

Title: Permitted development rights for installations of wind turbines and air source heat pumps on domestic premises Lead department or agency: Department for Communities and Local Government Other departments or agencies:	Impact Assessment (IA)
	IA No:
	Date: February 2011
	Stage: Final
	Source of intervention: Domestic
	Type of measure: Secondary legislation
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Summary: Intervention and Options

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

Government policy is to encourage the take up of small scale renewable and low carbon energy technologies as part of its renewable energy and climate strategies. The planning application process can be a disincentive to the take up of microgeneration technologies, as submitting a planning application for the equipment imposes time and financial costs on an applicant. Government intervention is necessary to remove disincentives to the take up of these technologies. Permitted development rights (PDRs) remove the requirement for specific planning permission to be sought for development which meet certain criteria (designed to minimise impacts). PDRs were extended to a number of domestic microgeneration technologies, including solar panels, in 2008. Unresolved issues meant that it was not possible to introduce these rights for domestic installations of wind turbines and air source heat pumps at that time. Having now progressed the policy position on these technologies, and, informed by the outcome of the 2009 consultation, the Government is now in a position to introduce these rights for domestic installations of wind turbines and air source heat pumps.

What are the policy objectives and the intended effects?

- To further encourage the uptake of microgeneration on domestic premises by removing the requirement to submit a planning application to the local planning authority.
- To contribute to the Government's commitments on renewable energy and carbon reductions.
- To reduce bureaucracy in the planning system and ease the administrative burden on business.

What policy options have been considered? Please justify preferred option (further details in Evidence Base)

- Option 1 - Do nothing: do not introduce permitted development rights for the installation of wind turbines and air source heat pumps on domestic premises.
 - Option 2 – Grant permitted development rights for the installation of wind turbines and air source heat pumps on domestic premises.
- Option 2 is the preferred option because it removes a disincentive to take up of renewable energy.

When will the policy be reviewed to establish its impact and the extent to which the policy objectives have been achieved?

It will be reviewed.
There will be two reviews undertaken – the first, 1 year after implementation, the second, 2 years after implementation.

Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?

Yes

Ministerial Sign-off For final stage Impact Assessments:

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

Signed by the responsible Minister: Greg Clark..... Date: 2nd September 2011

Summary: Analysis and Evidence

Policy Option 2

Description:

Grant permitted development rights for the installation of wind turbines and air source heat pumps on domestic premises.

Price Base Year 2011	PV Base Year 2011	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: £20.6m	High: £26.1m	Median Estimate: £23.3m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low		£0.1m	£0.8m
High		£0.6m	£4.8m
Median Estimate		£0.3m	£2.8m

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

Annual costs (average per year):

Costs to local authorities of increased noise complaints: £100k - £590k

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

We have identified these potential costs but have not been able to monetise them at present:: Impacts on third parties of noise and vibration; Adverse visual impacts resulting from poor siting of equipment (but PDR limitations and conditions will mitigate this); Increased number of enquiries / applications for lawful development certificates to local authorities for confirmation that installations are lawful; MCS accreditation costs for products / installations (this cost is likely to be transferred to consumers).

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low		£2.5m	£21.4m
High		£3.6m	£30.9m
Median Estimate		£3.1m	£26.2m

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

Annual benefits (average per year):

Planning application fee savings and admin savings to householders: £2.4m - £3.3m

Administrative savings to local planning authorities: £41k - £85k

Carbon savings to society: £96k - £263k

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

We have identified these potential benefits but have not been able to monetise them at present : Fuel savings for householders. Secondary benefits as increased demand leads to increased investment in microgeneration technology; reduction in carbon emissions from reduced demand for non-renewable energy. Society will benefit from greater energy security. Local authorities will benefit from a reduction in the numbers of appeals or legal challenges arising from its decisions on controversial schemes.

Key assumptions/sensitivities/risks

Discount rate (%)

3.5

The estimates of costs and benefits are sensitive to the assumptions made around existing uptake and the growth in uptake over time. The assessments of the impacts has not taken into account other policies, such as Feed in Tariffs and Renewable Heat Incentives which will affect uptake of these technologies and therefore provides a conservative estimate of the impacts.

Further impacts have been monetised, but excluded from the above analysis, because they represent a transfer. Revenue generated through the sale of technologies to individuals represents a transfer from consumer to producer. For further details, see page 15. Fuel savings to householders also represent a transfer, as they are a reduction in revenue for the energy provider.

Direct impact on business (Equivalent Annual) £m):			In scope of OIOO?	Measure qualifies as
Costs:	Benefits:	Net:		
			Yes	

Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?	England				
From what date will the policy be implemented?	Winter 2011				
Which organisation(s) will enforce the policy?	Local Planning Authorities				
What is the annual change in enforcement cost (£m)?	£ See evidence				
Does enforcement comply with Hampton principles?	Yes				
Does implementation go beyond minimum EU requirements?	N/A				
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)	Traded:		Non-traded:		
Does the proposal have an impact on competition?	Yes/No				
What proportion (%) of Total PV costs/benefits is directly attributable to primary legislation, if applicable?	Costs:		Benefits:		
Annual cost (£m) per organisation (excl. Transition) (Constant Price)	Micro	< 20	Small	Medium	Large
Are any of these organisations exempt?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Specific Impact Tests: Checklist

Set out in the table below where information on any SITs undertaken as part of the analysis of the policy options can be found in the evidence base. For guidance on how to complete each test, double-click on the link for the guidance provided by the relevant department.

Please note this checklist is not intended to list each and every statutory consideration that departments should take into account when deciding which policy option to follow. It is the responsibility of departments to make sure that their duties are complied with.

Does your policy option/proposal have an impact on...?	Impact	Page ref within IA
Statutory equality duties ¹ Statutory Equality Duties Impact Test guidance	No	17
Economic impacts		
Competition Competition Assessment Impact Test guidance	Yes	17
Small firms Small Firms Impact Test guidance	Yes	17
Environmental impacts		
Greenhouse gas assessment Greenhouse Gas Assessment Impact Test guidance	Yes	18
Wider environmental issues Wider Environmental Issues Impact Test guidance	Yes	18
Social impacts		
Health and well-being Health and Well-being Impact Test guidance	Yes	18
Human rights Human Rights Impact Test guidance	No	
Justice system Justice Impact Test guidance	No	
Rural proofing Rural Proofing Impact Test guidance	Yes	18
Sustainable development Sustainable Development Impact Test guidance	No	

¹ Race, disability and gender Impact assessments are statutory requirements for relevant policies. Equality statutory requirements will be expanded 2011, once the Equality Bill comes into force. Statutory equality duties part of the Equality Bill apply to GB only. The Toolkit provides advice on statutory equality duties for public authorities with a remit in Northern Ireland.

Evidence Base (for summary sheets) – Notes

Use this space to set out the relevant references, evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Please fill in **References** section.

References

Include the links to relevant legislation and publications, such as public impact assessment of earlier stages (e.g. Consultation, Final, Enactment)

No.	Legislation or publication
1.	The Town and Country Planning (General Permitted Development) Order 1995
2.	The Green Energy (Definition and Promotion) Act 2009
3.	'Permitted development rights for small scale renewable and low carbon energy technologies, and electric vehicle charging infrastructure' Consultation Document November 2009
4.	Changes to Permitted Development: Consultation Paper 1 - Permitted Development Rights for Householder Microgeneration Consultation Document April 2007
5.	Consultation responses (to November 2009 consultation)
6.	Government response (to November 2009 consultation)
7.	Potential for Microgeneration Study and Analysis, BERR, 2005
8.	Domestic Installation of Microgeneration Final Report, DCLG, 2007
9.	Research into Aerodynamic Modulation of Wind Turbine Noise: Final report, University of Salford, 2007

Evidence Base

Ensure that the information in this section provides clear evidence of the information provided in the summary pages of this form (recommended maximum of 30 pages). Complete the **Annual profile of monetised costs and benefits** (transition and recurring) below over the life of the preferred policy (use the spreadsheet attached if the period is longer than 10 years).

The spreadsheet also contains an emission changes table that you will need to fill in if your measure has an impact on greenhouse gas emissions.

Annual profile of monetised costs and benefits* - (£m) constant prices

	Y ₀	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅	Y ₆	Y ₇	Y ₈	Y ₉
Transition costs										
Annual recurring cost	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.7
Total annual costs	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.7
Transition benefits										
Annual recurring benefits	2.4	2.5	2.7	2.8	3.0	3.2	3.3	3.5	3.7	3.8
Total annual benefits	2.4	2.5	2.7	2.8	3.0	3.2	3.3	3.5	3.7	3.8

* For non-monetised benefits please see summary pages and main evidence base section



Microsoft Office
Excel Worksheet

Evidence Base (for summary sheets)

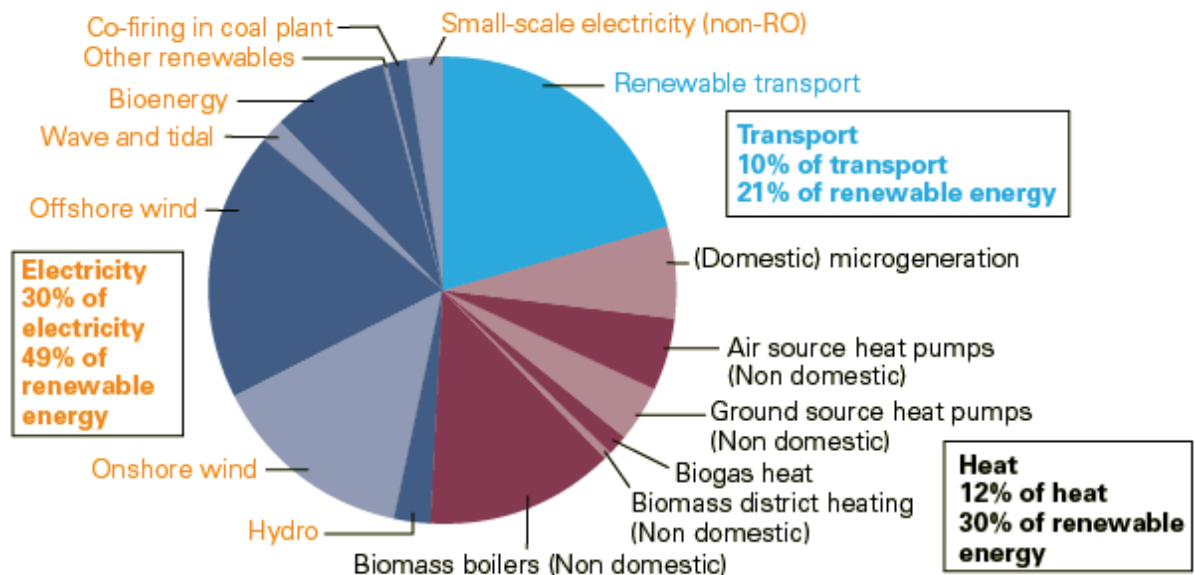
Background

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

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

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

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



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

The planning system and microgeneration

The planning application process can be a disincentive to the uptake of microgeneration technologies - the costs and time of making a planning application can be seen as a disincentive to some people. The work and cost involved in applying for planning permission can sometimes seem disproportionate to the scale and impact of what is being proposed. The current planning application fee for householder development is £150, but the total costs of making a planning application are higher than this once the costs of producing scaled drawings, the time and effort in filling in the application form, and the 8 week waiting period for a decision, are factored in.

Current position

The proposals which are the subject of this impact assessment aim to grant permitted development rights to wind turbines and air source heat pumps, with conditions and limitations designed to minimise impacts on others, particularly neighbours. The proposals have been informed by the results of extensive research, consultation with the microgeneration industry, acoustic experts, local authorities and the general public. We have also held extensive discussions within Government (notably with Department for Energy and Climate Change (DECC) and the Department for the Environment, Food and

Rural Affairs (Defra)).

One of the most difficult issues to address has been the noise limit to set for permitted development installations of these technologies. The consultation proposed setting the maximum noise level from an installation at 45dB L_{Aeq, 5 min}, at 1 metre from the window of a habitable room in the façade of a neighbouring residential property. Responses to the consultation were divided about whether this limit was appropriate – some argued that it was the noise limit necessary to secure a reasonable degree of uptake of these technologies, while others argued it would not safeguard amenity. After carefully considering the evidence that has been presented on all sides, the Government has decided to adopt a compromise position in response to the polarity of views, and will set the noise limit at 42dB L_{Aeq, 5 min}.

Rationale for Intervention

The Government wishes to promote measures to address the issue of climate change. One measure is to incentivise the take up of small scale renewable energy by removing the costs and burdens associated with submitting a planning application. This can be done by granting permitted development rights for installations of microgeneration equipment such as wind turbines and air source heat pumps. Increased demand will promote increased investment in research and development by the industry and this will lead to improved technologies. Economies of scale should lead to reductions in price which in turn will stimulate further demand.

The measures meet a number of objectives

- They encourage actions by consumers which take forward the Government's policies on climate change, energy decentralisation, and security of energy supply.
- They remove bureaucracy from the planning system and reduce the regulatory burden on households and industry.

Options

Two options are considered in this impact assessment:

- **Option 1 – 'Do nothing' scenario**

Do not introduce permitted development rights for installations of wind turbines and air source heat pumps on domestic premises.

- **Option 2 – Grant permitted development rights**

Grant permitted development rights for the installation of wind turbines and air source heat pumps on domestic premises.

Consultation

The proposals which we intend to take forward into legislation have been informed by the need to encourage take up of renewable energy as part of our wider response to climate change, the responses to the 2007 and 2009 consultations on householder microgeneration, and representations from acoustic experts and the microgeneration industry. They have been developed in consultation with other Government departments, in particular DECC and Defra.

Sectors and groups affected

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

- Households wishing to purchase and install wind turbines and air source heat pumps (particularly those encouraged to do so through reduced planning costs).
- Manufacturers and installers of wind turbines and air source heat pumps (who will benefit from greater demand as disincentives to take-up are removed).
- Retailers of wind turbines and air source heat pumps (who will experience greater demand for microgeneration technologies as disincentives to take-up are removed).

There may also be secondary effects to:

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

Cost-Benefit Analysis

Option 1 - 'Do nothing' scenario

There will be no additional costs or benefits from not reforming permitted development for microgeneration. The planning application process would continue to be a disincentive to the take-up of wind turbines and air source heat pumps in domestic settings. Householders would continue to pay planning fees and the administrative costs of making a planning application, and these costs would deter greater uptake which will prevent the carbon and electricity damage savings associated with Option 2 coming about. This in turn will compromise the effectiveness of Government renewable and low-carbon energy initiatives and impact upon national carbon reduction targets.

Option 2 - Grant permitted development rights

In making the assessment of costs and benefits it is important to distinguish between planning applications that would have happened under the "do nothing" scenario, and those cases where this policy change, that is, the introduction of new permitted development rights, would lead to greater uptake. For some of the costs and benefits below, we have identified that they may occur, but we have been unable to monetise them at this time.

Outline of benefits:

- The main savings are made from a reduced number of applications: fee savings and administrative cost savings related to making a planning application. These relate to those applications in the counterfactual growth that no longer need planning permission (i.e. those that would have occurred even without the policy change). These savings have been **monetised**.
- Administrative savings to local planning authorities are **monetised**, from no longer having to assess these planning applications.
- Carbon savings are assumed to stem from the additional microgeneration units installed due to the removal of the disincentive to uptake. Additional savings are made via carbon savings and reduced electricity damages. This applies to those additional renewables resulting from the policy change. These savings have been **monetised**.

- There will be savings for society from reduced electricity damage costs. Damage costs reflect the external costs that arise from the impact on the environment and human health from electricity generation. These will be reduced due to the increased generation of electricity by wind turbines. These savings have **not been monetised**.
- Fuel savings for householders from additional microgeneration units installed due to the removal of the disincentive to uptake. These have not been included in the total costs and benefits in the final stage impact assessment. These savings effectively net out as they are a reduction in revenue for the energy provider. Therefore, it is a transfer. These savings have **not been monetised**.
- Firms involved in the manufacture, installation or retailing of wind turbines and air source heat pumps will benefit from increased sales and revenues as demand for microgeneration units increases. In turn, this should provide incentives for firms to invest in the development of new technologies for domestic use which will be of benefit to society more widely, as it can be argued that it removes regulation that creates friction in the market. As production increases in response to demand, economies of scale will allow cheaper production with reduced embodied energy costs. These benefits are **not monetised**.
- Society will also benefit from greater energy security. Small scale renewable energy production can contribute positively towards renewable energy targets, increasing the overall stock of UK energy supply. These benefits are **not monetised**.
- As a result of having to make fewer planning application decisions, local authorities will benefit from a reduction in the numbers of appeals / legal challenges arising from its decisions on controversial schemes. These benefits are **not monetised**.

Outline of costs:

- The main costs are incurred through an increase in noise complaints. An increase in noise and vibration may lead to an increased number of complaints to local authority environmental health departments who will have to devote resources to resolving these complaints. This applies to the increased up-take due to the policy change. These costs have been **monetised**.
- There may be costs to third parties living in the vicinity of new microgeneration equipment as a result of impacts of the installations. These are likely to lead to noise and vibration impacts, or visual amenity impacts. The permitted development right limitations and conditions that are proposed for wind turbines and air source heat pumps are designed to minimise the impacts that they may have on neighbouring properties and the wider environment. In general the impacts on third parties are **not monetised**.
- There may also be an increased number of enquiries relating to whether new installations are acceptable and meet the conditions laid out in the permitted development rights. Given that local authorities currently respond to queries on the requirement for planning permission for air source heat pumps and wind turbines, it is considered that local authorities should be able to meet these enquiries with their existing resources, and therefore there would be no net additional costs.
- Householders wishing to install units may want to apply for certificates of lawful development to confirm that an installation is lawful. A lawful development certificate application is voluntary and will not result in every case. The extent to which this might happen is unknown. These applications attract a fee, but as they are voluntary it is for the consumer to weigh up whether the fee cost is worth the benefit (i.e the certificate). These costs have **not been monetised**.
- There are costs associated with the requirement for products and installers to be accredited by the Microgeneration Certification Scheme (MCS) or similar. Installers pay an annual fee to be members and each product also attracts a fee, in addition to the cost of testing which must be met by the

Monetised benefits and costs

Uptake of Microgeneration Technology

Existing uptake

To estimate the number of planning applications each year that would no longer be required as a result of domestic installations of wind turbines and air source heat pumps becoming "permitted development", recent data relating to existing uptake of these technologies has been used.

This data, sourced from the Department of Energy and Climate Change (DECC), relates to installations that have taken place. The data itself is not directly linked to the number of planning applications for these technologies. However, as they currently need planning permission to proceed, a correlation can be made between the number of installations and the number of planning applications. This data is more up-to-date than that used in the consultation impact assessment, and better reflects what is happening on the ground.

DECC has a database which contains, amongst other things, data on installations of wind turbines benefiting from FITS (Feed-in-tariffs). The FITS scheme has been running since 1st April 2010. The database indicates that from 1st April 2010 to 31st December 2010, there were 137 domestic wind turbines installed in England of the approximate scale at which these permitted development rights would be granted for. This equates to 137 installations in 3/4 of a year, estimated at 183 installations in 1 year. This number could then be rounded up further, as while we would expect most installations to be benefiting from FITS, it remains possible for installations to proceed without FITS. Therefore, it would be reasonable to use a baseline of 200 installations per year.

With regard to air source heat pumps, DECC has provided data based on information from industry sources. In 2008, there were 2,700 domestic installations of air source heat pumps throughout the UK. In 2009, there were 5,850 domestic installations of air source heat pumps throughout the UK. These figures have been adjusted to provide an estimate for England only. Approximately 83% of the dwelling stock in the UK is within England. Taking the 2009 installation figure, this would equate to around 4,855 installations within England. This is rounded up to provide a baseline of 5,000 installations per year.

Not every new microgeneration unit installation will meet the requirements to constitute "permitted development" after the legislative change. However it is reasonable to assume that more units will meet the requirements, as consumers will have an incentive to choose microgeneration units that are permitted development in order to save planning costs (i.e. the policy does not change the process for installation of a wind turbine or air source heat pump that does not meet the policy criteria). In addition, the proportion of microgeneration units that meet the requirements over time should increase as manufacturers adapt to meet the permitted development parameters. For our high scenario, the proportion of microgeneration units that meet requirements to constitute permitted development has been estimated to increase from 60% to 85% over the assessment period. For the low scenario, the proportion has been estimated to increase from 40% to 65%.

In the first year following the coming into force of the legislation, the number of applications that would be removed from the planning system as a result of new permitted development rights would be approximately 2,080 under the low scenario and 3,120 under the high scenario. These refer only to those applications that that would have occurred anyway.

Table 1 shows the estimated number of applications for each type of technology that would be affected between 2011 and 2020 under both low and high scenarios.

Table 1: Estimated total number of applications that would have been made in the counterfactual (in the absence of permitted development rights) meeting these requirements to constitute permitted development (the 42dB noise limit under low and high scenarios 2011-2020)

	Scenario	Wind turbines	Air source heat pumps
42dB noise limit	Low	1,050	26,250
	High	1,450	36,250

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

New uptake

It is also assumed that by removing a disincentive to the installation of these renewable technologies, uptake of these technologies for domestic uses is greater than it would have been under the “do nothing” scenario.

The planning application process is of course not the only disincentive to greater uptake of renewable technologies. A report by the Energy Savings Trust (EST) for DTI² which was based on a survey of 395 stakeholders indicated that the most important barrier to uptake was the high cost of technology (identified by 61% of respondents). Asked to identify the next major barrier to uptake, 43% then identified legislation and regulation constraints.

It is thought that the planning system does not provide the sole legislative/regulatory disincentive. The assumptions for growth in uptake are based on the judgement of consultants. Two growth scenarios are envisaged: the low scenario assumes increase in uptake of 2% per annum whilst the high scenario projects an increase of 5% per annum as a result of the extension of permitted development rights to this type of development. Consultation responses (2009 consultation) found that the majority of respondents (68%) considered that this growth estimate of uptake (between 2% to 5% annually) to be reasonable.

Table 2 shows the expected number of additional microgeneration units that would be installed as the introduction of new permitted development rights encourages increased uptake under the low growth scenario and the high growth scenario. The proposal leads to approximately 6,100 extra units under the 2% growth scenario, and an extra 16,700 units under the 5% growth scenario.

Table 2: Estimated additional units installed due to growth in uptake of the different microgeneration technologies between 2011 and 2020

	Growth in uptake	Wind turbines	Air source heat pumps
42dB noise limit	2%	230	5,800
	5%	640	16,000

Although it is possible that this policy could lead to the substitution of one renewable energy source with another, it is deemed negligible and to be offset by others who are encouraged to adopt more than one form of technology.

² Potential for Microgeneration Study and Analysis, <http://www.berr.gov.uk/files/file27558.pdf>

Future uptake not due to permitted development policy proposal

As well as the proposed new permitted development rights in the planning system, there are two other new policy initiatives which will encourage the uptake of microgeneration technologies. Under the “do nothing” option, increased installation of microgeneration units as a result of the removal of other disincentives to uptake would potentially place a substantial burden on the planning system as numbers of planning applications for microgeneration units increased. These initiatives are:

- Feed in tariffs (FITs)

The Department of Energy and Climate Change (DECC) has used powers in the Energy Act 2008 to introduce a system of feed-in tariffs to incentivise small scale (less than 5MW) low carbon electricity generation. The FITs scheme went live on 1 April 2010 and the first review has recently been announced (to be concluded by the end of 2011).

- Renewable Heat Incentive (RHI)

DECC also consulted in February 2010 on another initiative designed to incentivise take up, the Renewable Heat Incentive. In October 2010, as part of the Spending Review, DECC announced this will be going ahead in 2011.

Both FITs and the RHI may enhance take up by making it more attractive for households to install renewable technologies. These issues would ‘proportionally’ increase both savings from reduced number of planning applications and increase in number of complaints. These costs and benefits could offset and thus have not been included in the total figures in the final stage impact assessment. Furthermore, there is uncertainty regarding the impact of these policies and uptake.

Savings from reduced cost of planning applications

Making a planning application incurs the following costs:

- Direct cost: the planning application fee.
- Indirect costs: transaction costs such as professional fees, production of scaled drawings etc.

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

- The planning application fee: £150.
- The average (estimated) administrative cost is £725³.

This produces an estimated total saving of £875 per installation.

Table 3 below sets out estimates of the average annual savings for householders from the reduced number of planning applications they need to make. These projections are based on the estimated savings in terms of application fees and administrative costs. The low end estimate is based on the number of planning applications saved under the assumption that in 2011, 40% of wind turbines and air source heat pumps installed would fulfil the requirements to be permitted development. The high end estimate is based on the number of planning applications saved when that assumption is raised to 60%.

Table 3: Estimated average annual savings from the reduced number of planning applications

Savings		Low	High
AVERAGE ANNUAL SAVINGS*	Fee and admin savings	£2.4m	£3.3m

*Note that the annual saving grows over time due to the assumed switch to installation of units which meet requirements to be installed under permitted development rights.

³ Based on the PwC Administrative Burdens Measurement Project. The transaction cost of a minor application was calculated as £1450. It was assumed that a householder consent would cost half of this, or £725.

Savings to local authorities from administration of planning applications

Local authorities will benefit from a reduced number of planning applications, freeing-up resources to be employed elsewhere. However, they will also now not receive the fee income associated with having to assess the planning applications that they previously would have received. Therefore, if we take the cautious assumption that in net terms, fee income equalled administrative cost, there would be no net benefits to local authorities. However, in practice it is likely that local authorities do not achieve full cost recovery and so some administrative savings will arise, estimated at administrative savings of 10-15% of fee costs. If the fee is £150, the average annual administrative savings to local planning authorities are estimated to range from £41,000 to £85,000.

Savings from reduced carbon emissions

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

- The increase in take-up was estimated according to the methodology described above.
- Potential savings in gas and electricity were then calculated on the basis of typical electricity and gas consumption provided by Entec⁴ of 22,000kWh per household. This has been broken down into electricity and gas consumption using an average breakdown of fuel use.
 - Electricity consumption: 4,500 kWh
 - Gas consumption range: 16,000 kWh
- Different technologies will lead to different energy savings. Table 4 shows the estimated saving associated with the different technologies based on the professional experience of the consultants. Note that air source heat pumps use grid electricity in their operation but would be able to meet all of a household's heating and hot water requirements.

Table 4: Percentage of energy savings associated with the different microgeneration technologies

Energy	Wind turbines	Air source heat pumps
Electricity	40%	-30%
Gas	0%	100%

- The savings in average energy use were calculated for each technology and an emissions factor applied to estimate the reduction in carbon in tonnes.
- These reductions in carbon emissions can be converted into monetary savings using DECC advice on carbon valuation⁵.

Table 5 shows the average annual carbon savings for the proposal based on the assumptions above when compared with Option 1 (“do nothing”). The low scenario in this case takes the estimated number of extra units installed given the low growth assumption of 2%, annually and the high scenario assumes growth in extra units installed of 5% annually.

Table 5: Estimated annual carbon savings

Savings	Option 2	
	Low	High
Average annual saving	£96,000	£263,000

The figures above underestimate potential greenhouse gas savings as an assessment period of 10 years has been used – however the lifespan of most microgeneration equipment will be much longer. The Energy Savings Trust estimates the lifespan of wind turbines for domestic uses and air source heat

⁴ Entec for DCLG (2007) Domestic Installation of Microgeneration Final Report

⁵ http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/valuation/valuation.aspx

pumps as approximately 20 years. This assessment does not take into account the cost of embodied energy due to there being insufficient evidence on the embodied costs of different microgeneration technologies.

Savings due to improved air quality

In addition to the savings from reduced carbon emissions, there will also be a reduction in ‘damage costs’ that reflect the external costs that arise from the impact on the environment and human health from electricity generation. These are not 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. For electricity the damage costs were estimated at 0.006 – 0.017 £/kWh (provided by consultants and based on external costs of energy from AEA Technology and adjusted to reflect the UK fuel mix). These estimates exclude the carbon element within the damage costs, so as not to double count the effects as carbon savings have been calculated already.

Table 6 shows the estimated savings from reduced electricity damage costs under a low and high scenario for the additional take up of wind turbines only (without an estimate of the ‘damage costs’ of gas it is not possible to provide a similar estimate for air source heat pumps). The low scenario in this case takes the estimated number of extra units installed given the low growth assumption of 2%, and the electricity damage assuming low-end damage costs, while the high scenario takes the estimated number of extra units installed given the high growth assumption of 5%, and the electricity damage assuming high-end damage costs. These benefits are excluded from the total cost/ benefit analysis.

Table 6: Total estimated annual electricity damage savings for additional wind turbines only

Savings	Option 2	
	Low	High
Average annual savings	£260	£2,000

Costs relating to noise and vibration impacts

Costs to local authorities:

A number of respondents to the consultation raised concerns that without the regulatory oversight that local planning authorities provide when they determine a planning application, there will be an increase in the numbers of complaints about noise nuisance. These would increase the burden on local authority environmental health departments which have a duty to investigate noise complaints as a potential Statutory Nuisance.

There are differing views as to the extent of potential noise problems which may result from introducing these permitted development rights, but hard evidence for assessing the impact of the proposals on the numbers of noise complaints is extremely limited. Noise specialists have estimated the likely level of complaints when wind turbines are installed at the proposed noise limits and these estimates have been used in calculating costs for this impact assessment (see assumptions below). The microgeneration industry disputes these figures because of their weak evidence base. They have supplied their own survey which suggests the proportion of all noise complaints relating to *existing* installations is very low (around 0.2% of over 200,000 domestic noise complaints). These figures are disputed in turn because they fail to reflect that the wind turbines they describe have been through the planning process so that their potential noise impacts have been assessed.

The following assumptions have been made in calculating the estimated costs of increased numbers of noise complaints:

- The interim impact assessment in the consultation document envisaged that 97% of installations would receive complaints if the maximum noise level was set at 45dB L_{AEQ, 5 min} at 1 metre from the window, and that this figure would fall to 82% if the level was reduced to 37dB L_{AEQ, 5 min}. The consultation impact assessment does not discuss levels of complaints resulting from the noise level being set at 42dB L_{AEQ, 5 min}. Respondents were asked whether they considered that these levels of complaints were of the right order. The assumption was strongly contested by the micro

wind industry which submitted results of a study of 500 installed wind turbines all of which had been installed with the benefit of planning consent. Many of these appeared to be noisier than the proposed limit but almost none had led to noise complaints. The predicted complaint levels were also disputed because they assumed that all installations under permitted development would expose neighbours to the maximum noise level permitted, and this was considered to be unrealistic. A similar, but much smaller study of the attitude of neighbours was also provided by the air source heat pump industry and this also showed no evidence of complaints. The extreme between the views of the different parties is indicative of some profound differences in the way the estimates were made.

- The actual figure of complaints resulting from setting the noise level at 42 L_{Aeq, 5 min} is likely to lie somewhere between the extreme predictions, but the absence of on-the-ground evidence of how the new permitted development rights would operate in practice makes it impossible to predict the level of complaints with any level of confidence. The number of complaints will be monitored during the initial implementation period, but for the purpose of this impact assessment, modelling is based on a range of 30% - 60%.
- The costs in the summary sheet refer only to the scenario in which a 42dB L_{Aeq, 5 min} limit is maintained for 10 years.
- The low estimates of costs have been calculated assuming the low growth assumptions, while the high estimates of costs have been calculated using the high growth assumptions.
- Estimated costs of extra complaints to environmental health departments have been provided by DEFRA. The cost of an extra complaint will depend on the action taken by the environmental health department. Table 7 sets out the costs and the percentage of complaints that these costs will apply to. The costs of investigation of a complaint and serving a noise abatement notice are based on a salary of an environmental health officer of around £35,000⁶, with a 20% increase for superannuation and earnings related national insurance costs.. This gives an hourly cost of around £27, which has been increased to £38 as night visits may necessitate contractors completing site visits.

Table 7: Estimated costs of noise complaints for environmental health departments

Action taken	% of complaints	Cost of each complaint to environmental health department
Investigation	100%	£380
Serve noise abatement notice	10 – 15% ⁷	£760
Prosecution	1%	£10,000

Using the assumptions outlined above, it is estimated that during the first year following the legislation coming into force there could be between 30 and 80 extra complaints from both wind turbines and air source heat pumps. There are approximately 360 local planning authorities across England. If an assumption is made that the number of units installed is spread evenly across local authorities, this would suggest each local authority would be dealing with less than 1 extra complaint in the first year. However, the assumption that units would be installed across all local authorities is likely to be unrealistic, as there are spatial differences in wind speeds which will affect the viability of installing wind turbines in certain locations.

The monetised costs of extra noise complaints incurred by local authorities environmental health departments based on the estimated number of complaints range from £100,000 to £590,000 annually. These costs relate to the increased up-take due to the policy change. Complaints that would have occurred with new installations which would have gone ahead via the planning process (i.e. ones that

⁶ I&dea Local Government Careers website <http://www.lgcareers.com/career-descriptions/protecting-your-community/environmental-health-officer/>

⁷ Assumption on number of complaints leading to a noise abatement notice based on University of Salford research for BERR: www.berr.gov.uk/files/file40570.pdf

were not incentivised by the permitted development regime) are excluded from the analysis as they would have occurred anyway. The costs of the noise limit of 42dB $L_{Aeq, 5 \text{ min}}$ maintained over the 10 year period have been included in the summary sheets and taken into account in calculating the net present value of costs and benefits. These are gross costs, which are expected to be broadly balanced by a reduction in the planning workload including a reduced number of enquiries to planning departments about their approach to these microgeneration technologies; and a reduced number of appeals and legal challenges were every installation of these technologies to require its own planning decision. Investigating noise complaints will be thus could be incorporated into the overall adjustment local authorities would make to the national take-up of microgeneration.

Costs of noise to third parties:

Third parties living close to new installations may find that there is increased noise or vibration. It has not been possible to monetise the economic cost faced by third parties relating to noise, as guidance produced by the Interdepartmental Group on Costs and Benefits only applies to noise over the 42dB $L_{Aeq, 5 \text{ min}}$ limit being proposed for permitted development rights for wind turbines and air source heat pumps.

An important risk is that residents in a particular locality might be affected by the cumulative impact of a number of new wind turbines or air source heat pumps sited close together within a small area. This might lead to noise levels rising above 42dB $L_{Aeq, 5 \text{ min}}$. This risk is thought to be manageable in the short to medium term for the following reasons:

- (i) The proposed permitted development rights would apply only to the first wind turbine or air source heat pump installed, if there were no existing installations of either technology. If a householder wished to install another unit (either wind turbine or air source heat pump), then planning permission would be needed. The planning application process would allow the consideration of all impacts of the installation of additional units including noise on those living nearby.
- (ii) When the estimated number of installations which will occur under permitted development rights is averaged across approximately 360 planning authorities, approximately 2-3 extra units per authority would be installed per authority as “permitted development” annually. The probability that installations will be situated so close to each other as to have a cumulative effect on residents in a particular locality is likely to be low.
- (iii) Local authorities are able to use Article 4 directions to withdraw permitted development rights in their area. If the prospective cumulative impact of noise in an area is of such concern, Article 4 directions may be used to require that planning permission is sought from the local planning authority for particular classes of permitted development. This would allow for the planning application process to assess all potential impacts.

Costs relating to installation and operation of microgeneration technologies

The Energy Savings Trust website provides some indication of the costs of installation and operation of wind turbines and air source heat pumps⁸. Table 8 sets these out.

Table 8: Indicative costs of installing and operating of wind turbines and air source heat pumps

Technology	Cost of installation	Running costs	Power provided
Wind turbines	£1,500 + for a roof mounted turbine £11,000 - £19,000 for a stand alone turbine	£0 day to day though some maintenance costs over lifetime of machinery	1 – 2kW 2.5kW – 6kW
Air source heat pumps	£5,000 - £7,000	£790 per annum	5kW

The costs of installing and operating these technologies and the benefits of fuel savings to consumers have not been included in the total costs and benefits in the final stage impact assessment. Fuel savings effectively net out as they are a reduction in revenue for the energy provider. Therefore, it is a transfer.

⁸ Energy Savings Trust <http://www.energysavingtrust.org.uk/Generate-your-own-energy/Wind-turbines>, <http://www.energysavingtrust.org.uk/Generate-your-own-energy/Air-source-heat-pumps>

In the same manner, revenue generated through the sale of technologies to individuals represents a transfer from consumer to producer. These transfers may present cause for concern that costs are being incurred by one group (albeit off-set by others). However, although an individual would incur a financial cost (installation and maintenance costs outweighing energy savings), it is their choice to do so. Thus if they choose to install a renewable technology in their home they must gain a net benefit from doing so (a 'warm glow' effect).

Furthermore, FITs increase the benefit to consumers by providing a guaranteed payment for both the electricity generated and exported.

Costs relating to visual impacts on landscape

With the likely increase in installations of wind turbines and air source heat pumps; there is likely to be a visual impact on the landscape. It is proposed to minimise this risk through appropriate limitations and conditions for permitted development.

Other costs to local authorities

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

Further costs to planning departments would only arise from a breach of the condition or limitation of the permitted development rights which required the planning authority to investigate complaints or initiate enforcement. The Government expects such complaints to be little in number because the limitations and conditions are designed to minimise the impacts of the technologies and because the MCS will help to maintain standards. Where noise complaints arise, they would be investigated by environmental health departments and they have been monetised. Planning officers may become involved in enforcement activity, although we think that the greater clarity provided by setting out limits and conditions for permitted development should reduce the need for enforcement activity generally.

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

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

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

In summary, until additional evidence is obtained on how the new rights operate, it is considered that the effect of the introduction of permitted development rights for domestic wind turbines and air source heat pumps will broadly balance out for local authorities.

One In One Out (OIOO):

The main impacts of this policy relate to domestic premises. The planning application fee administrative savings monetised in this impact assessment do not affect business. There is no direct impact on business by the policy itself.

Specific Impact Tests

Statutory equality duties:

We have undertaken an equalities impact screening and have not identified any adverse impacts upon equalities.

Small firms impacts:

Some respondents to the consultation expressed concern about the proposal to restrict permitted development rights to technologies that have been accredited by the Microgeneration Certification Scheme (MCS) or similar, given the costs associated with accreditation and product testing. They argue this provision could discriminate against new businesses seeking to enter the market.

Such considerations must be off-set by the need for wider public protection against unproven and potentially unsafe technologies that could endanger public safety. Wind turbines in particular can be subject to severe weather conditions and therefore to ensure safety their structure must be controlled through rigorous engineering and robust testing. It is also necessary to ensure that procedures are in place to enable noise predictions for proposed installations. It was to ensure safeguards in these areas that the Government has supported the establishment of the MCS and is restricting FITs payments, and the proposed RHI payments and these permitted development rights to MCS certified products.

Competition impacts:

The renewable energy industry has raised concerns that if the maximum noise limit set for these technologies is set too low, it will be impossible for manufacturers to meet. This will reduce the potential demand for the green technologies concerned. This in turn will lead to a loss of business and employment opportunities in a young and strategically important industry. In responding to the consultation the BWEA predicts that the 42dB noise level would reduce the market for small wind turbines by between 21 and 25 percent.

While such concerns are important, the Government must also protect amenity and the environment. Provision is being made to monitor the way the new permitted development rights are operating to ascertain whether the noise limit being implemented is appropriate in the light of practical experience.

Greenhouse gas assessment and wider environmental issues:

There are carbon savings from reduced emissions, increasing as uptake increases. However, fuel savings for air source heat pumps can be affected by the price of the fuel being replaced and the price of the electricity used for powering the heat pump.

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

Rural proofing:

Microgeneration equipment could potentially impact on the quality and character of the natural and built rural landscape. Conditions and limitations in the permitted development rights have been designed to limit visual impact. Specifically, limitations for installations in areas such as National Parks and Areas of Outstanding Natural Beauty will afford greater protection to rural landscapes.

Health impacts:

Some concern has been raised that the noise generated by these technologies may result in disturbance that could disturb sleep and subsequently affect health. Opinions vary considerably on the extent of any disturbance that may result from the installation of these technologies under permitted development rights, and the limited evidence that exists is largely inconclusive. In turn, this makes it difficult to determine whether health impacts may arise as a result of these permitted development rights. Once the new rights are introduced, a greater body of practical experience will be established and there will be the opportunity to consider any possible health implications as part of the planned 1 and 2 year reviews.

Limited comments were received in relation to potential health risks of flicker from wind turbines installed as permitted development. As with noise, once the new rights are introduced, practical experience will

be established and there will be the opportunity to consider any possible health implications resulting from flicker as part of the planned 1 and 2 year reviews.

Implementation

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

Monitoring

It will be necessary to have data on the microgeneration units which installed under permitted development rights to monitor whether the expected benefits of the policy are delivered. Further consideration will need to be given to the best way to evaluate the success or otherwise of the policy, given that any increase in uptake may be due to other policy changes in future years.

Similarly, in order to monitor the impacts of the policy on local authority environmental health departments, it will be necessary to consider any increase in domestic noise complaints. The extent to which any increase is due to the effects of this policy would probably best be examined through a case study analysis.

The monitoring processes will inform the 1 and 2 year reviews which are to be undertaken in relation to this policy.

Annexes

Annex 1 should be used to set out the Post Implementation Review Plan as detailed below. Further annexes may be added where the Specific Impact Tests yield information relevant to an overall understanding of policy options.

Annex 1: Post Implementation Review (PIR) Plan

A PIR should be undertaken, usually three to five years after implementation of the policy, but exceptionally a longer period may be more appropriate. A PIR should examine the extent to which the implemented regulations have achieved their objectives, assess their costs and benefits and identify whether they are having any unintended consequences. Please set out the PIR Plan as detailed below. If there is no plan to do a PIR please provide reasons below.

<p>Basis of the review: [The basis of the review could be statutory (forming part of the legislation), it could be to review existing policy or there could be a political commitment to review];</p> <p>The Green Energy (Definition and Promotion) Act 2009 commits the Government to undertaking a review of these legislative amendments two years following the coming into force of the legislation. There will also be a review of the impact of the 42dB noise limit one year after the regulations come into force.</p>
<p>Review objective: [Is it intended as a proportionate check that regulation is operating as expected to tackle the problem of concern?; or as a wider exploration of the policy approach taken?; or as a link from policy objective to outcome?]</p> <p>Formulating these permitted development rights has been difficult because of the polarity of views as to the limitations/conditions that should be set to ensure potential impacts are not unreasonable, and the lack of reliable evidence to support any of these views. The objective of the review will be to consider the practical evidence that be generated as a result of the implementation of these new rights, and to investigate what impacts the new regulations are having on the ground, and whether the conditions and limitations have been set at levels that are appropriate and proportionate.</p>
<p>Review approach and rationale: [e.g. describe here the review approach (in-depth evaluation, scope review of monitoring data, scan of stakeholder views, etc.) and the rationale that made choosing such an approach]</p> <p>The approach will be to monitor the implementaiton of new installations of domestic wind turbines and air source heat pumps installed under the new rights to establish whether they are generating adverse impacts and whether the limitations on the new rights are set at appropriate and proportionate levels.</p>
<p>Baseline: [The current (baseline) position against which the change introduced by the legislation can be measured]</p> <p>The baseline for the review will be installations that have been installed through gaining specific planning permission from the local planning authority.</p>
<p>Success criteria: [Criteria showing achievement of the policy objectives as set out in the final impact assessment; criteria for modifying or replacing the policy if it does not achieve its objectives]</p> <p>Industry records will allow us to examine the number and characteristics of new installations provided with the benefit of the new permitted development rights. Local authority records will allow us to see whether many lawful development certificates have been issued for permitted development installations of these technologies. These records will enable an assessment of the extent to which the regulations are supporting an increase in the number of installation of these technologies. Monitoring a sample of these installations will help to establish whether they are operating satisfactorily without raising local concerns or creating new burdens for local authorities.</p>
<p>Monitoring information arrangements: [Provide further details of the planned/existing arrangements in place that will allow a systematic collection systematic collection of monitoring information for future policy review]</p> <p>A full specification for the review will be agreed with other government departments in advance. It is anticipated that industry and local authority data will be used to identify the volume of new installations that have been put in under permitted development, and to assess the level of complaints resulting from these installations.</p>
<p>Reasons for not planning a PIR: [If there is no plan to do a PIR please provide reasons here]</p>