



07

**Chapter 07 Supply and development of other infrastructure – water, waste and energy**

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“Sustainable development in the region also depends on how issues are addressed in relation to flooding, to the water cycle, to waste and to energy. All these have wider impacts on the global environment.” (Regional Planning Guidance for the South East)

Indicator	Latest Data	Progress	RPG9 Policy	IRF Objective	Targets
68 Number of properties at risk from flooding	2007: 280,000 properties and businesses	■■■	INF1	2	<ul style="list-style-type: none"> <li>High Level Target 5: Report on the Environment Agency's assessment of the risk of flooding and the action taken or proposed, and the status of defences (DEFRA HLT for Flood and Coastal Defence)</li> <li>To prevent all inappropriate development in the flood plain (IRF)</li> <li>By 2010, to increase the numbers of properties protected by 15,000 (IRF)</li> <li>All new development applications to show that sustainable drainage had been considered and implemented when appropriate (IRF)</li> </ul>
69 Number of planning permissions by local authorities granted contrary to the advice of the Environment Agency on grounds of floods defence or water quality	5 planning permissions	■■■			
70 Rivers of good or fair chemical and biological quality	2006: good and fair: Chemical: 94.1% Biological: 98.1%	✓	INF2	18	<ul style="list-style-type: none"> <li>The national target of the Environment Agency is to achieve and maintain 85% compliance with Guideline Standards and 97% compliance with imperative standards: the two types of standards used to determine compliance with the EC water bathing Directives</li> <li>To achieve a balance in the demand for and supply of water (RPG9)</li> <li>By 2005 (now needs reviewing) for 91% of river length to achieve compliance with Environment Agency River Quality Objectives (in line with national Public Sector Agreement target) (IRF)</li> <li>To ensure that all waters in the region comply with the EC Bathing Waters Directive in all years (IRF)</li> <li>To stabilise PCC of water at current levels (IRF)</li> <li>By 2007, achieve a 12% reduction in Category 1 and 2 pollution incidents from all sectors (IRF)</li> </ul>
Compliance with EC bathing water directive (76/110/EEC)	2007: 100% compliance with imperative standard	—			
71 Per capita consumption of water	2006-07: Measured: 137 litres/head per day Unmeasured: 157 weighted average: 152	✓			
Incidents of major and significant water pollution	2006: 81 total incidents (Category 1 and 2)	—			
72 Waste generation (and growth rates) of major waste streams	2006-07: 4.6 million tonnes (municipal waste) 2006: 477,042 tonnes hazardous waste	✗	W1 W3 W5 W6 W7 W13	17	<ul style="list-style-type: none"> <li>Various targets for policies W1, W5, W6 (RPG9 Chapter 10 Alterations)</li> <li>To recover value from 53% municipal waste by 2010, 67% by 2015, and 75% by 2020 (National Waste Strategy)</li> <li>To recycle or compost at least 40% of household waste by 2010, 45% by 2015 and 50% by 2020 (National Waste Strategy)</li> <li>To reduce the amount of industrial and commercial waste going to landfill by 20% by 2010 compared to 2004 levels (National Waste Strategy)</li> <li>To increase recovery of all waste in the region to 71% by 2010 (IRF)</li> <li>To increase recycling and composting of waste in the region to 50% by 2010 (IRF)</li> <li>To reduce growth of all waste to 1% per annum by 2010 (IRF)</li> </ul>
73 Amount of municipal waste arising and managed by management type and the % each management type represents of the total waste managed: by waste planning authority	2006-07: Landfill: 54% Incineration with EfW: 12% Recycled: 34% Other: 0%	✓ (recycling)			
Percentage of the total tonnage of all types of waste (municipal solid waste, construction and demolition and industrial) that has been recycled, composted, used to recover heat, power and other energy sources, and landfilled	See indicator 74 for MSW data No new data for C&I waste Insufficient data for C&D waste	✓			
Waste movements, particularly exports from London	2006: MSW+C&I: 1,010,467 tonnes/ C&D: 1,080,091 tonnes/ 312,000 tonnes hazardous waste exported to rest of England and Wales and 100,000 tonnes imported to the region	—			

Indicator	Latest Data	Progress	RPG9 Policy	IRF Objective	Targets
<b>74</b> Capacity of new waste management facilities by type: by waste planning authority	2006: various	■ ■ ■	W1 W3 W5 W6 W7 W13	17	
<b>75</b> Energy use per capita	2006: Gas: 6,691 KWh 2006: Electricity: 2,068 KWh	✓	INF6 INF7 INF8	19	<ul style="list-style-type: none"> <li>■ To meet 10% of UK electricity generation from renewable sources by 2010. Government also has an aspiration to further increase generation by 20% by 2020 (National Targets)</li> <li>■ To reduce domestic energy consumption by 30% by 2010 (National Targets)</li> <li>■ Minimum targets for regional electricity generation capacity from renewable sources: 5.5% by 2010, 8% by 2016 and 16% by 2026 (RPG9 Amendments Chapter 10)</li> <li>■ Installed capacity (MW): 620 by 2010, 895 by 2016, and 1,750 by 2026 (RPG9 Amendments Chapter 10)</li> <li>■ See full text INF7 (RPG9 Amendments Chapter 10)</li> </ul>
<b>76</b> Renewable energy electricity capacity installed by type: by local authorities (MW)	June 2007: 343 MW	✓			
<b>77</b> Electricity output from renewable sources, GWh (Gigawatt hours)	2005: 1,218.3 GWh	✓			
<b>78</b> Emissions of basket of greenhouse gases from energy consumption, transport, land use and waste management	2005: 67,016 Kilotonnes	■ ■ ■		12	<ul style="list-style-type: none"> <li>■ Reduce basket of six greenhouse gases (GHGs) by 12.5% below 1990 levels in the period 2008-2012 (Kyoto)</li> <li>■ Cut CO<sub>2</sub> emissions by 20% below 1990 levels by 2010 (national domestic target)</li> <li>■ By 2050, reduce greenhouse gas emissions from activities within the region by 60% (IRF)</li> </ul>
Ecological Footprint for the South East	2001: 6.1 global hectares per person	—		16	<ul style="list-style-type: none"> <li>■ The new code for sustainable homes will provide a new national standard (based on BREEAM Ecohomes) and is likely to be the basis for future improvements to Building Regulations for energy and carbon emissions</li> </ul>

Key to table: Significant effect indicator and National Core Output Indicator

# Policy implications

## The risk of flooding

Policy INF1 steers development away from areas of flood risk and protects flood defences.

Although there has been an increase in the amount of properties protected from flood risk, further progress is needed to meet the target for 2010.

Due to the lack of data and trends, it is still difficult to identify policy implications. However, changes in Government guidance related to flood risk may lead to a positive trend: The Planning Policy Statement on flood risk (PPS25) strengthens the role of Strategic Flood Risk Assessments informing Local Development Frameworks and the consideration of flood risk for new development. A recently published Practice Guide Companion supports delivery of the PPS. Moreover, Local Planning Authorities are now required to consult the Environment Agency on all applications for development (except minor) in high flood risk areas. Government has also introduced a new standing Flooding Direction, on which basis the Environment Agency can request the consideration of a call-in of an application by Government. In the South East Plan, Policy NRM3 promotes sustainable flood risk management, and the Regional Flood Risk Appraisal is being updated to reflect the PPS25 Practice Guide<sup>1</sup>.

Despite all this effort to address the problem, climate change may exacerbate flooding as probability and severity increase. This highlights the need for investment in flood and coastal defences in certain parts of the region eg South Hampshire.



## The water cycle – supply and quality

Policy INF2 aims to improve both supply and quality of water through more efficient use of water resources and investment in infrastructure.

Positive trends have been observed in the indicators that monitor water supply and quality and there has recently been a small decrease in per capita water consumption. It is not clear how much of the recent reduction in consumption can be attributed to permanent changes in public behaviour or whether it is still a reflection of restrictions and appeals to use water conservatively during the 2005-06 drought. The South East remains the region with the highest per capita water consumption, so further reductions should be encouraged through more promotion of water efficiency and water conservation in new and existing buildings and the influencing of behaviour. The Code for Sustainable Homes, the gradual strengthening of Building Regulations for water efficiency and the identification of the whole South East as an area of serious water stress (enabling compulsory metering and other water efficiency related activities), will facilitate this. Studies carried out in co-operation with water companies and the Environment Agency in preparing the South East Plan demonstrate that a twin-track approach of resource development and improved water efficiency (Policy NRM1) is required to cater for future growth.

The European Habitats and the Water Framework Directive could lead to tighter water quality standards for rivers and coastal waters in the future. Moreover, the Environment Agency is currently reviewing abstraction licences in light of the Habitats Directive. Water quality improvements have been limited since 2000.

As with Policy INF1, the impacts of climate change will need to be addressed as these could change the frequency and severity of future droughts in a region where pressure on water resources is already high.



## Waste

### Reduction of waste generation (and growth rates) of all waste

Note: Policies referred to are those included in the RPG9 alteration on Waste and Minerals approved in 2006.

Policy W1 aims to reduce growth of all waste to 1% p.a. by 2010 and 0.5% p.a. by 2020.

There has been a reduction in the growth rate of municipal solid waste (MSW) over recent years compared to the national and regional average in the past 10 years. However, the overall picture is a general increasing trend in generation of all wastes (MSW, C&I and C&D). There is still a lack of up-to-date data to enable identification and analysis of recent trends particularly for commercial and industrial (C&I) waste and construction and demolition (C&D) waste. There has been a general decline in hazardous waste generated from 2000 levels, owing to better separation and avoidance of contamination at source. However, recent estimates from 2003 show a steadily increasing trend in hazardous waste generated. Preliminary data from the Environment Agency for 2005 and 2006 also suggest a marked increase in hazardous waste generated. Reasons for this are being investigated but may be due to changing classification of materials under new legislation.

Despite an apparent decline in municipal solid waste generation in 2003-04 and 2005-06, there has been a recent rise in waste generated over 2006-07. This apparent reversal, coupled with the general trend of increased C&I and C&D waste, presents a significant challenge for the region in finding ways to reduce the overall levels of waste growth.



### Monitoring and managing waste movements, particularly exports from London

Policy W3 aims to ensure that the region becomes self sufficient in waste and that London waste sent for landfill in the South East is reduced.

There has been improved joint working between the Assembly, the GLA and the East of England region in monitoring and agreeing to reduce waste exports from London. However, London continues to export large amounts of waste to the South East and other regions for disposal. Robust data is lacking but is improving. The London Plan has targets to improve its self-sufficiency in waste management. There is a need for alternative management capacity, minimising waste generation in the first place and reducing imports from London. The region's landfills have only between six to eight years capacity. Some counties have less.



### Diversion of waste from landfill

Policy W5 sets targets for the diversion of waste from landfill.

Policy W6 sets recycling and composting targets for the region.

There has been a significant increase in the amount of municipal solid waste (MSW) diverted from landfill and a corresponding increase in the levels of recycled and composted materials year on year since 2000-01. There has been an increase in the recovery of materials since 2000-01. However, significant improvements will have to be achieved in recycling C&D waste to meet regional targets. There is a lack of up-to-date sub-regional data to enable identification and analysis of recent trends in arisings and movements of commercial and industrial and construction and demolition waste.



<sup>1</sup> Several Strategic Flood Risk Assessments (SFRAs) have been undertaken to inform LDFs.

### Provision of waste management capacity requirements

Policy W7 sets out waste management capacity requirements for the region.

Policy W13 aims to ensure a reduction of waste disposal through landfill.

There continues to be a need to change the way we manage our waste – with recycling and other recovery facilities being permitted and built to help achieve targets for diversion of waste from landfill. However, while the existing capacity for the recycling, recovery and composting of MSW and C&I waste is adequate at regional level, there are large variations between Waste Planning Authority areas (“Regional Waste Management Capacity: Survey, Methodology and Monitoring, April 2007”).

New capacity will be required to meet future needs, especially for non-hazardous landfill and recovery. There are concerns that some planned capacity may not become operational. Furthermore, existing trends in waste imports from London coupled with the South East region’s own gradual decline in actual tonnage of waste diverted from landfill could lead to a deficit in landfill capacity by 2015. Energy from Waste (EfW) facilities in the region rarely involves recovery of heat.

 **W7 – 2006**  **W7 – 2007**

 **W13 – 2006**  **W13 – 2007**

### Energy – renewable energy

Note: Policies referred to are those included in the RPG9 alteration on Energy Efficiency and Renewable Energy, approved in 2004.

Policy INF6 sets regional renewable energy targets.

Policy INF7 sets sub-regional renewable energy targets.

Policy INF8 provides policy guidance on the location of renewable energy development.

Evidence suggests that we are moving in the right direction on renewable energy in the South East but there is significant room for improvement and some causes for concern. In 2006, the region was the largest producer of renewable electricity (BERR). Major offshore wind schemes are at planning stage.

Improving the deployment of renewables across the region will help to deliver the Government’s aim of improving security and diversity of supply. However, to mitigate the impacts of climate change and bring about the necessary reduction in carbon emissions, the proportion of electricity generated from renewable energy needs to increase significantly and current performance across the region varies significantly. Although there are significant on and offshore wind developments planned, deployment of onshore wind, dedicated biomass and photovoltaics remains low. In addition, capture of heat, for example, through use of combined heat and power from decentralised biomass power stations is also rare in the region and much more extensive use is necessary. Of concern is the fact that Sussex, Hampshire and the Isle of Wight and a number of other local authority areas do not have a significant level of renewable energy capacity installed yet. There is a slow deployment of biomass (especially dedicated stations), and solar PV. There is also a slow deployment of CHP/district heating schemes.

 **INF6 – 2006**  **INF6 – 2007**

 **INF7 – 2006**  **INF7 – 2007**

 **INF8 – 2006**  **INF8 – 2007**

# The risk of flooding

## RPG9 POLICY:

**INF1 Development should be guided away from areas at risk or likely to be at risk in future from flooding, or where it would increase the risk of flooding elsewhere. Existing flood defences should be protected where they continue to be relevant (in reducing flood risk).**

## Indicator 68

### Number of properties at risk from flooding.

- 2007: 280,000 properties

### Highlights

- There were 280,000 properties and businesses at risk from coastal or river flooding in the South East region in 2007.
- This is a reduction on the number quoted last year owing to improvements in the accuracy of data as a result of more detailed mapping and modelling work undertaken.
- Since 2003, 12,314 properties across the South East benefited from defences. This includes newly protected homes and those where current flood defences have been enhanced.
- The number of properties has been calculated at risk from flooding based upon a 1 in 1,000 (0.1%) probability of flooding in any one year (called Extreme Flood Outline) for both coastal and river flooding.

Source: Environment Agency

## Indicator 69

### Number of planning permissions by local authorities granted contrary to the advice of the Environment Agency on grounds of flood defence or water quality.

- 2006-07: Five planning permissions

### Highlights

- In 2006-07, the Environment Agency objected to 754 planning applications on flood risk grounds, compared with 671 in 2005-06.
- Despite these objections, five of these applications were approved by local planning authorities contrary to the Agency's advice. These five applications consisted of one major and three minor residential developments and one 'other' type of development.

Source: Environment Agency

## Commentary

The methodology for calculating properties at risk is still being refined. Therefore, it is still not possible to identify a trend. The amount of properties protected has risen.

The total number of objections against planning applications by the Environment Agency has risen slightly. With regard to planning permissions against Environment Agency advice, the latest figure cannot be compared to a figure from the previous year as data was not available. However, the figure is significantly lower than the 24 permissions against Agency advice in 2005.

In the majority of cases, the local planning authorities have not provided reasons. Where reasons have been provided, they include doubts about the Agency's advice and precedence set by previous permissions (Source: Environment Agency: High Level Target 5 – Development and flood risk in England 2006-07).

# The water cycle – supply and quality

## RPG9 POLICY:

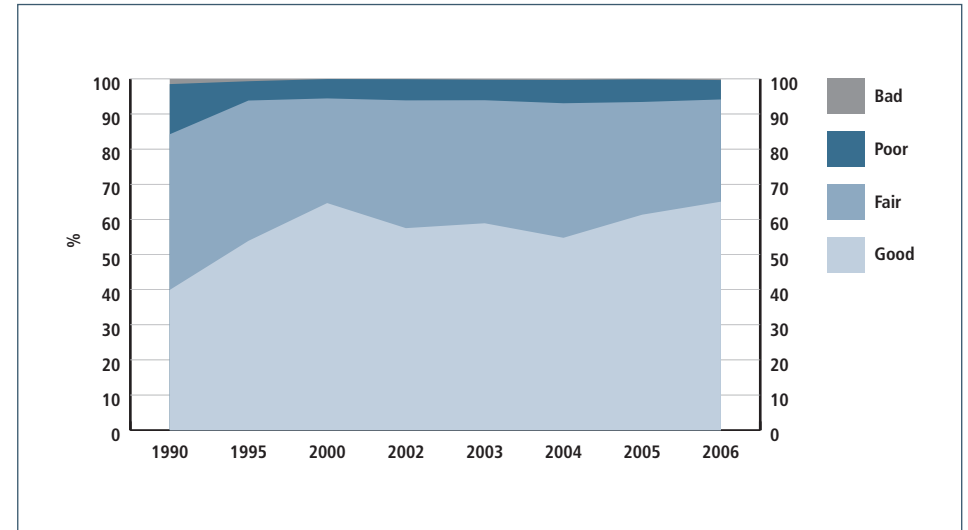
**INF2 New development should be located and its implementation planned in such a way as to allow for sustainable provision of water services and enable timely investment in sewage treatment and discharge systems to maintain the appropriate standard of water quality. Techniques to improve water efficiency and minimise adverse impacts on water resources, on the quality, regime, and ecology of rivers, and on groundwater, should be encouraged. Redevelopment should identify and make provision for rectification of any legacy of contamination and drainage problem.**

## Indicator 70

**Rivers of good or fair chemical and biological quality.**

### Highlights

- River quality is generally good with chemical water quality again improving between 2005 and 2006 (from 61% to 65%) and biological quality of water staying constant (at around 78%).
- Since 1990, biological and chemical water quality has improved in the region; however the rate of improvement has slowed in recent years.



**Figure 39 Chemical river water quality, 1990-2006**

Source: Environment Agency.

## Indicator 71

### Per capita consumption of water.

#### Highlights

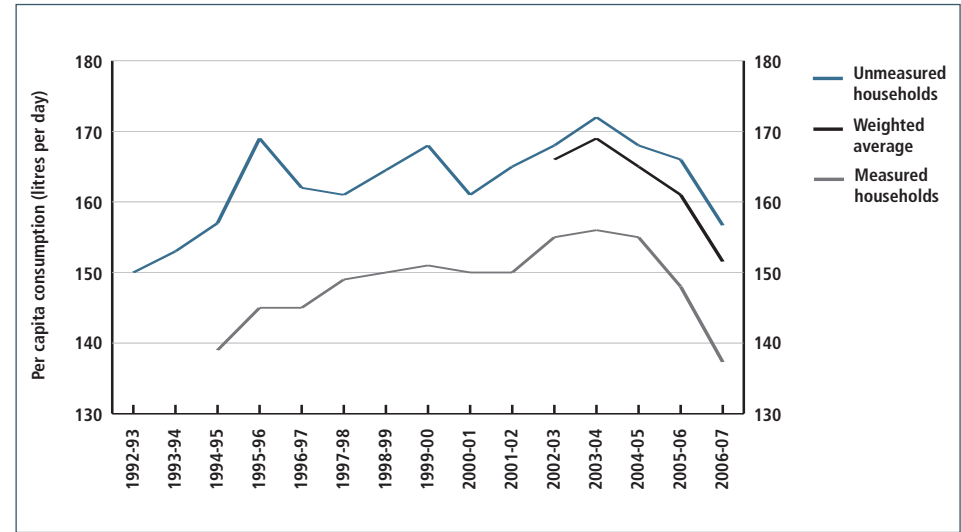
- The daily water consumption in 2006-07 for unmeasured households was 157 litres per person per day while the measured consumption was 137 litres per person per day.
- In 2006-07 the weighted average consumption of water (measured and unmeasured consumption divided by the number by occupants in measured and unmeasured households) was 152 litres per person per day.
- The pattern for both measured and unmeasured per capita consumption of water across England and Wales is that most of the high values are concentrated in the South East.

#### Commentary

There is a good range of data available for the indicators that monitor this policy on the water supply cycle and quantity.

The chemical and biological quality of the rivers in the South East has improved over the last decade because of the effective regulation of industry and significant investment by water companies. This rate of improvement has slowed in recent years. This may be owing to population growth increasing discharge of treated sewage into rivers and increases in diffuse pollution from agriculture and urban run-off. The effect of sewage effluent is most significant in the upper reaches of catchments and in drought periods, and also where important wildlife sites and features may be affected.

The South East still has the highest regional average water consumption rate for both measured and unmeasured households. However, water consumption in the region appears to decrease in recent years. Reasons include a continued increase in the number of households with water meters, the region-wide hose pipe ban that was not fully lifted until April 2007 and targeted water efficiency campaigns.



**Figure 40 Daily consumption of water by measured and unmeasured households, 1992-2007**

Source: Environment Agency.

# Waste

## RPG9 POLICY:

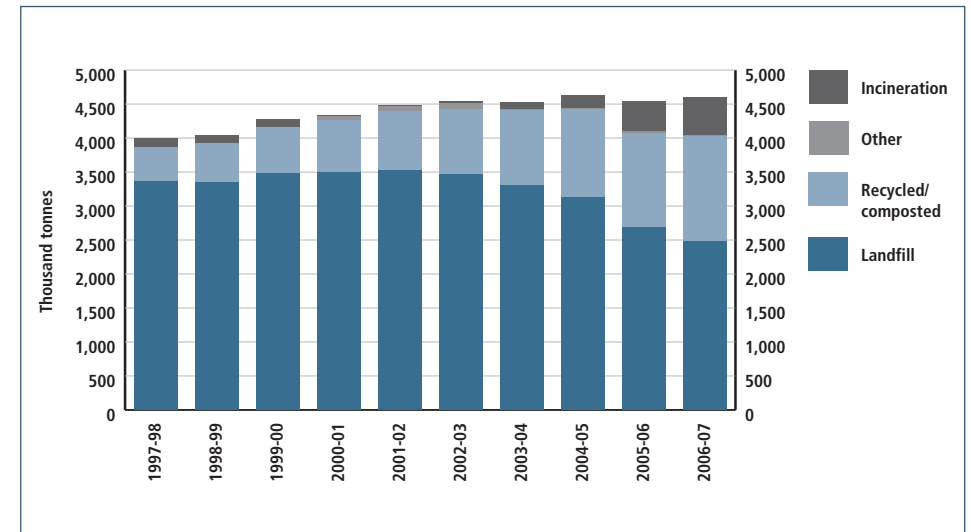
(see RPG9 Amendments, Chapter 10)  
**W1, W3, W5, W6, W7 and W13**

## Indicator 72

**Waste generation (and growth rates) of major waste streams.**

### Highlights

- In 2006-07, the municipal solid waste (MSW) arising in the South East was 4.6 million tonnes.
- From 1996-97 (first data available) to 2002-03, municipal waste increased year on year, reflecting the national trend. In 2003-4 municipal waste decreased but increased again in 2004-05. A similar pattern occurred in 2005-06 to 2006-07.
- In total, since 1996-97, municipal waste has increased by 16% reflecting the national trend. The average regional growth of municipal waste per annum over the 10-year period is 1.6%.
- In 2006-07 in the South East, among the 4.6 million tonnes collected as municipal waste, 54% was disposed to landfill, 34% was recycled and composted and 12% was incinerated.
- Household recycling and composting rate in the South East increased to 34% in 2006-07 from 30% in 2005-6.
- The amount of municipal waste sent to landfill decreased to 54% in 2006-07 from 59% in 2005-06.
- Hazardous waste declined from 565,141 in 2000 to 477,042 tonnes in 2006.
- Separate data for Commercial and Industrial (C&I) waste is not available.



**Figure 41 Total municipal waste, 1997-2007**

Source: Municipal and waste management survey, Defra.

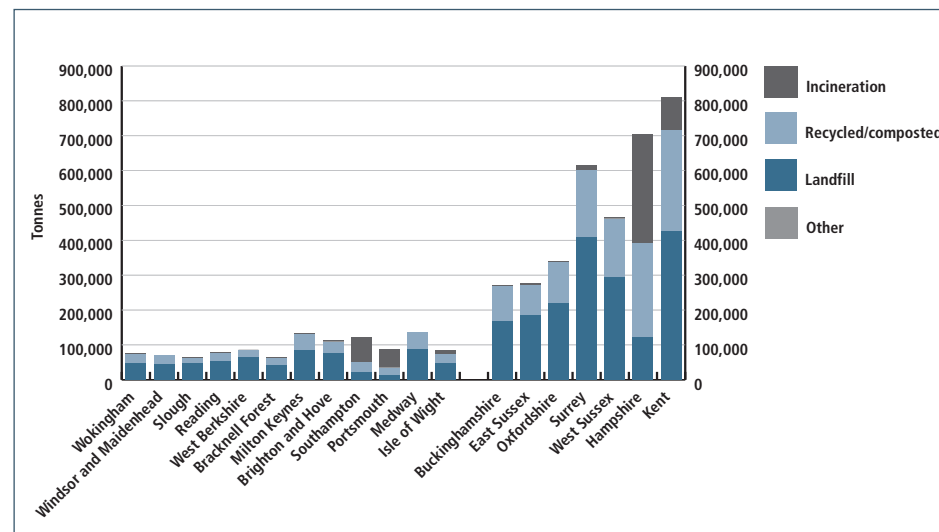
Note: 'Other' includes material which is sent for Mechanical Biological Treatment (MBT), mixed municipal waste sent for Anaerobic Digestion (AD) and that disposed of through other treatment processes.

## Indicator 73

**Amount of municipal waste arising and managed by management type and the % each management type represents of the total waste managed: by waste planning authority.**

### Highlights

- Intra-regional variations, in terms of municipal waste management, are important. In Surrey 68% was sent to landfill compared to only 18% in Hampshire. 44% of municipal waste was incinerated in Hampshire compared to 0% in Buckinghamshire, Oxfordshire and West Sussex.
- In Hampshire, 38% of municipal waste was recycling and composted compared to 30% in East Sussex.
- In unitaries, 77% of municipal waste in West Berkshire was sent to landfill compared to 16% in Portsmouth.
- Kent County Council was among the 10 most improved counties diverting municipal waste sent to landfill, with a 16% drop from 2005-06 to 2006-07.



**Figure 42 Municipal waste arising by waste planning authority, 2006-07**

Source: Department for Environment, Food and Rural Affairs (Defra).

## Indicator 74

### Capacity of new waste management facilities by type: by waste planning authority.

#### Highlights Table 6

- Non-hazardous landfill capacity and inert landfill capacity are significantly higher than the other types of waste capacity.
- Kent is the only county that has hazardous landfill capacity.
- MSW and C&I transfer capacity (waste transfer stations) is higher than MSW and C&I recycling and composting capacity.

#### Commentary

The general long-term trend continues to be one of increasing waste generation. The recent declines in municipal solid waste generation (in 2003-04 and 2005-06), though encouraging, have not been sustained, with an increase in 2006-07. Despite this recent increase, it is encouraging that the percentage increase of about 1.3% between 2005-06 and 2006-07 is lower than the regional and national 10-year average of about 1.6%. However, the cause of this recent increase is not clear.

The amount of waste diverted from landfill continues to increase, although in part this progress is offset by growing amounts of waste generated. This has been achieved through delivery of waste recycling and recovery capacity as an alternative to landfill, driven by legislation and rising costs of landfill, together with widespread collection of recyclable materials. There is continuing need for new waste management and disposal capacity, with particular needs in parts of the region where need (the amount of waste) outweighs capacity.

National and regional data on construction, demolition and excavation waste (CDEW) for 2005 indicated a slight decline in growth in this waste stream. Between 2003 and 2005, the production of recycled aggregate increased from 36% to 46% of CDEW arisings in the region. Despite this increase, the region still records a lower recycling rate compared to the national average of 52%<sup>2</sup>. An important point is that the national and regional level estimates have a considerable amount of uncertainty and caution should be exercised in drawing conclusions from the CLG research.

The general long-term picture for hazardous waste generation shows a decline of 18% from 2000 levels. This reflects the pattern from England and Wales. During this period new legislation has changed the categorisation of such waste and requirements for its treatment. Of the 477,000 tonnes generated in the region, 165,000 tonnes is actually managed within the region, the rest exported often to specialist facilities elsewhere in England and Wales. 100,000 tonnes was also imported to the region in 2006. These data are from work underway to assess arisings, movements and management needs for hazardous waste generated in the region, to help implement policy W15 of the South East Plan.

London continues to depend on the South East and other regions for the disposal of its MSW and C&I waste to landfill. To address this, the Assembly continues to work with the Greater London Authority (GLA) and East of England Regional Assembly to monitor and review waste movements and management requirements.

<sup>2</sup> Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005. Construction, Demolition and Excavation Waste. Table 7.3. Prepared for Communities and Local Government (CLG) by Symonds Group, in association with WRC.

	Berkshire	Buckinghamshire	East Sussex	Hampshire	Isle of Wight	Kent	Medway	Milton Keynes	Oxfordshire	Surrey	West Sussex	South East
<b>Landfill</b>												
Non-hazardous landfill	0.055	10.5	0.825	1.490	0.950	7.275	0.475	22	11.096	8.515	2.437	65.618
Inert landfill	0.181	26.051	0	1.693	0	29.297	0	1.128	4.118	11.532	0	74
Hazardous landfill	0	0	0	0	0	3.309	0	0	0	0	0	3.309
<b>Recycling and composting</b>												
MSW and C&I recycling and composting	0.687	0.354	0.112	4.589	0.056	0.748	0.087	0.219	0.776	1.300	0.082	9.01
C&D recycling	0.064	0	0	0.072	0	0.165	0	0	0.107	0	0	0.408
MSW and C&I transfer	1.021	0.404	1.644	2.679	0.088	2.860	1.730	0.169	0.259	2.116	0.976	13.946
<b>Recovery</b>												
MSW and C&I recovery	0.360	0.186	0.307	1.768	0.120	0.779	0.005	0.075	0.150	0.141	0.341	4.232
C&D recovery	-	-	-	-	-	-	-	-	-	-	-	1.794

**Table 6 Capacity of existing waste management facilities (million tonnes) by type: by waste planning authority, 2006**

Source: Regional Waste Management Capacity: Survey, Methodology and Monitoring, April 2007. Modelled Scenario 1.

[www.southeast-ra.gov.uk](http://www.southeast-ra.gov.uk)

Notes: 1) Data in table is based on modelled scenario 1. This scenario includes all operational sites and sites with planning permissions or applying for permissions. Where data gaps exist, extrapolation has been used to estimate total capacity. This scenario therefore estimates the maximum total capacity available.

2) Capacity data for inert landfill, hazardous landfill and non-hazardous landfill was not extrapolated owing to the varying nature and size of landfill facilities.

3) Capacity refers to existing and 'planned' (with planning permission but not necessarily operational). Calculations for MSW and C&I recycling and composting capacity assume that 5% of the total waste transfer capacity delivers recycling.

4) Data for C&D recovery is not split per waste planning authority. The total figure represents a regional figure shown against regional arisings estimates.

# Energy – renewable energy

## RPG9 POLICY:

(see RPG9 Amendments, Chapter 10)

**INF6 Regional renewable energy targets.**

**INF7 Sub-regional targets.**

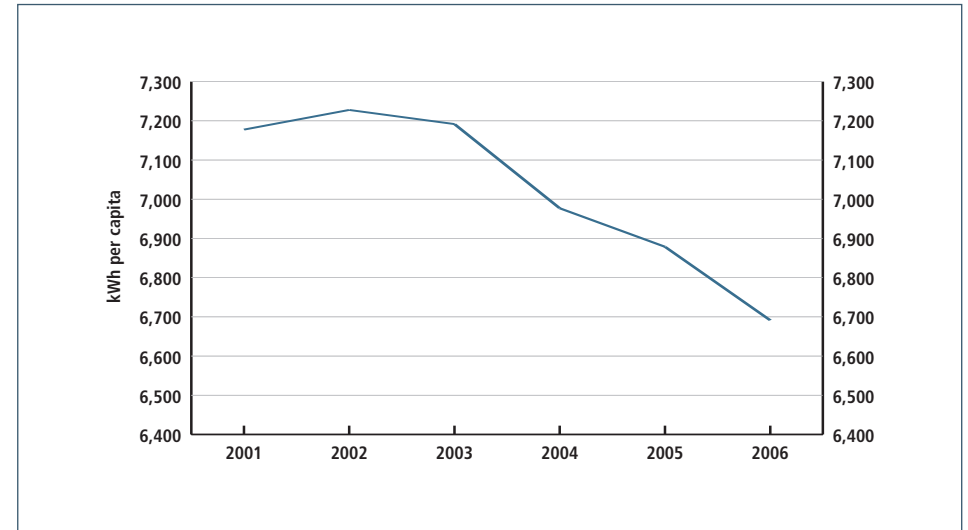
**INF8 Location of renewable energy development.**

## Indicator 75

### Energy use per capita.

#### Highlights

- In 2006, gas consumption by customer per capita was 6,691 KWh per capita. This represents a decrease of nearly 7% since 2001.
- Gas consumption per capita was the seventh lowest in England.
- Electricity per capita was 2,068 KWh. This represents a slight decrease (38 KWh) on 2005 figure (2,107 KWh).



**Figure 43 Gas consumption per capita (KWh), 2001-06**

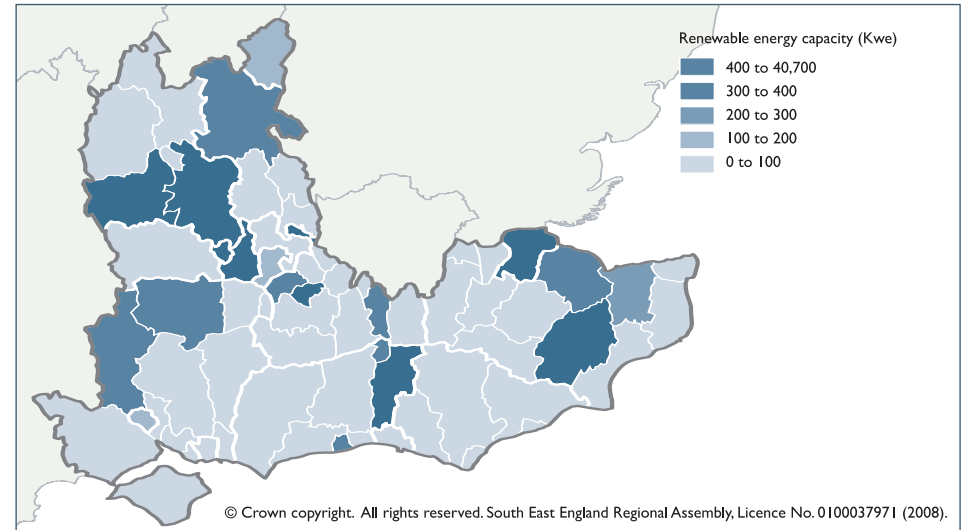
Source: BERR (Department for Business, Enterprise and Regulatory Reform).

## Indicator 76

### Renewable energy capacity installed by type: by local authorities (MW).

#### Highlights

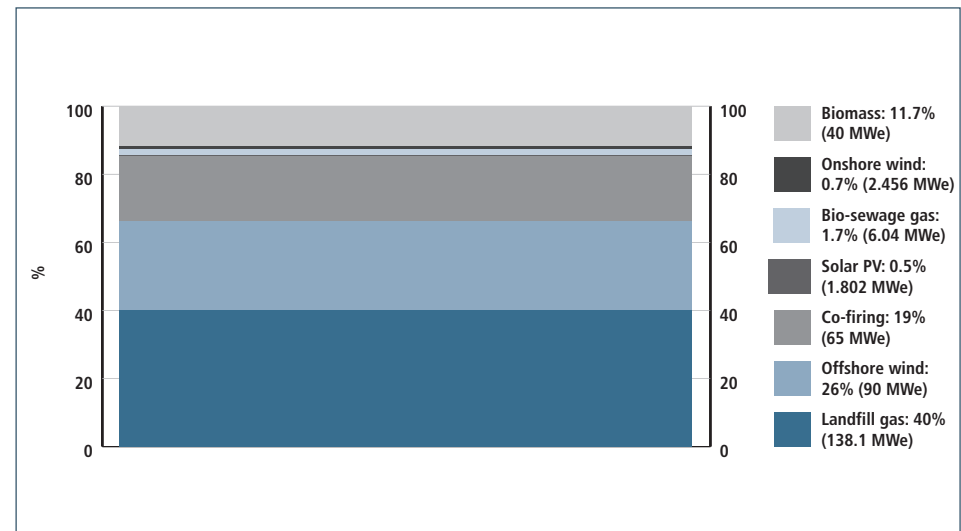
- In June 2007, the total renewable capacity installed in the South East was 343.4 MWe. This represents an increase of 10 MWe since June 2006. The levels of renewable capacity installed in the South East have increased by 42% since June 2005. This is mainly because of an increase in wind power capacity.
- A large proportion of the total renewable capacity installed is from landfill gas (40%), offshore wind (26%), co-firing (19%) and biomass (12%).



**Map 23 Renewable energy capacity installed (kWh), 2006**

Source: SEE-Stats.

Note: Data presented does not include landfill gas, offshore wind, wave and tidal.



**Figure 44 Installed renewable capacity (MWe), 2007**

Source: SEE-Stats ([www.see-stats.org](http://www.see-stats.org)).

## Indicator 77

### Electricity output from renewable sources, GWh (gigawatt hours).

#### Highlights

- In 2006, renewable energy accounts for 2,050.40 GWh<sup>3</sup> of the region's electricity, representing an increase of 1,179.90 GWh since 2003.
- In terms of proportions, other biofuels (including biofuels co-fired with fossil fuels) represent 47% of the total while landfill represent 41% and wind and wave 11%. The largest growth since 2003 was in other biofuels where the total increased from 257.90 to 970.70 GWh.
- In 2006, data from the BERR shows that the South East region is the largest producer of renewable electricity of all regions (this does not include offshore data).

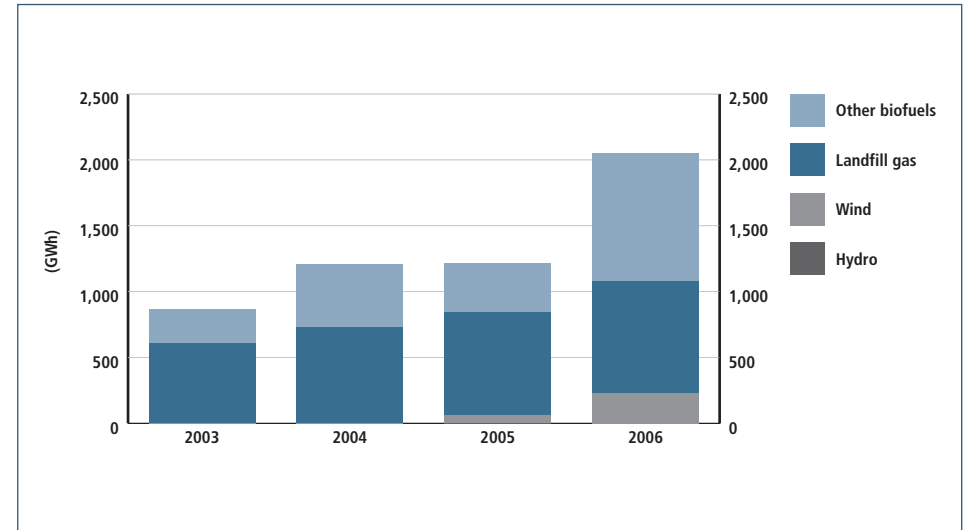
#### Commentary

Deployment of renewable energy in the South East is progressing very slowly and falling behind the trajectory planned for in RPG9 and the draft South East Plan. The main resources being exploited include landfill gas, biomass (including co-firing in coal-fired power stations) and wind. There is a large amount of capacity that is still at the planned (either with planning or other approval) but not yet operational stage, including major onshore and offshore wind farms.

The uptake of energy from renewable sources is improving in the South East. Improvements are being achieved by developing the proportion of energy from landfill gas, biomass and offshore wind. Progress has been made but there is scope for further uptake of renewable technologies such as on-shore wind.

The performance of individual sub-regions with regard to their installed renewable energy capacity varies significantly. Most capacity is in Kent, Oxfordshire and Berkshire (wind, biomass co-firing and combustion) but elsewhere there has been much less progress.

Continued deployment of decentralised energy, especially fuelled by biomass, together with wind and solar energy, is needed. Recent national policy and incentives such as PPS1 and the Energy Bill require continued growth in renewables across the country.



**Figure 45 Generation of electricity from renewable sources (GWh), 2003-06**

Source: Energy Trends 2007, BERR (Department for Business, Enterprise and Regulatory Reform).

<sup>3</sup> This figure is equivalent to 2,050,400 MWh.

# Climate change

## IRF OBJECTIVE:

**12 To address the causes of climate change through reducing emissions of greenhouse gases and ensure that the South East is prepared for its impacts.**

## Indicator 78

**Emissions of basket of greenhouse gases from energy consumption, transport, land use and waste management.**

### Highlights

- In 2005, a total of 67,016 kilotonnes of CO<sub>2</sub> emissions were produced in the South East.
- The principal sources of CO<sub>2</sub> emissions are from the usage of fuel in industrial, domestic and road transport sectors, each of which contributed more than 20,000 kilotonnes of CO<sub>2</sub> in 2005.
- Land use change actually resulted in a net loss of CO<sub>2</sub> in 2005, albeit at a negligible level (185 kilotonnes).
- These 2005 statistics are estimates and labelled as experimental. Owing to a series of methodological improvements since the previous year, data is not comparable to last year's monitoring report.

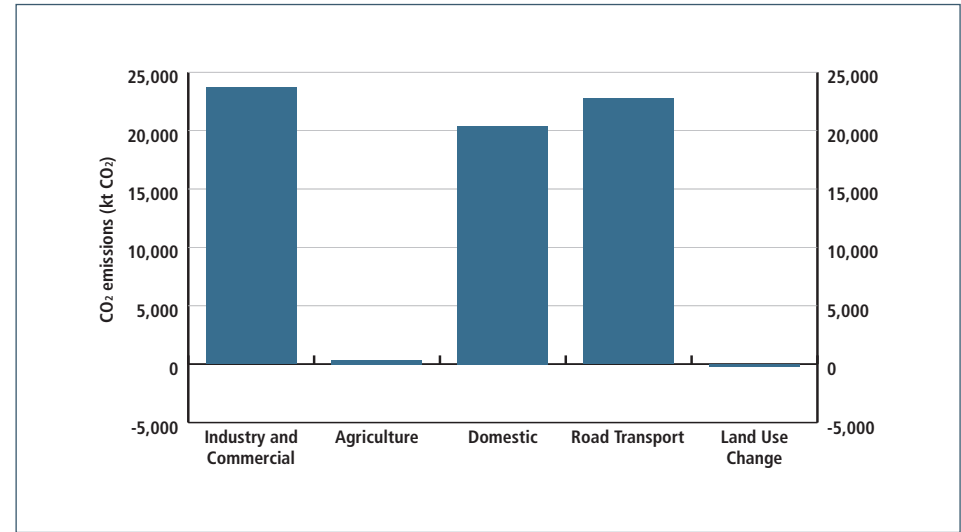
### Commentary

The Department for Environment Food and Rural Affairs (Defra) stated that estimates will continue to be produced annually in future years. The 2006 dataset will no longer be labelled as "experimental" and will be given full National Statistics status in 2008.

From next year, the data will be consistent from one year to the next. It has not been possible for Defra to make these improvements in time for the release of the 2005 dataset.

New draft planning guidance (supplement to PPS1) promotes the concept of regional trajectories of carbon emissions for inclusion in the regional spatial strategies. If implemented, this will provide the basis for future monitoring.

Work is also underway at the Assembly, and in partnership with SEEDA and WWF, to set out a routemap to achieving the Ecological Footprint and greenhouse gas reduction targets set out in the South East Plan.



**Figure 46 CO<sub>2</sub> emissions (kilotonnes), 2005**

Source: Defra, AEA Energy and Environment, 2007.

Note: These figures are experimental.

Industrial and commercial: includes diesel railway.

Agricultural: includes agricultural oil and fuel.

Domestic: domestic electricity, domestic gas, domestic oil, domestic solid fuel, domestic home and garden machinery, domestic products.

Road transport: petrol, diesel and other.

Land use change: CO<sub>2</sub> emissions from agricultural soils and deforestation, other land use change emissions and removals.