any road which bounds the curtilage than the part of the existing building nearest to that road • Maximum of one extension or new building to contain a biomass or CHP fuel store within a building curtilage or agricultural unit to be permitted development • No permitted development in a Site of Archaeological Interest or Area of Special Scientific Interest • No permitted development within the curtilage of a Listed Building unless Listed Building Consent for the development has previously been granted
Anaerobic digestion plant	• Maximum area 300m^2 • Must be located on agricultural land • Must be located within 75m of the nearest part of a group of principal farm buildings • Must be located a minimum of 75m from any dwellinghouse (other than the dwellinghouse of any person engaged in agricultural operations on the said unit) • Maximum height of 3m for a digester within 3km of the perimeter of an aerodrome, or 12m in any other case • No part of the development may be within 24m of the nearest part of any special road, or within 24m of the middle of a trunk or a first or second-class road or 9m from the middle of other classes of road • Only material generated from agricultural activities on the unit should be used to feed the digester • No permitted development in an Area of Special Scientific Interest or Site of Archaeological Interest • No permitted development within the curtilage of a Listed Building unless Listed Building Consent for the development has been granted

Heat pump permitted development recommendations	
Ground source heat pumps	• Maximum excavation area of 0.5ha • Excavated land should be made good after the heat pump has been installed • Above ground elements must be a minimum of 5m from the boundary of the building curtilage or any road and should not be nearer to any road which bounds the curtilage than the part of the existing building nearest that road • Above ground elements must not exceed a maximum floor area of $10m^2$ for buildings with a floorspace of up to $1000m^2$ • Above ground elements must not exceed a maximum floor area of $75m^2$ for large non-domestic buildings with a floorspace of $1000m^2$ or more • Above ground elements must not exceed 3m in height • No permitted development in an Area of Special Scientific Interest or Site of Archaeological Interest • No permitted development for above ground elements within the curtilage of a Listed Building unless Listed Building Consent for the development has previously been granted
Water source heat pumps	• Area of pipework must not exceed 0.5ha • Above ground elements must be a minimum of 5m from the boundary of the building curtilage or any road and should not be nearer to any road which bounds the curtilage than the part of the existing building nearest that road • Above ground elements must not exceed a maximum floor area of $10m^2$ for buildings with a floorspace of up to $1000m^2$ • Above ground elements must not exceed a maximum floor area of $75m^2$ for large non-domestic buildings with a floorspace of $1000m^2$ or more • Above ground elements must not exceed 3m in height • No permitted development in an Area of Special Scientific Interest or a Site of Archaeological Interest • No permitted development within the curtilage of a Listed Building for above ground elements unless Listed Building Consent for the development has previously been granted
Air source heat pumps	No permitted development for any air source heat pump until issues regarding noise can be resolved. If these can be agreed satisfactorily we recommend the following restrictions on permitted development: • Maximum combined volume of all air source heat pumps of $30m^3$ for buildings with a floorspace of up to $1000m^2$ or $75m^3$ for large non-domestic buildings with a floorspace of $1000m^2$ or more • Must not exceed the height of the existing building • Must be a minimum of 5m from the boundary of the building curtilage or any road and should not be nearer to any road which bounds the curtilage than the part of the existing building nearest that road • No permitted development in a Conservation Area or World Heritage Site where the pump is visible from a road and erected on a wall that faces onto that road • No permitted development in an Area of Special Scientific Interest or Site of Archaeological Interest • No permitted development within the curtilage of a Listed Building for any external element of the heat pump unless Listed Building Consent for the development has previously been granted

3. Uptake of Microgeneration

This section outlines the method used to estimate the uptake of microgeneration technology as a result of the extension of permitted development rights (PDR). It is important to be able to correctly identify the impacts associated with the extension in the PDR and in particular the additional change in take-up of each microgeneration technology.

This estimated uptake is subject to a number of uncertainties, primarily due to limited data (mainly as microgeneration technology has only more recently been made available on a commercial basis) and uncertainties relating to how potential users of these technologies may react to the extension of the PDR. Importantly, this assessment requires that the additional take-up as a result of PDR is considered separately from the growth in uptake of these technologies that would occur anyway under 'business as usual conditions'.

This section first examines the business-as-usual (BAU) scenario based on a survey undertaken by Entec of applications made to Planning Services as well as considering the expected uptake of microgeneration technology with the extension of PDR. The methodology by which the uptake of technology has been estimated is outlined in section 3.2 with the estimations of the uptake shown in section 3.3. The various assumptions that have been employed in the calculations are outlined in section 3.4.

3.1 Business-as-Usual (BAU) - Number of current applications

The calculation to estimate take up of each of the technology types requires first an understanding of the current number of planning applications received by the Planning Service. This was achieved by collecting information from the Planning Service for all planning applications classed as 'renewables' received or decided for the financial years 2003/04, 2004/05, 2005/06 and 2006/07. Entec examined all the applications and filtered out those applications that were obviously not applicable to the review as they were related to wind farms or domestic situations. This information served as the baseline number of applications expected to be received under a BAU scenario.

Solar applications received were not differentiated between those relating to solar thermal and those to solar PV. For the purposes of this assessment it has been assumed that there is a 50/50 split of total applications received between thermal and PV.

As explained in the 'report' (Entec UK 2009) Entec then determined the ratio of previous applications that would be appropriate for PDR using the proposed recommendations concerning amendments to the GDO. Entec selected a sample of wind and solar applications to examine in more detail how many might be appropriate for permitted development (i.e. related to non-domestic land uses, were of an appropriate size etc). These ratios were then used to ascertain an approximate number of planning applications for solar and wind technologies per year that may be appropriate for permitted development.

All applications for biomass, CHP and AD were also examined. It was difficult to quantify the exact dimension of some of these developments but a total of 3 case studies contained sufficient information to ascertain that 2 of them may be eligible for permitted development if the GDO was amended as recommended in the report. Therefore it was assumed that two-thirds of biomass/CHP/AD planning applications made since 2003 may be eligible for permitted development. As the average number of biomass/CHP/AD planning applications per year was 1.5 since 2003 this gives a yearly number of 1 biomass planning application per year eligible for permitted development.

The limited PD rights recommended by the report are not believed to be sufficient to have enabled any of the planning applications for hydro in the last 4 years to be permitted development. No cases seeking planning permission for a heat pump were identified in the last 4 years, therefore there would not be any difference in the number of planning applications saved as a result of amendments to the GDO. The results of the survey of applications are shown in the table below:

Table 3.1 Number of applications per year by technology type

Year	Hydro	Solar Thermal	Solar PV	Wind	Heat Pumps	CHP	Biomass CHP	AD
Total applications received over 4 years	7	30.5	30.5	235	0	0.6	4.80	0.60
Average number of applications per year	1.75	7.60	7.60	63.25	0	0.15	1.2	0.15
Ratio of applications eligible for PD	0	0.9	0.9	0.08	1	0.67	0.67	0.67
Estimated baseline annual applications eligible for PD	0	7	7	5	0	0	1	0

3.2 Estimating the additional take up of microgeneration

There are very few studies undertaken to date which examine how take up of microgeneration can improve by removing perceived barriers. Therefore it was necessary to tentatively estimate take up using information available and in particular The UK Microgeneration Strategy (March 2006)[3]. **The approach set out below is consistent with the IA used in England and Wales. It is recommended that given the lack of data currently available comments and suggestions for uptake figures be invited during public consultation.**

[3] http://www.berr.gov.uk/files/file27575.pdf

The UK Microgeneration Strategy, produced by the Department of Trade and Industry (DTI is now known as Department for Business, Enterprise & Regulatory Reform – BERR) sets out, amongst other things, the main objectives and actions of the microgeneration strategy.

The main actions can be broadly categorised into four tasks:

i. Tackling cost constraints;

ii. Tackling information constraints;

iii. Tackling technical constraints;

iv. Actions to remove regulatory barriers/take advantage of regulatory opportunities.

The DTI commissioned a study[4] through the Energy Savings Trust (EST) to estimate the future potential of the different microgeneration technologies and in particular predict future uptake, and the costs and benefits of microgeneration technologies. The report indicated that by 2050, microgeneration could provide 30-40% of the UK's electricity needs and help to reduce household carbon emissions by 15% per annum. In 2006, renewable energy accounted for 4.4%[5] of electricity generation, which shows that much work needs to be done to realise the potential of microgeneration and also to achieve the goal of 20% of the energy consumed in the UK to come from renewable sources by 2020[6].

This RIA is concerned only with the uptake of microgeneration within the non-domestic sector (e.g. schools, hospitals, etc) and specifically the effect that extensions to the PDR will have on the uptake of microgeneration in these categories of development. This action falls within the fourth category (from the list of actions arising in the microgeneration strategy, above). In the report by EST, a survey was conducted which was sent to 395 stakeholders (of which 17% responded). The results of the survey showed that 61% of respondents identified the high cost of the technology as the most important barrier to overcome (category 1 from the list above). We can use this as a broad proxy for the 'real barriers to uptake' (given the lack of alternative data available) and show the potential contribution to the UK's electricity needs by 2050 which could be achieved through tackling cost constraints (i.e. 61% of the 30-40% target = 18-24%).

When asked to identify additional barriers, 43% identified legislation and regulation constraints as the next major barrier to uptake of microgeneration after high cost (category 4 from the list above). These are generally disincentives rather than absolute constraints. Again we can use this as a broad proxy for the 'real barriers to

[4] http://www.berr.gov.uk/files/file27558.pdf

[5] http://stats.berr.gov.uk/energystats/dukes5_4.xls. Note that this refers to renewable energy and can therefore only be used a very broad indicator of the maximum current electricity generation from microgeneration (which may be lower than 4.4%).

[6] http://www.berr.gov.uk/whatwedo/energy/sources/renewables/index.html

uptake' to estimate the contribution actions to remove regulatory barriers/take advantage of regulatory opportunities could have to achieve the target that microgeneration can achieve 30-40% of UK's electricity generation need by 2050 (i.e. 43% of the remaining 12-16% = 5-7%).

To say that extensions to the PDR could lead to an increase in uptake in microgeneration in the magnitude of 6-7% of current levels (by 2050) could potentially be an overestimate as this proxy refers to both domestic and non-domestic uses and includes other possible regulatory measures such as a mandatory requirement for new build to have a proportion of electricity/heating needs from microgeneration and schemes like the climate change levy. However this broad proxy provides us with an upper boundary for uptake figures. In the absence of any better/more informed figures, a potential uptake of 5% is assumed for the high uptake scenario, and 2% under the low uptake scenario.

3.3 Additional number of applications

Table 3.2 shows the uptake of the technology types that is expected to be additional to the baseline, or that which occurs as a result of the extension of PDR. Note that hydro, micro CHP and anaerobic digestion have been omitted from the table and subsequent calculations as the baseline indicates that there will not be any applications falling under PDR for these technology types. This additional uptake has been estimated up to 2020 using the estimated low and high uptake scenarios described above. These have been applied to the two options (B and C) and the results are shown in Table 3.2, below:

Table 3.2 Additional applications under different scenarios

Option	Scenarios	Solar Thermal	Solar PV	Wind	Biomass	Total
Additional applications 2009 (total)						
A	Business as Usual (BAU)	0	0	0	0	0
B	Low scenario	0.1	0.1	0.1	0	0.4
	High scenario	0.3	0.3	0.3	0	1
C	Low scenario	0.1	0.1	0	0	0.3
	High scenario	0.3	0.3	0	0	0.7
Additional applications 2009 – 2020 (total)						
A	Business as Usual (BAU)	0	0	0	0	0
B	Low scenario	1.8	1.8	1.4	0.2	5
	High scenario	5.4	5.4	4.0	0.6	16
C	Low scenario	1.8	1.8	0	0.2	3.9
	High scenario	5.4	5.4	0	0.6	11.5

Table 3.3 summarises the total estimated take up of the various types of technology. This includes the baseline number of applications (shown in table 3.1) plus the estimated uptake in technology types resulting from PDR (shown in Table 3.2). This has been shown for each option and for the low and high scenario.

Table 3.3 Total take-up under different scenarios (numbers of applications)

Option	Scenarios	Solar Thermal	Solar PV	Wind	Heat Pumps	CHP	Biomass	Total
Total take-up 2009								
A	Business as Usual (BAU)	7	7	5	0	0	1	19
B	Low scenario	7	7	5	0	0	1	20
	High scenario	7	7	5	0	0	1	21
C	Low scenario	7	7	0	0	0	1	15
	High scenario	7	7	0	0	0	1	15
Total take-up 2009 - 2020								
A	Business as Usual (BAU)	75	75	56	0	0	9	215
B	Low scenario	94	94	69	0	0	11	267
	High scenario	114	114	85	0	0	13	327
C	Low scenario	94	94	68	0	0	11	198
	High scenario	114	114	68	0	0	13	242

3.4 Assumptions

Due to the inherent uncertainty involved in these calculations, it has been necessary to make certain assumptions regarding existing and future take-up. This section briefly describes the assumptions that have been employed in calculating the baseline number of applications and the uptake of microgeneration technologies.

General assumptions:

- All values presented have been estimated for the time period to 2020;
- The values used in these calculations are assumed to be attributable to the planning system alone (they do not take other policies or the larger context of renewable energy into account);
- Prices used in this impact assessment are based on 2008 prices (due to a lack of data e.g. electricity and gas price projections, costs of each technology). It is important to note that there is considerable uncertainty related to future projections of prices, especially gas and electricity.

- Price projections are based on an inflation rate of 2.5% as recommended in the Northern Ireland Guide to the Green Book. Electricity and gas prices however generally increase at rates above inflation[7] and future prices have been based on historical trends (average annual increase over the time period 1999 – 2008[8]) in the absence of other more reliable projection estimates.

Specific assumptions:

- The annual number of applications received is based on numbers of applications received over a 4 year period. An average of the 4 years was used as an annual estimate. It is assumed that these recent years used are representative of past and future annual applications.

- It is assumed that the ratio of planning applications that may be eligible for permitted development for each technology ascertained from the sample of applications from the 2006-07 financial year can be applied across all renewable applications identified for the period 2003-07.

  Potential causes of underestimation of figures:

  - Some renewables may have been included as part of larger applications which may not be indicated in the title of the planning application (and was therefore missed by Planning Services/Entec);

  - Hydro, heat pumps, biomass and CHP installers (and occasionally solar) do not necessarily lodge planning applications but just install the device.

  Potential causes of overestimation of figures:

  - Not all planning applications will be small enough to be classed as permitted development.

[7] The Northern Ireland Practical Guide to the Green Book notes that some items experience a rate of inflation different to that of general inflation, of which fuel prices is typically one.

[8] Digest of United Kingdom Energy Statistics (DUKES), http://stats.berr.gov.uk/energystats/qep312.xls.

4. Screening of Impacts

An initial identification of potential impacts associated with the 3 options identified in section 2 was undertaken. These impacts were then screened in order to identify the main impacts which would then be subject to further analysis and quantification in the RIA. Table 4.1 summarises the results of the screening process, which were discussed and agreed upon with the Planning Service at the outset of developing the RIA. Where appropriate, the reasons for exclusion of impacts have been explained. The table also identifies those impacts that are expected to be easily monetised or may require a qualitative analysis.

Table 4.1 Screening of potential impacts

Option	Potential Impacts	Likely to be a significant impact that requires assessment? Yes/no?	If 'no', reason why effect is excluded	Can the effect be readily monetised? Yes/No
Option A	**Do nothing option. This baseline situation will not be quantified as it is assumed to continue as is. The difference between the baseline and each option will be calculated in order to determine impacts and effects.**			
	Indirect costs (**admin costs/man hour costs)** to the **Planning Service** associated with processing of permit applications and verifying details in various assessments.	Yes.	----	Yes.
	Revenue to the **Planning Service** from permit applications.	Yes.	----	Yes.
	Direct costs to applicants of submitting a permit application to the Planning Service).	Yes.	----	Yes.
	Indirect costs (**admin costs/man hour costs)** to the **applicant** associated with submitting a permit application (this includes costs of additional requirements in the application e.g. noise assessment).	Yes.	----	Yes.
	Average **fuel bills** for a non-domestic user not making use of micro-generation renewables.	Yes.	----	Yes.
	Typical **carbon emissions** of a non-domestic user not making use of microgeneration renewables.	Yes.	----	Yes.
Option B & C	**General Impacts**			

Option	Potential Impacts	Likely to be a significant impact that requires assessment? Yes/no?	If 'no', reason why effect is excluded	Can the effect be readily monetised? Yes/No
B & C	Reduction in **indirect costs** (**admin costs/man hour costs)** to **the Planning Service** associated with processing of permit applications and verifying details in various assessments.	Yes.	----	Yes.
B & C	**Employment impact** as less Planning Service resources likely to be required.	No.	Resources likely to be re-distributed to other job duties.	N/A
B & C	Reduction in **revenue** to the **Planning Service** from permit applications.	Yes.	----	Yes.
B & C	Reduction in **direct costs to applicants** of submitting a permit application to the Planning Service).	Yes.	----	Yes.
B & C	Reduction in **indirect costs** (**admin costs/man hour costs)** to the **applicant** associated with submitting a permit application (this includes costs of additional requirements in the application e.g. noise assessment).	Yes.	----	Yes.
B & C	Reduced **fuel bills** for applicants as a result of use of renewable technologies.	Yes	----	Yes
B & C	**Payback period** on **investment** by applicants.	Yes.	----	Yes to some extent
B & C	Effects on **property value** arising from additional investment in micro-generation infrastructure on site.	Unknown.	Property value may change as a result of the addition of microgeneration technology but this is not considered to be directly attributable to the extension of PDR. There is likely to be a premium for buildings that are more energy efficient but it is too early to be able to estimate a monetary effect on property prices.	No. If deemed necessary a qualitative assessment can be undertaken.
B & C	Reduction **in demand for non-clean technologies** i.e. coal powered plants from higher use of renewable sources.	No.	The additional generation of clean energy associated with the take up of technologies (arising from PDR) is likely to be too small relative to the overall demand for electricity and heating to have a significant impact.	No. If deemed necessary a qualitative assessment can be undertaken.

Option	Potential Impacts	Likely to be a significant impact that requires assessment? Yes/no?	If 'no', reason why effect is excluded	Can the effect be readily monetised? Yes/No
B & C	Stimulate **innovation and research** in micro-generation technologies leading to a possible reduction in price.	Yes.	----	No. Insufficient data exists to easily monetise this effect. A qualitative assessment.
B & C	Carbon savings associated with use of renewable energy technologies.	Yes.	----	Yes.
B & C	Embodied energy costs associated with use of microgeneration technologies.	Yes.	----	No. Insufficient data exists to easily monetise this effect. A qualitative assessment will be undertaken.
B & C	Reduction in damage costs associated with electricity generation.	Yes.	----	Yes.
	Specific impacts (for all these potential impacts, please see the Entec report for further details)			
	Impacts specific to wind			
B	Visual impacts related to size, height, colour, reflectivity and number of turbines.	Yes.	----	No. Insufficient data exists to easily monetise this effect. A qualitative assessment will be undertaken.
B	Annoyance to residents and neighbours caused by shadow flicker, noise and vibration.	Yes.	----	No. Insufficient data exists to easily monetise this effect. A qualitative assessment will be undertaken.
B	Heath issues related to the potential for shadow flicker to induce epileptic seizures.	No.	There have been no known occurrences of seizures being induced by small scale turbines.	N/A
B	Safety issues relating to interference with radar installations for aircraft.	No.	It is considered that sufficient restrictions on installations have been set to minimise these safety issues.	N/A

Option	Potential Impacts	Likely to be a significant impact that requires assessment? Yes/no?	If 'no', reason why effect is excluded	Can the effect be readily monetised? Yes/No
B	Safety issues related to structural damage to roofs, potential for turbine to topple.	No.	This safety aspect may not strictly be a planning concern. However restrictions have been recommended which will minimise the potential for turbines to fall on members of the public.	N/A
	Ecology impacts related to birds and bats colliding with blades, loss of foraging habitat and interruption of migrating or commuting routes.	Unknown.	It is understood that no scientific studies have been undertaken to ascertain the effects of small scale turbines on birds and bats. It is difficult to predict what, if any, impact will occur.	No. Insufficient data exists to easily monetise this effect. A qualitative assessment will be undertaken.
	Impacts specific to solar			
B & C	Visual impacts relating to external appearance of building and character of area.	No.	Most solar panels will be installed, with restrictions, on the roofs of buildings with little additional visual impact. Restrictions related to listed buildings where impacts may be greater have been included.	N/A
B & C	Shading of nearby properties.	No.	Limitations have been made on the height of permitted free standing solar panels such that there is unlikely to be a significant impact on dwellings outside the curtilage.	N/A
B & C	Ecology impacts related to disturbance to bat roosts in roofs	No.	The main potential ecological impact is disturbance of bat roosts during installation. This is unlikely to be significant as installers can be trained to minimise risks.	N/A
	Impacts specific to biomass and combined heat and power			
B & C	Visual impacts relating to boiler, extra flue, boiler, storage space for fuel and visual vapour plume.	Yes.	----	No. Insufficient data exists to easily monetise this effect. A qualitative assessment will be undertaken.

Option	Potential Impacts	Likely to be a significant impact that requires assessment? Yes/no?	If 'no', reason why effect is excluded	Can the effect be readily monetised? Yes/No
B & C	Disturbance from traffic and plant operations.	No.	This is not considered to be a significant issue and recommendations have been made with a view to mitigating these as far as possible.	N/A
B & C	Potential effects on air quality, health and local ecology arising from emissions.	No.	Biomass and CHP boilers will have to comply with European and UK emission regulations.	N/A
B & C	Impacts related to associated land uses for example land required to grow fuel.	No.	It is considered that this will not be significant issue at the smaller scales associated with permitted development.	N/A
	Impacts specific to heat pumps			
B & C	Visual impacts.	No.	These are not considered to be significant.	N/A
B & C	Impact on archaeology.	No.	There is already legislation to protect these sites and it is recommended that installation is not permitted in Sites of Archaeological Interest.	N/A
B & C	Impacts on ecology from refrigerant leaks.	No.	This is not considered to be a planning issue.	N/A
	Impacts specific to hydro			
B & C	Visual impacts related to the turbine house required.	No.	This is unlikely to be a significant impact as there are unlikely to be many turbine houses erected as a result. Size and appearance conditions have been included to limit any potential visual impact.	N/A
B & C	Effect on riverine ecology.	No.	No permitted development for in-stream works.	N/A
B & C	Water course diversion.	No.	No permitted development for in-stream works.	N/A
	Impacts specific to anaerobic digestion			

Option	Potential Impacts	Likely to be a significant impact that requires assessment? Yes/no?	If 'no', reason why effect is excluded	Can the effect be readily monetised? Yes/No
B & C	Visual impacts.	Yes.	---	No. Insufficient data exists to easily monetise this effect. A qualitative assessment will be undertaken.
B & C	Odour impacts	No.	Anaerobic digester units will have to comply with European and UK emission regulations.	

5. Costs

5.1 Introduction

This section presents the costs of the proposed extension of the PDR for microgeneration renewable technologies within the non-domestic sector. Costs have been separated into costs to the Planning Service, costs to users and costs to society in general and are shown below (Table 5.1). The costs of option B and C are shown as the additional costs relative to Option A (Business as Usual).

Table 5.1 Costs considered in this RIA

Impacts	Estimation
Cost to the Planning Service	
Lost revenue from planning fees	Monetised
Costs of dealing with complaints	Qualitatively described
Cost to users	
Purchase costs	Monetised
Liability costs	Qualitatively described
Costs to society	
Wind power - Visual impacts related to size, height, colour, reflectivity and number of turbines	Qualitatively described
Wind power - Annoyance to residents and neighbours caused by shadow flicker, noise and vibration	Qualitatively described
Biomass unit - Visual impacts relating to new boiler, flue or fuel store	Qualitatively described
Embodied energy costs of microgeneration technologies	Qualitatively described

General assumptions

Due to the nature of the monetised assessments, a number of assumptions have been made. These have been specified where appropriate and include both general assumptions (discussed below) and specific assumptions relating to each impact which have been discussed in the relevant remaining sub-sections:

- Costs and benefits that are shown on an annual basis are based on the year 2009 and it is assumed that 2009 can be used as a representative year for costs and benefits in future years.
- It was not possible to get costs projections for planning fees, electricity, gas, microgeneration technologies and so forth. Therefore prices are based on current prices, with prices over the period of 2009-2020 assumed to rise in line with inflation at 2.5% (unless stated otherwise e.g. the prices of

electricity and gas is estimated to rise above inflation). Costs within this period are shown in present value (i.e. value in today's terms). Prices were discounted using a rate of 3.5%. This approach to discounting and inflation is consistent with the Northern Ireland Practical Guide to the Green Book[9].

- Application numbers used in the calculations are assumed to be attributable to the planning system and the extension of PDR alone. They do not take other policies or the larger context of microgeneration energy into account (as this is factored into the baseline scenario).

5.2 Costs to the Planning Service

This sub-section outlines the main costs to the Planning Service of each option as defined in section 2. The principal costs identified from the screening of impacts (section 4) in relation to the Planning Service were a loss of revenue from applications fees (section 5.2.1). The costs of dealing with complaints are also qualitatively described (section 5.2.2).

5.2.1 Lost revenue from application fees

Planning Service incurs both costs and revenue associated with planning applications. This sub-section estimates the loss of revenue due to fewer applications requiring planning consent, as a result of the proposed extension of PDR for non-domestic microgeneration technologies. The results are estimated as an annual loss of revenue (using 2009 as a representative year) and also the loss of revenue over the period of 2009-2020 in present value.

Specific assumptions and unit values

- Application fees estimates have been provided by Planning Services and are estimated to be £230 per 1,000m² (price year 2009). This implies that the cost of the application increases with site size. The fee was based on the 2005 fee rate (current) with a 15% uplift, which was agreed with the Planning Service. As stated in the general assumptions (see section 5.1), it is assumed that fees increase in line with inflation;

- It was not possible to get NI specific average floor space statistics, so average build sizes were based on floor space statistics for England and Wales provided by ONS[10] and information from (London Energy Partnership, 2004). The low scenario site size is based on an average retail site of 190m² and the high scenario site size is based on a hospital site of 10,000m². This results in associated application costs potentially ranging from £230 to £2,300 (2009 prices);

- The extension of PDR may incur extra costs to the Planning Service in relation to monitoring applications to ensure compliance with PD restrictions on size, height etc. For the purposes of this assessment, full compliance with PD guidelines and restrictions is assumed and any monitoring costs

[9] DFP (2003) Northern Ireland Practical Guide to the Green Book – http://eag.dfpni.gov.uk/pdfs/ni-practical-guide-2.pdf

[10] Commercial and Industrial Floorspace and Rateable Value Statistics (2005 Revaluation), 2006

incurred are considered to form part of the normal course of business for enforcement teams. These costs are therefore not separately assessed here.

Table 5.2 shows the estimated loss of revenue under option B and Table 5.3 shows the loss of revenue under option C. Based on the two scenarios, the loss of annual revenue is estimated to be around £4-47k for Option B and £3-35k for Option C.

Table 5.2 Lost revenue to the Planning Service (Option B)

Option B	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual lost revenue (£) - year 2009					
Low	£1,605	£1,605	£1,187	£189	£4,585
High	£16,519	£16,519	£12,220	£1,942	£47,199
Lost revenue over the period of 2009-2020 (£ Present value)					
Low	£20,368	£20,368	£15,067	£2,394	£58,196
High	£247,999	£247,999	£183,461	£29,151	£708,610

Table 5.3 Lost revenue to the Planning Service (Option C)

Option C	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual lost revenue (£) - year 2009					
Low	£1,605	£1,605	£0	£189	£3,398
High	£16,519	£16,519	£0	£1,942	£34,979
Lost revenue over the period of 2009-2020 (£ Present value)					
Low	£20,368	£20,368	£0	£2,394	£43,129
High	£247,999	£247,999	£0	£29,151	£525,149

5.2.2 Costs of dealing with complaints

Under options B and C, it is believed that fewer microgeneration technologies will require planning consent. By removing the barriers associated with applications (e.g. time taken and the costs of fees), it is estimated that there will be additional uptake (low and high uptake scenarios are shown in section 3). This may result in additional complaints to the Planning Service, especially in relation to wind turbines (only relevant under option B). Some residents located near to the technology may have complaints about its actual presence (e.g. visual impacts of its

height, size, colour and nuisance related impacts) even though it complies with PD requirements. It is very uncertain how public perception of microgeneration technologies, especially in relation to visual impacts, will change over time, and therefore it is very difficult to monetise to what extent costs of dealing with complaints will change over time.

5.3 Costs to users

This sub-section outlines the main costs to those estimated to install microgeneration technologies for each option defined in section 2. The costs identified from the screening of impacts (section 4) in relation to the users are the average costs of the technologies themselves (section 5.3.1). The liability costs of poorly installed microgeneration technologies are also qualitatively described (section 5.3.2).

5.3.1 Purchase cost of microgeneration technology

This refers to the one off purchase costs of microgeneration technologies to non-domestic users. Options B and C include the costs to additional users due to increased uptake from the extension of PD (relative to Option A). Table 5.4 shows the costs under option B and Table 5.5 shows the costs under option C. The one-off costs for 2009 are estimated to be £5-19K under option B and £3-11K under option C.

Specific assumptions and unit values

- Prices for renewable technologies have been based on email correspondence with Action Renewables. Prices are based on average annual expected output of each technology. Prices for Biomass CHP units have been based on prices for biomass units due to limited cost information regarding relatively new Biomass CHP units. These prices are based on a report published on the Energy Savings Trust website entitled Delivering On-site Sustainable Energy: Planner Support Pack[11]. Low and high cost scenario estimates are shown below (2009 prices):
  - Solar thermal; £3,500-£5,000
  - Solar PV; £15,000-£20,000
  - Wind; £20,000-£30,000
  - Biomass CHP; £30,000-£60,000 (plus fuel costs of £0.04/kWh)
- It is assumed in real terms that the price of technology is reduced by 1% per year to take into consideration improvements in technology and economies of scale from greater demand due to energy and climate change related policies.

[11] http://www.energysavingtrust.org.uk/uploads/documents/housingbuildings/Section_8_Annex.pdf

- The costs of maintenance have not been included in the costs, which are assumed to not be significant for the initial years post installation. It is recognised that this is an oversimplification especially for technologies such as biomass, which does require frequent cleaning.

- The embodied energy costs of microgeneration technologies have not been included in the costs, due to a lack of reliable data currently available on this issue. The impacts are however qualitatively discussed in the costs to society (section 5.4).

Table 5.4 Total purchase costs of microgeneration (Option B)

Option B	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Cost of technology (£) - year 2009					
Low	£479	£2,052	£2,024	£482	£5,037
High	£1,710	£6,840	£7,590	£2,412	£18,552
Cost of technology over the period of 2009-2020 (£ Present value)					
Low	£29,173	£125,028	£123,322	£29,393	£306,916
High	£116,191	£464,763	£515,724	£163,890	£1,260,568

Table 5.5 Total purchase costs of microgeneration (Option C)

Option C	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Cost of technology (£) - year 2009					
Low	£479	£2,052	£0	£482	£3,013
High	£1,710	£6,840	£0	£2,412	£10,962
Cost of technology over the period of 2009-2020 (£ Present value)					
Low	£29,173	£125,028	£0	£29,393	£183,594
High	£116,191	£464,763	£0	£163,890	£744,844

5.3.2 Liability costs of damage

The user would be responsible and liable for the microgeneration technology installed. Damaged caused by poorly installed microgeneration equipment (e.g. structure damage for a toppled turbine) would incur a cost to the user, even if this is a loss of premium or excess from insurance. The risks of this occurring should in principle be low if it assumed that all these microgeneration technologies are correctly installed and maintained.

5.4 Costs to society

Table 5.6 describes the costs of microgeneration on society as a whole, but is focused on those effects that may occur to those in the immediate vicinity of the technology. This focuses on those impacts initially identified in the screening process (section 4).

Table 5.6 Impacts to society

Option	Type of impact	Description of the impact
B	Related to wind turbines – Visual impacts related to size, height, colour, reflectivity and number of turbines	There could be a small change to the landscape in areas due to the installation of wind turbines. The impact of this will largely depend on the preferences/tastes of individuals. It is very difficult to examine if property values have fallen as a result of a neighbours wind turbine (as this could be a possible indicator to value the visual impact of wind turbines). However the visual presence of microgeneration can be argued to create greater social awareness for microgeneration and may influence people's behaviour relating to their energy consumption. This is particularly important for public buildings such as schools and hospitals and also businesses who may want to be seen as engaging in and tackling climate change. This is more evident with the growing need for corporate social responsibility statements and the trend towards being carbon neutral.
B	Related to wind turbines – Annoyance to residents and neighbours caused by shadow flicker, noise and vibration.	Nearby residents and neighbours may become annoyed by newly installed wind turbines that produce shadow flicker, noise and vibration. However it is considered that the restrictions imposed (e.g. maximum height, limitations on rotation of blades) under the extension of PDR should be sufficient to adequately minimise these effects where appropriate.
B	Related to wind turbines – Ecology impacts related to birds and bats colliding with blades, loss of foraging habitat, and interruption of migrating or commuting routes.	There are a number of potential ecological impacts associated with wind turbines, in particular it is possible that birds and bats may be killed or injured by flying into turbines. There is some evidence collected on large commercial scale wind energy systems that may show bird or bat collision does happen, particularly where associated with migration routes. There is also concern that turbines can cause effects such as loss of foraging habitat (for example bats may avoid wind turbines), they may interrupt migration or commuting routes and that emission of ultrasound by wind turbines could impact on bats.
B & C	Related to biomass and CHP – Visual impacts relating to new boiler, flue or fuel store.	To heat larger areas several systems can be installed in the same building. Some biomass boilers require more space then a conventional boiler and it may not be possible to site them in the same place. Some schemes may also require construction of an outhouse, hopper or fuel shed because they need a reasonable amount of storage space for the fuel, and appropriate access for delivery vehicles. As with wind turbines, there is likely to be a visual change to the landscape of some areas due to the installation of larger biomass units and storage supplies. The impact of this will largely depend on the preferences/tastes of individuals and the nature of the existing landscape. It is too early to see if property values fall as a result of a neighbour's biomass storage unit, pipes etc, as this could be a possible indicator to value the visual impact of biomass technology and equipment. However the visual presence of microgeneration can be argued to create greater social awareness for microgeneration and may influence people's behaviour towards their energy consumption. This is particularly important for public buildings such as schools and hospitals and also businesses who all want to be seen as engaging in and tackling climate change. This is more evident with the growing need for corporate social responsibility statements and the trends towards being carbon neutral.

Option	Type of impact	Description of the impact
B & C	Embodied energy costs of microgeneration technologies	The carbon costs of manufacturing and supplying microgeneration will vary depending on the type of technology and product. For instance, wood pellets are more carbon intense to manufacture than wood logs although the carbon transport costs are lower (assuming they come from the same location). Solar PV is carbon intensive to manufacture but there is only a single transport cost (e.g. a biomass boiler requires a regular supply of pellets, logs etc and therefore numerous carbon travel costs). There are likely to be some embodied carbon costs associated with all microgeneration which should be taken into consideration along with the monetised carbon savings

5.5 Summary of the costs

This section presents the overall costs of option B and C relative to Option A (the business as usual situation – "BAU"). Therefore any costs shown here are in addition to the BAU situation. Table 5.7 summarises the monetised total costs of option B which is estimated to be around £9-66k per year. Table 5.8 summarises the monetised total costs of option C which is estimated to be around £6-46k per year.

Table 5.7 Summary of the costs – Option B

Costs for Option B	Annual cost (2009)	Costs over the period 2009-2020
Costs to the Planning Service	£4,585 - £47,199	£58,196 - £708,610
Costs to the applicant	£5,037 - £18,552	£306,916 - £1,260,568
Costs to society	Not monetised	Not monetised
Total costs	£9,622 - £65,751	£365,113 - £1,969,179

Table 5.8 Summary of the costs – Option C

Costs for Option C	Annual cost (2009)	Costs over the period 2009-2020
Costs to the Planning Service	£3,398 - £34,979	£43,129 - £525,149
Costs to the applicant	£3,013 - ££10,962	£183,594 - £744,844
Costs to society	Not monetised	Not monetised
Total costs	£6,411 - £45,941	£226,723 - £1,269,993

6. Benefits

6.1 Introduction

This section presents the benefits of the proposed extension of the PDR for microgeneration renewable technologies within the non-domestic sector. The benefits of option B and C are shown as the additional benefits relative to Option A (Business as Usual). Benefits have been separated into benefits to the Planning Service, benefits to users and benefits to society in general. These are listed below in Table 6.1:

Table 6.1 Benefits considered in this RIA

Impacts	Estimation
Benefits to the Planning Service	
Avoided cost of processing applications	Monetised
Redistribution of resources	Qualitatively described
Benefits to users	
Avoided costs of applications	Monetised
Fuel savings	Monetised
Property value	Qualitatively described
Exposure to energy security and fuel price volatility	Qualitatively described
Green image	Qualitatively described
Benefits to society	
CO2 savings	Monetised
Avoided damage costs of electricity	Monetised
Reduction in demand for non-clean technologies	Qualitatively described
Stimulate innovation and research in micro-generation technologies	Qualitatively described

The general assumptions set out in the costs section also apply to this section.

6.2 Benefits to the Planning Service

This sub-section outlines the main benefits to the Planning Service for each option as defined in section 2. The benefits identified from the screening of impacts (section 4) in relation to the Planning Service is the avoided cost of processing planning applications specifically related to microgeneration that now is considered PD. The benefits

of these available resources can be reallocated elsewhere in the Planning Service and is qualitatively described in section 6.2.2.

6.2.1 Avoided cost of processing applications

Planning Services incur both costs and revenue associated with planning applications. This sub-section estimates the avoided cost due to fewer applications requiring planning consent. The results are estimated as an annual avoided cost (using 2009 as a representative year) and also the avoided cost over the period of 2009-2020 in present value.

Specific assumptions and unit values

- It is taken, as indicated by the Planning Service, that the application fees charged per application are equal to the cost of processing the application. The specific assumptions and unit values used in section 5.2.1 are equally applied here.

Table 6.2 shows the estimated avoided cost under option B and Table 6.3 shows the estimated avoided cost under option C. Based on the two scenarios, the avoided cost is estimated to be around £4-47k for Option B and £3-35k for Option C.

Table 6.2 Avoided cost to the Planning Service (Option B)

Option B	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual avoided cost (£) - year 2009					
Low	£1,605	£1,605	£1,187	£189	£4,585
High	£16,519	£16,519	£12,220	£1,942	£47,199
Avoided cost over the period of 2009-2020 (£ Present value)					
Low	£20,368	£20,368	£15,067	£2,394	£58,196
High	£247,999	£247,999	£183,461	£29,151	£708,610

Table 6.3 Avoided cost to the Planning Service (Option C)

Option C	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual avoided cost (£) - year 2009					
Low	£1,605	£1,605	£0	£189	£3,398
High	£16,519	£16,519	£0	£1,942	£34,979
Avoided cost over the period of 2009-2020 (£ Present value)					
Low	£20,368	£20,368	£0	£2,394	£43,129
High	£247,999	£247,999	£0	£29,151	£525,149

6.2.2 Redistribution of resources

Under option B the Planning Service should no longer receive applicants for microgeneration that meet the PDR. Therefore the resources usually devoted to such applications can now be redistributed to other activities. This for example might be to process other applicants (which may or may not concern PD for microgeneration) which would result in applications being processed faster. It is assumed that time saved can be assigned for other tasks elsewhere within the Planning Service and that jobs would not be lost. Therefore this impact is not monetised.

6.3 Benefits to users

This sub-section outlines the main benefits to the applicant for each option as defined in section 2. The benefits identified from the screening of impacts (section 4) in relation to the users are the avoided costs of having to obtain planning consent and fuel savings. Other benefits such as the property value of having onsite energy generation and being less exposed to fuel prices are qualitatively described.

6.3.1 Avoided costs of applications

The process of undertaking a planning application imposes a significant cost on the applicant. Under option B the user would avoid the direct costs of application fees as well as indirect costs (e.g. administration burden to users). The estimates of these avoided costs are shown in Table 6.4 for Option B and in Table 6.5 for Option C. The annual estimated avoided costs under option B are estimated to be around £33-75k and £24-56k under option C.

Assumptions and unit values

- The application costs for low and high scenarios are based on site sizes and have been calculated in the same manner as impacts to the Planning Service

- The indirect cost or the administrative burden on applicants takes into consideration the time taken to fill out application forms and any additional requirements (e.g. noise and landscape assessments, technical drawings). An estimate of £1,450 has been used, based on the administrative burden for minor applications. This figure was used for the Impact Assessment undertaken for the Review of GPDO for microgeneration renewable technology in England and Wales and has been considered to be appropriate for use in the Northern Ireland context as well.

Table 6.4 Avoided cost to users (Option B)

Option B	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual avoided cost (£) - year 2009					
Low	£11,651	£11,651	£8,619	£1,370	£33,291
High	£26,214	£26,214	£19,392	£3,081	£74,902
Avoided cost over the period of 2009-2020 (£ Present value)					
Low	£147,886	£147,886	£109,401	£17,383	£422,557
High	£393,564	£393,564	£291,145	£46,261	£1,124,533

Table 6.5 Avoided cost to users (Option C)

Option C	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual avoided cost (£) - year 2009					
Low	£11,651	£11,651	£0	£1,370	£24,672
High	£26,214	£26,214	£0	£3,081	£55,510
Avoided cost over the period of 2009-2020 (£ Present value)					
Low	£147,886	£147,886	£0	£17,383	£313,156
High	£393,564	£393,564	£0	£46,261	£833,388

6.3.2 Fuel savings

The reduction in the user's consumption of electricity and gas represents a potentially significant cost saving over time. These savings have been calculated based on typical consumption of gas and electricity both with and without the respective microgeneration technology. The future consumption takes into account current consumption and the expected electricity and gas savings associated with each technology type to arrive at the new reduced consumption (see assumptions below for cases where consumption may increase). Fuel prices for 2008

and projections to 2020 were applied to the current and new consumption estimates to calculate cost saving per user per technology type.

Assumptions and unit values

- Fuel prices are based on BERR's energy statistics. They are based on prices for 'small' and 'very large' non-domestic users and are inclusive of the Climate Change Levy (CCL). Average electricity prices are assumed to increase by 7% per year and 20% per year for gas prices based on average annual price changes over the last 10 years. These were considered appropriate to use for Northern Ireland as we were unable to get NI specific data from DETINI;
- It is assumed that applicants do not generate more energy than they consume;
- It is assumed that typical gas and electricity consumption stays constant over the time period to 2020;
- High scenario electricity consumption estimations have been based on non-domestic uses such as supermarkets and hospitals and low scenario estimates have been based on non-domestic uses such as warehousing;
- High scenario gas consumption estimations have been based on non-domestic uses such as hospitals and secondary schools and low scenario estimates have been based on uses such as warehousing[12];
- Estimated energy savings are based on the expected annual electricity and gas savings for each technology type (in kWh);
- The fuel savings for biomass reflect the additional costs of purchasing wood pellet fuel for the biomass boiler. This is estimated at £0.4/kWh[13]

The estimated savings are shown in Table 6.6 for option B and Table 6.7 for Option C. Under option B the estimated annual fuel savings are estimated to be around £190-1,270 and £134-937 for option C.

[12] Integrating Renewable Energy into New Developments: Toolkit for planners, developers and consultants, London Energy Partnership, 2004 www.london.gov.uk/mayor/environment/energy/london_renew.jsp

[13] Delivering On-site Sustainable Energy: Planners Support Pack, Nov 2008, EST (http://www.energysavingtrust.org.uk/uploads/documents/housingbuildings/Section_8_Annex.pdf)

Table 6.6 Fuel saving to users (Option B)

Option B	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual fuel savings (£) - year 2009					
Low	£22	£63	£56	£49	£190
High	£54	£152	£337	£731	£1,274
Fuel savings over the period of 2009-2020 (£ Present value)					
Low	£6,108	£6,996	£6,210	£12,410	£31,724
High	£19,055	£20,904	£46,393	£288,634	£374,986

Table 6.7 Fuel saving to users (Option C)

Option C	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual fuel savings (£) - year 2009					
Low	£22	£63	£0	£49	£134
High	£54	£152	£0	£731	£937
Fuel savings over the period of 2009-2020 (£ Present value)					
Low	£6,108	£6,996	£0	£12,410	£25,513
High	£19,055	£20,904	£0	£288,634	£328,593

6.3.3 Non-monetised benefits

Table 6.8 describes the non-monetised benefits of microgeneration for the user.

Table 6.8 Benefits to the user

Option	Type of impact	Description of the impact
B & C	Property value	The user could benefit from having a more energy efficient rating on their property due to the installation of microgeneration technology. It is too early to be able to assign a monetary value as energy ratings for properties have only recently been introduced. In addition the technology itself will have a residual value which may be reflected in the property price.
B & C	Exposure to energy security and fuel price volatility	In addition to making significant savings as fuel prices increase on an annual basis, as the user generates some electricity/heating onsite, they are less exposed to issues of energy security and also less exposed to volatility in fuel prices.

Option	Type of impact	Description of the impact
B & C	Green image	The user could benefit from the perception of being more sustainable and environmentally friendly. They could also indirectly benefit from CO2 savings through marketing which is especially important for users who rely on sales for income.

6.4 Benefits to society

This sub-section outlines the main benefits to society as a whole for each option as defined in section 2. The benefits identified from the screening of impacts (section 4) in relation to society are the CO_2 savings and the avoided damage costs of electricity. Other benefits such as the uptake of clean technologies and stimulating investment in microgeneration technologies are qualitatively described.

6.4.1 CO_2 savings

Methodology and Calculations

Any reduction in CO_2 emissions will benefit everyone regardless of where emissions reductions take place. This will also contribute to UK CO_2 emissions reduction targets. The switch from fossil fuel dependent to renewable sources of energy implies fewer tonnes of carbon dioxide emissions per year. This saving can be monetised by applying the shadow price of carbon (SPC) to the estimated number of tonnes of carbon saved each year. The SPC reflects the social cost of carbon, or the global damage that an incremental unit of carbon imposes over its lifetime in the atmosphere. The value of carbons savings per applicant per year have been applied to the additional take-up of each technology type. The table below summarises the monetary value of carbon savings for each option considered in this impact assessment. The estimated annual carbon savings for option B are £33-83 and £26-65 for option C.

Assumptions and unit values

- The shadow price of carbon in 2009 is £27 based on Defra's guidance on the Shadow Price of Carbon[14] and increasing by 2 per cent per year to account for rising damage costs from higher greenhouse gas concentrations;
- The embodied cost of carbon for each microgeneration technology has not been included in the savings calculation due to a lack of data on embodied costs.

[14] The Social Cost of Carbon and the Shadow Price of Carbon, 2007, Defra.
http://www.defra.gov.uk/environment/climatechange/research/carboncost/pdf/HowtouseSPC.pdf

Table 6.9 CO_2 saving to users (Option B)

Option B	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual CO_2 saving (£) - year 2009					
Low	£4	£8	£7	£14	£33
High	£11	£20	£18	£35	£83
CO_2 saving over the period of 2009-2020 (£ Present value)					
Low	£318	£599	£532	£1,049	£2,498
High	£889	£1,678	£1,489	£2,937	£6,993

Table 6.10 CO_2 saving to users (Option C)

Option C	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual CO_2 saving (£) - year 2009					
Low	£4	£8	£0	£14	£26
High	£11	£20	£0	£35	£65
CO_2 saving over the period of 2009-2020 (£ Present value)					
Low	£318	£599	£0	£1,049	£1,966
High	£889	£1,678	£0	£2,937	£5,504

6.4.2 Avoided damage costs of electricity

Methodology and Calculations

Damage costs reflect the external costs that arise from the impact on the environment and human health from electricity generation. These are not currently fully reflected in the price of electricity. Switching to cleaner sources of electricity generation will result in reduced external costs to society as traditional fossil fuel systems exhibit the highest external costs in electricity generation. The estimated damage costs were applied to the difference in estimated electricity consumption per user (with and without the use of microgeneration technologies). This cost saving per user was then applied to the estimated uptake in microgeneration technology types. The tables below show the estimated values for reduced damage costs for 2009 and up to 2020. Under option B the estimated annual avoided damage costs of electricity is £8 - £92 and £4 - £29 under option C.

Assumptions and unit values

- Damage costs of £0.006-0.017 per kWh (2008 prices) were used based on external costs of electricity from AEAT (1998) and using the UK fuel mix (Source: DTI 'UK Energy in Brief 2006' and Dukes Database 06). These estimates exclude the carbon element within the damage costs, so as not to double count the effects (CO2 savings have been calculated already). Due to the uncertainty and assumptions (given time-scales, lack of consensus on future impacts of climate change etc) it is difficult to arrive at a single value and a range has been used in this impact assessment to reflect this difficulty;
- An average annual exchange rate of £ 0.63: € 1 for 1998 was used to convert these prices in euros to pounds (ECB Statistical Data Warehouse);
- 1998 prices were updated to 2008 prices using the Retail Price Index (Consumer Price Indices, National Statistics).

Table 6.11 Avoided damage costs (Option B)

Option B	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual Avoided damage costs (£) - year 2009					
Low	£0	£4	£4	£0	£8
High	£0	£29	£64	£0	£92
Avoided damage costs over the period of 2009-2020 (£ Present value)					
Low	£0	£244	£217	£0	£461
High	£0	£1,849	£4,105	£0	£5,954

Table 6.12 Avoided damage costs (Option C)

Option C	Solar Thermal	Solar PV	Wind	Biomass CHP	Total
Annual Avoided damage costs (£) - year 2009					
Low	£0	£4	£0	£0	£4
High	£0	£29	£0	£0	£29
Avoided damage costs over the period of 2009-2020 (£ Present value)					
Low	£0	£244	£0	£0	£244
High	£0	£1,849	£0	£0	£1,849

6.4.3 Non-monetised benefits

Table 6.13 describes the benefits of microgeneration on society as a whole.

Table 6.13 Benefits to society

Option	Type of impact	Description of the impact
B & C	Reduction in demand for non-clean technologies e.g. coal powered plants from higher use of renewable sources.	The scale of uptake (by 2020), which can be directly related to changes in the PDR as shown in chapter 3 is relatively low for most microgeneration technologies. However the removal of the 'nuisance' barrier of planning applications could indirectly simulate greater uptake in combination with tackling other barriers to uptake which could have several impacts on the demand for non-clean technologies. These include: • Changes to the landscape and land use of Northern Ireland as a result of increased use of microgeneration technologies and less need for traditional large coal and gas plants. • Less reliance on imported gas supply and therefore greater fuel security. • Contributing towards the UK 2020 target of 20% energy needs produced from renewable energy. • Possible socio-economic impacts such as employment and skills changes due to an increased demand for jobs/skills related to microgeneration technologies and reduced demand for jobs/skills relevant for traditional utility/power plants.
B & C	Stimulate innovation and research in micro-generation technologies leading to a possible reduction in price.	The EST survey conducted for the DTI as part of the development of the microgeneration strategy indicated that the cost of microgeneration technologies was the main barrier to the uptake of microgeneration. The extension of PDR may encourage greater uptake which could have the effect of accelerating the move beyond the current niche market, by rapidly growing the installed capacity and so overcoming the slow response of consumers to price signals and lack of information. This could stimulate innovation and R&D in microgeneration technology, which in turn can stimulate price reductions and result in further potentially significant increases in uptake. The extent of the uptake is dependent on the size of the price reduction, and the price relative to gas and electricity from non-renewable sources. For example if these technologies pay back the cost of the investment in a much shorter time, taking into consideration the rising cost of gas and electricity from non-renewable sources, they may become more economically viable than traditional sources.

6.5 Summary of the benefits

This section presents the overall benefits of option B and C relative to Option A (the business as usual situation – "BAU"). Therefore any benefits shown here are in addition to the BAU situation. Table 6.14 summarises the monetised total benefits of option B. It is estimated that option B will result in benefits of around £38-126k per year. Table 6.15 summarises the monetised total benefits of option C. It is estimated that option C will result in benefits of around £28-93k per year.

Table 6.14 Summary of the benefits – Option B

Benefits for Option B	Annual Benefit (2009)	Benefits over the period 2009-2020
Benefits to the Planning Service	£4,585 - £47,199	£58,196 - £708,610
Benefits to the applicant	£33,481 - £76,177	£454,281 - £1,499,520
Benefits to society	£41 - £175	£2,959 - £12,947
Total benefits	£38,307 - £125,602	£517,966 - £2,251,886

Table 6.15 Summary of the benefits – Option C

Benefits for Option C	Annual Benefit (2009)	Benefits over the period 2009-2020
Benefits to the Planning Service	£3,398 - £34,979	£43,129 - £525,149
Benefits to the applicant	£24,806 - £56,447	£338,669 - £1,161,982
Benefits to society	£30 - £94	£2,210 - £7,353
Total benefits	£28,382 - £93,040	£385,884 - £1,717,316

7. Competition Assessment

This section presents the findings from the competition assessment undertaken as part of the RIA. The impact on affected markets (here considered to be the manufacture of renewable technologies) as a result of the extension of PDR to the non-domestic sector is assessed and any impacts on competition identified and discussed. In order to do this, four key questions posed in the competition assessment guidance[15] have been considered, and presented below.

- Would the extension of PDR directly limit the number or range of suppliers?

No - The proposal does not involve any exclusive rights to supply, selective procurement, licensing schemes or quotas that may restrict certain suppliers.

- Would the extension of PDR indirectly limit the number or range of suppliers?

No - The proposal will not affect the costs of production of some suppliers relative to others, or affect new entrants to the market. It is expected that the proposed extension of PDR will indirectly promote competition through increased demand (by removing regulatory costs for consumers), and this could stimulate the creation of new entrants in the market.

- Would the extension of PDR limit the ability of suppliers to compete?

No - It is considered that the proposal would result in decreases in the price of the renewable technologies to consumers without influencing the prices charged by suppliers – thereby not affecting the ability of suppliers to compete. The potential increased demand for renewable technologies may stimulate the number of new entrants into the market, or stimulate innovation amongst competing suppliers or both, resulting in increased competition in the renewables market.

Allowing PD for smaller scale microgeneration products may, however, stimulate a larger uptake in these sizes of devices and an associated smaller uptake of larger devices. This may result in both market and competitive distortions. For example, it may make producers of small devices relatively more competitive in the market place in comparison with producers of larger devices. There could also be product distortions created between products just above and just below the PDR thresholds. The likelihood of these distortions is not considered to be significant, however, based on the projected volume of uptake of the microgeneration renewables that is solely attributable to PDR.

- Would the extension of PDR reduce suppliers' incentives to compete vigorously?

[15] Office of Fair Trading, *Completing Competition Assessments in Impact Assessments, Guidelines for Policy Makers*, 2007.

No – The proposal does not have any effect on aspects such as competition law, the exchanging of price, sales or output information between suppliers or affect the price of switching between suppliers.

8. Small Business Impact Test

This section presents the findings from the assessment of the impacts on small businesses from the extension of PDR to the non-domestic sector. This test will consider the impacts to two groups of small firms:

- Producers of renewable technologies

There may be impacts on firms in the market arising from a greater demand for smaller devices relative to larger devices as a result of the PDR which may make producers of small devices relatively more competitive in the market place in comparison with producers of larger devices. It is difficult to draw conclusions however of whether this will have any effect on small firms in particular (understood to be firms with fewer than 20 employees) without knowing the market structure of sizes of firms and the types and sizes of products they produce. In addition, extending PDR to smaller devices is not considered to significantly affect the market or producers due to the generally low projected uptake in volumes of small-scale microgeneration renewables.

- Small-scale users of the technologies.

It is understood that there will be no specific impacts on small firms as part of the proposal to extend PDR to non-domestic small scale renewable technology. The legislation does not identify or separate businesses specifically and in fact the nature of the proposal and its focus on small scale renewables is more likely to relate to those renewable technologies devices favoured by small businesses. The removal of the additional costs associated with using these technologies will also create relatively greater benefits for small firms as opposed to large organisations (for example the costs of undertaking a planning application are a greater percentage of a small firm's overall revenue than for a larger firm with a greater revenue).

- Small-scale specialists in planning applications

It is possible that specialists who previously may have been employed to help with the planning application (e.g. architects, technicians, town planning consultants, builders, etc) will no longer be required. Assuming their expertise can be reallocated elsewhere within their business (or society), it is assumed that this may only have a temporary effect on employment.

Impacts on a typical small firm

No formal consultation has taken place with small businesses as part of the development of this RIA. It is estimated that for a small firm, the typical cost impacts would include:

- Avoided costs of undertaking an application. This includes the direct cost of the application fee and the indirect costs related to time taken to fill it in, the resources used and any additional assessments undertaken.

- Avoided fuel costs – these technologies would reduce a user's requirement for the use of traditional fuel sources such as electricity and gas – resulting in fuel bill savings for users (over the lifetime of the technology).

- Cost of technology – there will be costs of acquiring the technology as well as maintenance. Maintenance costs have not been included in this RIA as costs are only considered until 2020 and it is assumed that most technologies will not require significant maintenance at the beginning of its use.

Table 8.1 shows the costs to a single user for each type of PD microgeneration technology. This is based on purchase and installation in 2009, with benefits (fuel savings) shown until 2020. The results show that the avoided application costs can be very significant for certain technologies and will result in an earlier "payback" of the technology. Based on the results shown, it is expected however that only solar thermal and biomass are expected to payback within this period. However on the assumption that fuel prices will continue to rise above inflation and that the costs of technology will fall over time, payback periods should improve over time.

Table 8.1 Costs for a typical small firm associated with each technology type (2009 - 2020)

	Solar Thermal	Solar PV	Wind	Biomass CHP
Low scenario 2009 – 2020				
Benefits				
Avoided costs of undertaking an application	£1,680	£1,680	£1,680	£1,680
Avoided fuel costs (until 2020)	£5,020	£6,821	£8,185	£81,408*
Costs				
Cost of purchasing technology	£3,500	£15,000	£20,000	£30,000
Net effect				
Net effect on applicant	£3,200	-£6,499	-£10,135	£53,088
High scenario 2009 - 2020				
Benefits				
Avoided costs of undertaking an application	£3,750	£3,750	£3,750	£3,750
Avoided fuel costs (until 2020)	£5,020	£6,821	£20,462	£856,979*
Costs				
Cost of purchasing technology	£5,000	£20,000	£30,000	£60,000
Net effect				
Net effect on applicant	£3,770	-£9,429	-£5,788	£800,729

* Note that this cost includes additional fuel costs (wood pellets) for biomass CHP

9. Equality Screening

As part of the 'report' (Entec UK 2009) and this RIA, a equality screening proforma has been completed and is appended to the consultation paper. This section summarises the findings of the equality screening analysis on whether the proposed review of permitted development rights may raise any issues with regards to equality of opportunity, especially with regard to Section 75 groups. The proposed policy has the following aims:

- Contribute to reductions in greenhouse gas (GHG) emissions;
- Increase security in energy supply
- Reduce costs to applicants by the removal of the administrative burden associated with planning applications

The results of the screening analysis showed that the policy is expected to primarily impact non-domestic users and manufacturers of the technologies. It is not believed to impact equality of opportunity with regard to any of the following groups:

- Religious belief,
- Political opinion,
- Racial group,
- Age,
- Marital status,
- Sexual orientation,
- Gender,
- Disability,
- Dependants

In addition table 9.1 indicates that no significant impacts were identified with regard to factors such as social need, people's daily lives, human rights, strategic or financial significance. The policy is not considered to have any significant impacts on equality of opportunity and, based on these findings, a full equality impact assessment was not deemed necessary. The views of the public on the screening analysis are invited in the consultation paper.

Table 9.1 Impacts table

Prioritisation Factors	Significant Impact	Moderate Impact	Low Impact
Social Need	-	-	Low
Effect on people's daily lives	-	-	Low
Effect on economic, social and human rights	-	-	Low
Strategic significance	-	-	Low
Financial significance	-	-	Low

10. Summary

Table 10.1 presents the annual net benefits of each policy relative to Option A (the BAU situation). The results show the estimated additional benefits minus the additional costs. The net benefit results are also separated by affected groups. The findings of the analysis is summarised below:

- Planning Service - The costs to the Planning Service are expected to be cost neutral. This is because application fees are set to recover the costs of processing applications. Therefore any loss in revenue from application fees is equally offset by the avoided cost of processing applications. Non monetised impacts to consider are the potential resources that become available which can be used elsewhere in the Planning Service. Part of this might be taken up by dealing with additional complaints about microgeneration technology that are now permitted development (PD).

- Users of microgeneration that is now permitted development - Taking into consideration the purchase costs of the microgeneration technologies themselves, there are significant net benefits to the additional users (over the lifetime of the technology), who decide to install a microgeneration technology as result of extensions to the permitted development rights (PDR). These benefits include fuel savings and the avoided cost of applications. There are also several non-monetised considerations such as the greater security over the supply of energy, less exposure to energy price fluctuations and creating a more "green" image for the user.

- Society – The monetised net benefits to society include the reduction in CO_2 emissions and the avoided damage costs from the generation of electricity from fossil fuel sources. Other non-monetised benefits include the greater awareness and demand for clean technologies. The main non-monetised social costs are related to wind turbines (and biomass storage), which are perceived by some to be visually intrusive or may be affected by other visual aspects (e.g. shadow flicker and reflections) or the noise from wind turbines. There are also concerns/risks of proper installation if PD is not required. It is for this reason, that the RIA presents an option (Option C) where wind microgeneration still requires planning consent.

The results show that both options B and C result in positive monetised net benefits. It is estimated that over one year Option B will result in greater monetised net benefit to all affected parties relative to Option C, however over the time period 2009 to 2020 Option C would result in a greater monetised net benefit. However under option C there may be less non-monetised social costs to do with wind turbines, since these would still require planning consent.

Table 10.1 Annual net monetised benefits 2009

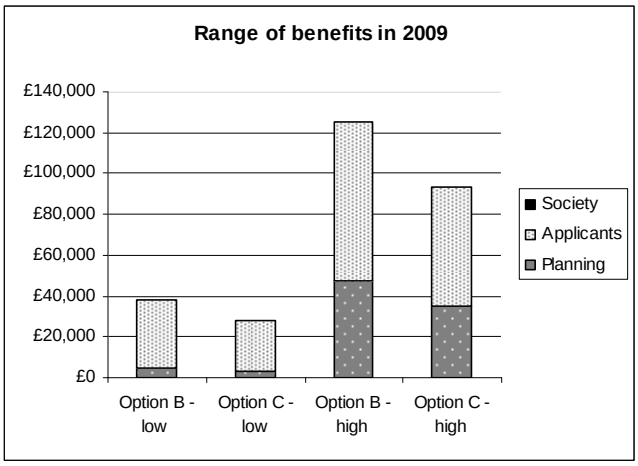
Option	Planning Service	Users	Society	Total
B	£0	£28,643 - £59,677	£41 - £175	£28,685 - £59,852
C	£0	£21,941 - £47,006	£30 - £94	£21,971 - £47,099

Table 10.2 Net monetised benefits over the period of 2009-2020

Option	Planning Service	Users	Society	Total
B	£0	£149,895 - £269,760	£2,959 - £12,947	£152,853 - £282,707
C	£0	£156,950 - £439,970	£2,210 - £7,353	£159,160 - £447,323

The figures in the graphs below summarise and compare the costs and benefits for options B and C. Both costs and benefits tend to be higher for option B than for option C over both one year and the time period to 2020.

Figure 10.1 Range of costs and benefits in 2009



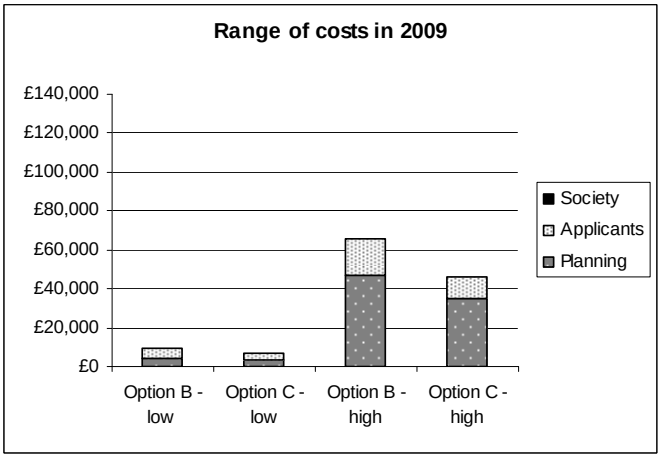
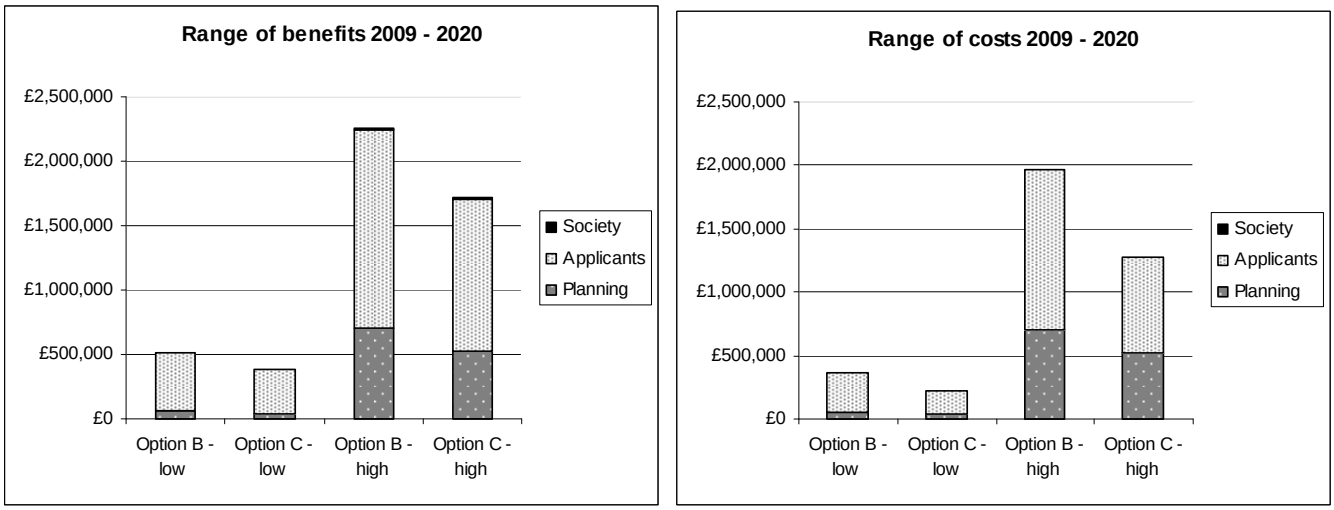


Figure 10.2 Range of costs and benefits 2009 - 2020



Those costs and benefits that could not be reliably monetised (and not included in the graphs above) were qualitatively described in the relevant sections of this report. These impacts are listed in the table below:

Table 10.3 Summary of non-monetised costs and benefits

Option	Non-monetised costs	Non-monetised benefits
B	Costs to Planning Services of dealing with complaints	Redistribution of resources previously spent processing applications
	Liability costs to applicants	Increased property value
	Wind power - Visual impacts to those in immediate vicinity related to size, height, colour, reflectivity and number of turbines	Reduced exposure to energy security and fuel price volatility for applicants
	Wind power - Annoyance to those in immediate vicinity caused by shadow flicker, noise and vibration	Improved green image to the applicant
	Biomass unit - Visual impacts relating to new boiler, flue or fuel store	Reduction in demand for non-clean technologies
	Embodied energy costs of microgeneration technologies to society	Stimulate innovation and research in micro-generation technologies
C	Costs to Planning Services of dealing with complaints	Redistribution of resources previously spent processing applications
	Liability costs to applicants	Increased property value
	Biomass unit - Visual impacts relating to new boiler, flue or fuel store	Reduced exposure to energy security and fuel price volatility for applicants
	Embodied energy costs of microgeneration technologies to society	Improved green image to the applicant
		Reduction in demand for non-clean technologies
		Stimulate innovation and research in micro-generation technologies

Appendix A
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